New Graph

[7, 7, 7, 6, A, A, B, C, B, C, 1, 5], [6, 8, 8, 7, 3, 3, A, B, C, 2, 4, 9]

π = [1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 2, 2]

POSSIBLE RANKS

1 x 16
2 x 8
4 x 4

BASE DETERMINANT 3762658697/34359738368, .1095077808

NullSpace of Δ

{1, 4}, {2, 3, 10, 11, 12}, {5, 9}, {6, 7, 8}

1 . Coloring, {}

$\Omega p(\Delta)=0$: $p = s^2 - 3s^3 - 6s^4 - 8s^5 - 24s^6 - 32s^7 - 32s^8$

R: [7, 7, 7, 6, A, A, B, C, B, C, 1, 5]
B: [6, 8, 8, 7, 3, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	4 *vs* 7	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$[y_2, 0, 0, 0, y_1, -y_1 + y_3, y_4, 0, 0, y_2, y_3, y_4]$

$p' = s^3 - s^6$ $p = -s^2 + s^5$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$[0, 3y_1, -3y_1 - 3y_3 + 5y_5 - 3y_7 + 8y_8, -3y_2 - 3y_4 + 8y_5 - 3y_6 + 5y_8, 0, 3y_2, 3y_3, 3y_4, 3y_5, 3y_6, 3y_7, 3y_8]$

$p' = s^3 - s^9$ $p = s^3 - s^9$

$$M \setminus ; N$$

$$\left[\begin{array}{cccccccccccc}
0 & 0 & 0 & 0 & 384 & 60 & 0 & 0 & 0 & 332 & 0 & 428 \\
0 & 0 & 0 & 308 & 0 & 166 & 0 & 286 & 0 & 223 & 0 & 221 \\
0 & 0 & 0 & 332 & 0 & 222 & 0 & 194 & 0 & 349 & 0 & 107 \\
0 & 308 & 332 & 0 & 0 & 0 & 60 & 0 & 384 & 0 & 120 & 0 \\
384 & 0 & 0 & 0 & 0 & 0 & 378 & 0 & 0 & 0 & 442 & 0 \\
60 & 166 & 222 & 0 & 0 & 0 & 320 & 0 & 214 & 0 & 222 & 0 \\
0 & 0 & 0 & 60 & 378 & 320 & 0 & 320 & 0 & 446 & 0 & 884 \\
0 & 286 & 194 & 0 & 0 & 0 & 320 & 0 & 164 & 0 & 240 & 0 \\
0 & 0 & 0 & 384 & 0 & 214 & 0 & 164 & 0 & 442 & 0 & 0 \\
332 & 223 & 349 & 0 & 0 & 0 & 446 & 0 & 442 & 0 & 616 & 0 \\
0 & 0 & 0 & 120 & 442 & 222 & 0 & 240 & 0 & 616 & 0 & 768 \\
428 & 221 & 107 & 0 & 0 & 0 & 884 & 0 & 0 & 0 & 768 & 0
\end{array}\right]
\left[\begin{array}{cccccccccccc}
0 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1 \\
0 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1 \\
0 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1 \\
1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 0 \\
1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 0 \\
1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 0 \\
0 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1 \\
1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 0 \\
0 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1 \\
1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 0 \\
0 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1 \\
1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 0
\end{array}\right]$$

$\tau = 72$, $r' = 1/2$

R: [7, 7, 7, 6, A, A, B, C, B, C, 1, 5]
B: [6, 8, 8, 7, 3, 3, A, B, C, 2, 4, 9]

Ranges

Action of R on ranges, [[24], [24], [25], [18], [20], [24], [25], [25], [18], [20], [24], [25], [25], [18], [22], [22], [2], [29], [3], [29], [29], [3], [30], [30], [19], [30], [4], [30], [4], [1]]
Action of B on ranges, [[11], [11], [6], [21], [23], [12], [27], [7], [26], [23], [12], [27], [7], [26], [24], [25], [15], [13], [10], [13], [14], [10], [29], [8], [28], [30], [17], [9], [5], [16]]

Cycles: R , {{1, 7, 11}, {5, 10, 12}}, B , {{9, 12}, {2, 4, 7, 8, 10, 11}}

β({1, 5}) = 12/301
β({1, 6}) = 15/2408
β({1, 10}) = 83/2408
β({1, 12}) = 107/2408
β({2, 4}) = 11/344
β({2, 6}) = 83/4816
β({2, 8}) = 143/4816
β({2, 10}) = 223/9632
β({2, 12}) = 221/9632
β({3, 4}) = 83/2408
β({3, 6}) = 111/4816
β({3, 8}) = 97/4816
β({3, 10}) = 349/9632
β({3, 12}) = 107/9632
β({4, 7}) = 15/2408
β({4, 9}) = 12/301
β({4, 11}) = 15/1204
β({5, 7}) = 27/688
β({5, 11}) = 221/4816
β({6, 7}) = 10/301
β({6, 9}) = 107/4816
β({6, 11}) = 111/4816
β({7, 8}) = 10/301
β({7, 10}) = 223/4816
β({7, 12}) = 221/2408
β({8, 9}) = 41/2408

β({8, 11}) = 15/602
β({9, 10}) = 221/4816
β({10, 11}) = 11/172
β({11, 12}) = 24/301

Partitions
α([{1, 2, 3, 7, 9, 11}, {4, 5, 6, 8, 10, 12}]) = 1/1

b1 = {1, 2, 3, 7, 9, 11} , b2 = {4, 5, 6, 8, 10, 12}

Action of R and B on the blocks of the partitions: = [1, 2] [2, 1]
with invariant measure [1, 1]

N by blocks, check: true . See partition graph.

See level-2 partition graph.

Right Group	
Coloring	{}
Rank	2
R,B	[7, 7, 7, 6, A, A, B, C, B, C, 1, 5], [6, 8, 8, 7, 3, 3, A, B, C, 2, 4, 9]
π_2	[0, 0, 0, 384, 60, 0, 0, 0, 332, 0, 428, 0, 308, 0, 166, 0, 286, 0, 223, 0, 221, 332, 0, 222, 0, 194, 0, 349, 0, 107, 0, 0, 60, 0, 384, 0, 120, 0, 0, 378, 0, 0, 0, 442, 0, 320, 0, 214, 0, 222, 0, 320, 0, 446, 0, 884, 164, 0, 240, 0, 442, 0, 0, 616, 0, 768]
u_2	[0, 0, 1, 1, 1, 0, 1, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1, 0, 1, 0, 1, 1, 1, 1, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 1, 0, 1] (dim 1)
wpp	[6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6]

2 . Coloring, {2}

R: [7, 8, 7, 6, A, A, B, C, B, C, 1, 5]
B: [6, 7, 8, 7, 3, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[3\,y_3, 0, 0, 0, 3\,y_2, -3\,y_2 + 3\,y_4, 3\,y_1, -3\,y_2 + 3\,y_4, 0, 3\,y_2, -3\,y_3 + 7\,y_4 - 3\,y_1, 3\,y_4]$$

$p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = s^2 - s^5$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$[0, -3y_1 - 3y_7 - 3y_6 - 3y_5 - 3y_4 + 13y_3 - 3y_2 - 3y_8 + 13y_9, 3y_1, 3y_7, 0, 3y_6, 3y_5, 3y_4, 3y_3, 3y_2, 3y_8, 3y_9]$

$p = -s^6 - s^7 + s^9 + s^{10}$

3 . Coloring, {3}

R: [7, 7, 8, 6, A, A, B, C, B, C, 1, 5]
B: [6, 8, 7, 7, 3, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$[-3y_1 + 7y_2 - 3y_4, 0, 0, 0, 3y_3, -3y_3 + 3y_2, 3y_1, -3y_3 + 3y_2, 0, 3y_3, 3y_4, 3y_2]$

$p = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$[0, -3y_1 - 3y_3 + 5y_5 - 3y_7 + 8y_8, -3y_2 - 3y_4 + 8y_5 - 3y_6 + 5y_8, 3y_2, 0, 3y_1, 3y_3, 3y_4, 3y_5, 3y_6, 3y_7, 3y_8]$

$p = -s^3 + s^9$ $p' = -s^3 + s^9$

4 . Coloring, {4}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, B, C, B, C, 1, 5]
B: [6, 8, 8, 6, 3, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 6	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[16\,y_1 + 7\,y_3 - 27\,y_2,\ 0,\ 0,\ 0,\ 4\,y_1 + 3\,y_3 - 7\,y_2,\ 0,\ 2\,y_1,\ 0,\ 0,\ 10\,y_1 + 4\,y_3 - 16\,y_2,\ 2\,y_3,\ 2\,y_2]$$

$p' = s^2 - s^5$ $p' = s - s^4$ $p = -s + s^4$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0,\ -3\,y_1 - 3\,y_3 - 3\,y_4 - 3\,y_2 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8,\ 3\,y_1,\ 3\,y_3,\ 0,\ 3\,y_4,\ 0,\ 3\,y_2,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$p = -s^3 - s^4 + s^8 + s^9$

5 . Coloring, {5}

$\Omega p(\Delta)=0$: $p = 6s^2 - s^3 - 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, C, B, C, 1, 5]
B: [6, 8, 8, 7, A, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_8,\ 0,\ y_1,\ 0,\ y_2,\ y_3,\ y_4,\ 0,\ 0,\ y_5,\ y_6,\ y_7]$$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0,\ -2\,y_3 + 11\,y_2 + 11\,y_1 - 2\,y_6 + 11\,y_5 - 39\,y_4 + 11\,y_7 - 2\,y_8,\ 2\,y_3,\ 2\,y_2,\ 0,\ 2\,y_1,\ 2\,y_6,\ 2\,y_5,\ 2\,y_4,\ 2\,y_7,\ 2\,y_8,\ 3\,y_2 + 3\,y_1 + 3\,y_5 - 11\,y_4 + 3\,y_7]$$

$p' = -s^3 + s^9$ $p = -s^3 + s^9$

6 . Coloring, {6}

$\Omega p(\Delta)=0$: $p = -2s^2 - 5s^3 + 2s^4 + 16s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, B, C, B, C, 1, 5]
B: [6, 8, 8, 7, 3, A, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[y_2, 0, y_1, 0, -2y_2 - 2y_1 + 5y_3 + 5y_4 - 4y_5, y_3, 4y_2 + 4y_1 - 6y_3 - 6y_4 + 5y_5, 0, 0, 5y_2 + 5y_1 - 8y_3 - 8y_4 + 6y_5, y_4, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, -6y_1 - 3y_5 + 5y_4 - 3y_3 + 8y_7, 3y_1, -3y_6 + 8y_4 - 3y_2 + 5y_7, 0, 3y_1, 3y_5, 3y_6, 3y_4, 3y_2, 3y_3, 3y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$ $p' = -s^3 + s^9$

7 . Coloring, {7}

R: [7, 7, 7, 6, A, A, A, C, B, C, 1, 5]
B: [6, 8, 8, 7, 3, 3, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_6, 0, 0, 0, y_5, y_4, y_3, 0, 0, y_2, y_4, y_1]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 6\,y_1, -3\,y_3 - 9\,y_1 - 3\,y_2 - 3\,y_4 + 13\,y_5 - 3\,y_6 + 13\,y_7, 3\,y_3, 0, 3\,y_1, 3\,y_2, 3\,y_4, 3\,y_5, 0, 3\,y_6, 3\,y_7]$$

$p = -s^4 - s^5 + s^7 + s^8$ $p = s^4 - s^6 - s^7 + s^9$

8 . Coloring, {8}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, B, B, B, C, 1, 5]
B: [6, 8, 8, 7, 3, 3, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	4 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[2\,y_1, 0, 0, 0, 4\,y_1 - 2\,y_2 - 7\,y_3 + 3\,y_4, 2\,y_2, 16\,y_1 - 27\,y_3 + 7\,y_4, 0, 0, 2\,y_3, 2\,y_4, 10\,y_1 - 16\,y_3 + 4\,y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, y_4, 2\,y_2, 0, y_2, 2\,y_4 - 3\,y_2, y_3, y_6, y_7, 0, y_5]$$

$p' = -s^6 + s^8$ $p = s^6 - s^8$

» SYNC'D !RANK'D

9 . Coloring, {9}

$\Omega p(\Delta)=0$: $p = -9s^3 - 2s^4 - 16s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, B, C, C, C, 1, 5]
B: [6, 8, 8, 7, 3, 3, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[2\,y_1,\ 0,\ 0,\ 0,\ -27\,y_1 - 2\,y_2 + 16\,y_4 + 7\,y_3,\ 2\,y_2,\ -7\,y_1 + 4\,y_4 + 3\,y_3,\ 0,\ 0,\ 2\,y_4,\ -16\,y_1 + 10\,y_4 + 4\,y_3,\ 2\,y_3\ ]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0,\ y_3,\ y_1,\ y_2,\ 0,\ y_8,\ y_7,\ y_6,\ 2\,y_8,\ y_5,\ y_4,\ 0]$$

$p = s^3 - s^9$

10 . Coloring, {10}

R: [7, 7, 7, 6, A, A, B, C, B, 2, 1, 5]
B: [6, 8, 8, 7, 3, 3, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1,\ y_7,\ 0,\ 0,\ y_2,\ y_6,\ y_3,\ 0,\ 0,\ y_4,\ y_5,\ y_6]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_4, 0, y_2, y_3, y_5, y_6, y_9, y_7, y_8]$$

11 . Coloring, {11}

R: [7, 7, 7, 6, A, A, B, C, B, C, 4, 5]
B: [6, 8, 8, 7, 3, 3, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_5 - 3\,y_3 - 3\,y_4 + 13\,y_6 - 3\,y_7 - 3\,y_8 + 13\,y_9, 3\,y_1, 3\,y_2, 0, 0, 3\,y_5, 3\,y_3, 3\,y_4, 3\,y_6, 3\,y_7, 3\,y_8, 3\,y_9]$$

$$p = -s^4 - s^5 + s^9 + s^{10}$$

12 . Coloring, {12}

R: [7, 7, 7, 6, A, A, B, C, B, C, 1, 9]
B: [6, 8, 8, 7, 3, 3, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_4, 0, 0, 0, 0, y_1, y_2, 0, y_3, y_6, y_5, y_7]$$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_9, y_5, y_6, 0, y_7, y_8, y_9]$$

$p = -s^4 + s^{10}$

13 . Coloring, {2, 3}

R: [7, 8, 8, 6, A, A, B, C, B, C, 1, 5]
B: [6, 7, 7, 7, 3, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[-18 y_1 + 14 y_2 + 9 y_4 + 2 y_3, 0, 0, 0, y_1, -5 y_1 + 4 y_2 + 2 y_4 + y_3, y_2, -10 y_1 + 8 y_2 + 4 y_4 + 2 y_3, 0, y_4, y_3, -16 y_1 + 13 y_2 + 8 y_4 + 2 y_3]$$

$p' = -s^3 + s^6$ $p = -s^2 + s^8$ $p = -s^2 + s^5$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -6 y_1 - 6 y_5 - 3 y_2 + 13 y_3 - 3 y_4 + 13 y_6, 3 y_1, 3 y_1, 0, 3 y_5, 3 y_2, 0, 3 y_3, 3 y_4, 3 y_5, 3 y_6]$$

$p' = -s^3 - s^4 + s^6 + s^7$ $p = -s^3 + s^9$ $p = -s^3 - s^4 + s^6 + s^7$

14 . Coloring, {2, 4}

R: [7, 8, 7, 7, A, A, B, C, B, C, 1, 5]
B: [6, 7, 8, 6, 3, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[y_2, 0, 0, 0, y_2, 0, y_1 + y_3, y_1, 0, y_3, y_4, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[0, -3y_7 + 5y_5 - 3y_4 + 5y_2, 3y_1, -3y_1 - 3y_8 - 3y_6 - 3y_3 + 8y_5 + 8y_2, 0, 3y_8, 3y_7, 3y_6, 3y_5, 3y_4, 3y_3, 3y_2]$$

$p = s - 2s^3 - 3s^4 - 2s^5 - s^6 + 2s^8 + 3s^9 + 2s^{10}$ $p = -s - s^2 + s^4 + s^5 + s^6 + s^7 - s^9 - s^{10}$

15 . Coloring, {2, 5}

R: [7, 8, 7, 6, 3, A, B, C, B, C, 1, 5]
B: [6, 7, 8, 7, A, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_8, 0, y_7, 0, y_6, y_5, y_4, y_5, 0, y_3, y_2, y_1]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3y_1 - 3y_9 - 3y_4 - 3y_5 - 3y_6 + 13y_7 - 3y_8 - 3y_3 + 13y_2, 3y_1, 3y_9, 0, 3y_4, 3y_5, 3y_6, 3y_7, 3y_8, 3y_3, 3y_2]$$

$p = -s^6 - s^7 + s^9 + s^{10}$

16 . Coloring, {2, 6}

R: [7, 8, 7, 6, A, 3, B, C, B, C, 1, 5]
B: [6, 7, 8, 7, 3, A, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[-2\,y_1 - 20\,y_3 + 16\,y_2 - 27\,y_4 + 7\,y_5,\ 0,\ 2\,y_1,\ 0,\ -12\,y_3 + 10\,y_2 - 16\,y_4 + 4\,y_5,\ 2\,y_3,\ 2\,y_2,\ 2\,y_3,\ 0,\ 2\,y_4,\ 2\,y_5,\ -4\,y_3 + 4\,y_2 - 7\,y_4 + 3\,y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0,\ -6\,y_2 - 3\,y_1 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8,\ 3\,y_2,\ 3\,y_1,\ 0,\ 3\,y_2,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$ $p = s^5 - s^7 - s^8 + s^{10}$

17 . Coloring, {2, 7}

R: [7, 8, 7, 6, A, A, A, C, B, C, 1, 5]
B: [6, 7, 8, 7, 3, 3, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_6,\ 0,\ 0,\ 0,\ y_1,\ y_5,\ y_2,\ y_5,\ 0,\ y_3,\ y_5,\ y_4]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 6\,y_2, -3\,y_1 - 9\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 + 13\,y_7, 3\,y_1, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 0, 3\,y_6, 3\,y_7]$$

$p = -s^4 - s^5 + s^7 + s^8 \quad p = s^4 - s^6 - s^7 + s^9$

18 . Coloring, {2, 8}

R: [7, 8, 7, 6, A, A, B, B, B, C, 1, 5]
B: [6, 7, 8, 7, 3, 3, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[-27\,y_4 - 20\,y_3 + 7\,y_2 + 16\,y_1, 0, 0, 0, 2\,y_4, 2\,y_3, 2\,y_2, 2\,y_3, 0, -16\,y_4 - 12\,y_3 + 4\,y_2 + 10\,y_1, 2\,y_1, -7\,y_4 - 4\,y_3 + 3\,y_2 + 4\,y_1]$$

$p = -s^2 + s^8 \quad p' = -s^3 + s^6 \quad p = -s^2 + s^5 \quad p' = s^2 - s^5$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, y_5, y_4, 2\,y_3, 0, y_3, y_2, y_1, y_4 - y_3 - y_1 + y_6, -y_5 - y_2 + 2\,y_4 - 2\,y_3 + 2\,y_6, 0, y_6]$$

$p' = s^4 - s^7 \quad p = s^4 - s^7 \quad p' = s^5 - s^8$

19 . Coloring, {2, 9}

R: [7, 8, 7, 6, A, A, B, C, C, C, 1, 5]
B: [6, 7, 8, 7, 3, 3, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[y_3, 0, 0, 0, 5\,y_3 - 2\,y_1 - y_2 - y_4, y_1, y_3, y_1, 0, y_2, y_3, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, 2\,y_4, y_7, y_8, 0]$$

$p = -s^6 + s^9$

20 . Coloring, {2, 10}

R: [7, 8, 7, 6, A, A, B, C, B, 2, 1, 5]
B: [6, 7, 8, 7, 3, 3, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[7\,y_1, 9\,y_1 - 7\,y_2 - 7\,y_7 + 9\,y_6 - 7\,y_5 - 7\,y_4 + 9\,y_3 - 7\,y_8, 0, 0, 7\,y_2, 7\,y_7, 7\,y_6, 7\,y_5, 0, 7\,y_4, 7\,y_3, 7\,y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_1 - y_2 + y_8 - y_7 - y_6 - y_5 + y_4 + y_3, 0, y_2, y_8, y_7, y_6, y_5, y_4, y_3]$$

$p = -s^8 + s^9$

21 . Coloring, {2, 11}

R: [7, 8, 7, 6, A, A, B, C, B, C, 4, 5]
B: [6, 7, 8, 7, 3, 3, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, 2\,y_4, y_4, 0, y_5, y_7, y_6]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[7\,y_3 - 2\,y_1 - 2\,y_2 - 2\,y_4 - 2\,y_5, 2\,y_3, 2\,y_1, 0, 0, 2\,y_2, 2\,y_3, 2\,y_4, 3\,y_3 - 2\,y_6, 2\,y_3, 2\,y_5, 2\,y_6]$$

$p = -s - s^2 + s^6 + s^7$ $p = s - s^3 - s^6 + s^8$ $p = -s - s^4 + s^6 + s^9$ $p = s - s^5 - s^6 + s^{10}$

22 . Coloring, {2, 12}

R: [7, 8, 7, 6, A, A, B, C, B, C, 1, 9]
B: [6, 7, 8, 7, 3, 3, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_9, y_5, y_6, 0, y_7, y_8, y_9]$$

$p = -s^7 + s^{10}$

23 . Coloring, {3, 4}

R: [7, 7, 8, 7, A, A, B, C, B, C, 1, 5]
B: [6, 8, 7, 6, 3, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[y_4, 0, 0, 0, y_4, 0, y_1 + y_2, y_1, 0, y_2, y_3, y_3]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, -3\,y_1 - 3\,y_2 + 5\,y_4 - 3\,y_6 + 8\,y_7, 3\,y_8, -3\,y_8 - 3\,y_3 + 8\,y_4 - 3\,y_5 + 5\,y_7, 0, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p' = -s + s^9$ $p = -s + s^9$

24 . Coloring, {3, 5}

R: [7, 7, 8, 6, 3, A, B, C, B, C, 1, 5]
B: [6, 8, 7, 7, A, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[7\,y_1, 0, 9\,y_1 - 7\,y_7 - 7\,y_8 + 9\,y_5 - 7\,y_6 - 7\,y_2 + 9\,y_3 - 7\,y_4, 0, 7\,y_7, 7\,y_8, 7\,y_5, 7\,y_6, 0, 7\,y_2, 7\,y_3, 7\,y_4]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$[0, -3\,y_4 - 3\,y_3 + 5\,y_5 - 3\,y_7 + 8\,y_6, -3\,y_1 - 3\,y_2 + 8\,y_5 - 3\,y_8 + 5\,y_6, 3\,y_1, 0, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_5, 3\,y_8, 3\,y_7, 3\,y_6]$

$p = -s^3 + s^9$ $p' = s^3 - s^9$

25 . Coloring, {3, 6}

R: [7, 7, 8, 6, A, 3, B, C, B, C, 1, 5]
B: [6, 8, 7, 7, 3, A, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 6

See Matrix

$[4\,y_5 - 16\,y_4 + 10\,y_3 + 10\,y_2 + 4\,y_1, 0, -2\,y_6 + 7\,y_5 - 27\,y_4 + 16\,y_3 + 16\,y_2 + 7\,y_1, 0, 2\,y_6, 2\,y_5, 2\,y_4, 2\,y_3, 0, 2\,y_2, 3\,y_5 - 7\,y_4 + 4\,y_3 + 4\,y_2 + 3\,y_1, 2\,y_1]$

$p = s^4 - s^7$ $p' = s^4 - s^7$ $p' = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$[0, -3\,y_7 - 3\,y_6 + 5\,y_4 - 3\,y_2 + 8\,y_1, 3\,y_7, -3\,y_7 - 3\,y_5 + 8\,y_4 - 3\,y_3 + 5\,y_1, 0, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_1]$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$ $p' = -s^3 + s^9$

26 . Coloring, {3, 7}

R: [7, 7, 8, 6, A, A, A, C, B, C, 1, 5]
B: [6, 8, 7, 7, 3, 3, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_6, 0, 0, 0, y_5, y_4, y_3, y_4, 0, y_2, y_4, y_1]$$

$p' = -s^4 + s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 6\,y_4, 3\,y_1, -9\,y_1 - 3\,y_5 + 13\,y_6 - 3\,y_2 + 13\,y_3, 0, 3\,y_4, 3\,y_5, 6\,y_1 - 9\,y_4, 3\,y_6, 0, 3\,y_2, 3\,y_3]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 + s^9$

27 . Coloring, {3, 8}

R: [7, 7, 8, 6, A, A, B, B, B, C, 1, 5]
B: [6, 8, 7, 7, 3, 3, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[2\,y_1, 0, 0, 0, 10\,y_2 + 8\,y_3 - 16\,y_4 + 4\,y_1, 2\,y_3, 2\,y_2, 2\,y_3, 0, 3\,y_1 + 4\,y_2 + 4\,y_3 - 7\,y_4, 16\,y_2 + 16\,y_3 - 27\,y_4 + 7\,y_1, 2\,y_4]$$

$p = -s^2 + s^5$ $p' = -s^3 + s^6$ $p' = -s^2 + s^5$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_1, y_2, 2\,y_3, 0, y_3, y_4, y_5, y_7, y_6, 0, y_8]$$

$p = -s^7 + s^9$

28 . Coloring, {3, 9}

R: [7, 7, 8, 6, A, A, B, C, C, C, 1, 5]
B: [6, 8, 7, 7, 3, 3, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_3, 0, 0, 0, 5\,y_3 - 2\,y_1 - y_2 - y_4, y_1, y_3, y_1, 0, y_2, y_3, y_4]$$

$p' = -s^3 + s^6$ $p = -s^2 + s^5$ $p = -s^2 + s^8$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, 2\,y_4, y_7, y_8, 0]$$

$p = -s^3 + s^9$

29 . Coloring, {3, 10}

R: [7, 7, 8, 6, A, A, B, C, B, 2, 1, 5]
B: [6, 8, 7, 7, 3, 3, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, y_8, 0, 0, y_6, y_5, y_4, y_5, 0, y_1, y_2, y_3]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_3 + y_7, y_1, 0, y_3, y_2, y_3, y_4, y_5, y_7, y_6]$$

$p = -s^6 + s^8$ $p' = -s^6 + s^8$

30 . Coloring, {3, 11}

R: [7, 7, 8, 6, A, A, B, C, B, C, 4, 5]
B: [6, 8, 7, 7, 3, 3, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_4, 2\,y_3, y_3, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[-3\,y_1 - 3\,y_4 + 8\,y_5 - 3\,y_6 + 5\,y_8, -3\,y_2 - 3\,y_3 + 5\,y_5 - 3\,y_7 + 8\,y_8, 3\,y_1, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8]$$

$p = -s + s^9$ $p' = -s + s^9$

31 . Coloring, {3, 12}

R: [7, 7, 8, 6, A, A, B, C, B, C, 1, 9]
B: [6, 8, 7, 7, 3, 3, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_6, y_7, y_6, y_3, y_4, y_5, y_2]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 + y_2 - y_3 - y_4 + y_5 + y_6 - y_7, y_1, y_2, y_3, y_8, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$ $p = -s^4 + s^{10}$

32 . Coloring, {4, 5}

$\Omega p(\Delta)=0$: $p = 3s^2 + 2s^3 - 8s^5 + 32s^7$ $p' = 3s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, B, C, B, C, 1, 5]
B: [6, 8, 8, 6, A, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_6, 0, y_2, 0, y_3, 0, 0, y_4, y_5, y_7]$$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, -3y_1 - 3y_2 - 3y_5 - 3y_6 + 13y_7 - 3y_8 - 3y_3 + 13y_4, 3y_1, 3y_2, 0, 3y_5, 0, 3y_6, 3y_7, 3y_8, 3y_3, 3y_4]$$

$p = -s^3 - s^4 + s^8 + s^9$

33 . Coloring, {4, 6}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 - 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^4 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, 3, B, C, B, C, 1, 5]
B: [6, 8, 8, 6, 3, A, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_3, 0, y_1, 0, y_2, 0, 4\,y_3 + 4\,y_1 + 5\,y_2 - 6\,y_4, 0, 0, -2\,y_3 - 2\,y_1 - 4\,y_2 + 5\,y_4, y_4, 5\,y_3 + 5\,y_1 + 6\,y_2 - 8\,y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_2 + 5\,y_4 - 3\,y_6 + 8\,y_7, 3\,y_1, -3\,y_3 + 8\,y_4 - 3\,y_5 + 5\,y_7, 0, 3\,y_2, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

34 . Coloring, {4, 7}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, A, C, B, C, 1, 5]
B: [6, 8, 8, 6, 3, 3, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, 0, y_3, 0, 0, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 + 13\,y_7, 3\,y_1, 3\,y_2, 0, 3\,y_3, 0, 3\,y_4, 3\,y_5, 0, 3\,y_6, 3\,y_7]$$

$p = -s^2 - s^3 + s^7 + s^8$

35 . Coloring, {4, 8}

$\Omega p(\Delta)=0$: $p' = s^2 - 16s^4 - 8s^5 + 16s^6 + 64s^7$ $p' = s^3 + 4s^4 - 8s^6 - 16s^7$ $p = s^2 + 56s^5 + 16s^6 - 64s^7 - 256s^8$

R: [7, 7, 7, 7, A, A, B, B, B, C, 1, 5]
B: [6, 8, 8, 6, 3, 3, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	3 *vs* 6	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_3, 0, 0, 0, y_2, 0, y_1, 0, 0, y_2, -y_3 + 5\,y_2 - y_1, y_2]$$

$p' = s - s^4$ $p = s - s^4$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, y_5 + y_2 - y_4, y_3, 0, y_1, 0, y_5, y_2, y_3, 0, y_4]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$ $p = -s^5 + s^8$

36 . Coloring, {4, 9}

$\Omega p(\Delta)=0$: $p' = 3s^2 + 2s^3 + 8s^4 - 8s^5 - 32s^7$ $p = 3s^2 - 10s^3 - 40s^5 + 32s^6 - 32s^7 + 128s^8$

R: [7, 7, 7, 7, A, A, B, C, C, C, 1, 5]
B: [6, 8, 8, 6, 3, 3, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	3 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_1, 0, 0, 0, y_2, 0, y_3, 0, 0, y_1, y_2, y_3]$$

$p = -s + s^4$ $p' = -s + s^4$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, 0, y_5, y_6, y_6, y_7, 0]$$

$p = -s^3 + s^8$

37 . Coloring, {4, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, B, C, B, 2, 1, 5]
B: [6, 8, 8, 6, 3, 3, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, 0, -7y_1 - 7y_2 - 7y_6 + 9y_7 + 9y_3 - 7y_4 + 9y_5, 7y_1, 0, 7y_2, 0, 7y_6, 7y_7, 7y_3, 7y_4, 7y_5]$$

$p = -s^2 - s^3 + s^7 + s^8$

38 . Coloring, {4, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, B, C, B, C, 4, 5]
B: [6, 8, 8, 6, 3, 3, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 6	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 16\,y_1 - 27\,y_2 + 7\,y_3, 4\,y_1 + 3\,y_3 - 7\,y_2, 0, 2\,y_1, 0, 0, 10\,y_1 - 16\,y_2 + 4\,y_3, 2\,y_3, 2\,y_2]$$

$p' = s^2 - s^5$ $p' = s - s^4$ $p = s - s^4$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_6 + 13\,y_7 - 3\,y_4 - 3\,y_5 + 13\,y_8, 3\,y_1, 3\,y_2, 0, 0, 3\,y_3, 0, 3\,y_6, 3\,y_7, 3\,y_4, 3\,y_5, 3\,y_8]$$

$p = -s^3 - s^4 + s^8 + s^9$

39 . Coloring, {4, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, B, C, B, C, 1, 9]
B: [6, 8, 8, 6, 3, 3, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, 0, y_3, y_6, y_4, y_5]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 2\,y_3 - 2\,y_7, y_1, y_2, y_3, y_4, 0, y_5, 0, 2\,y_7, y_6, y_7]$$

$p' = -s^3 + s^8$ $p = -s^3 + s^8$

40 . Coloring, {5, 6}

R: [7, 7, 7, 6, 3, 3, B, C, B, C, 1, 5]
B: [6, 8, 8, 7, A, A, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_4, 0, y_3, 0, y_2, y_1, y_5, 0, 0, 0, y_6, 3\,y_1]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, 11\,y_1 - 2\,y_2 - 2\,y_3 + 11\,y_4 - 39\,y_5 + 11\,y_6 - 2\,y_7, 0, 2\,y_1, 0, 2\,y_2, 2\,y_3, 2\,y_4, 2\,y_5, 2\,y_6, 2\,y_7, 3\,y_1 + 3\,y_4 - 11\,y_5 + 3\,y_6]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

41 . Coloring, {5, 7}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 + 2s^4 + 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, A, C, B, C, 1, 5]
B: [6, 8, 8, 7, A, 3, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_6, y_4, 0, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3y_2 + 3y_6, 3y_2, 3y_3, 0, 3y_6, -6y_2 - 9y_6 - 3y_3 - 3y_1 + 13y_5 - 3y_7 + 13y_4, 3y_1, 3y_5, 3y_6, 3y_7, 3y_4]$$

$p' = s^4 + s^5 - s^7 - s^8$ $p = -s^4 - s^5 + s^7 + s^8$ $p = -s^4 + s^{10}$

42 . Coloring, {5, 8}

R: [7, 7, 7, 6, 3, A, B, B, B, C, 1, 5]
B: [6, 8, 8, 7, A, 3, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, y_2, 4y_2 - 2y_3, 0, 2y_2 - y_3, y_3, y_6, y_4, y_5, 0, y_7]$$

$p = -s^6 + s^8$ $p' = -s^6 + s^8$

43 . Coloring, {5, 9}

R: [7, 7, 7, 6, 3, A, B, C, C, C, 1, 5]
B: [6, 8, 8, 7, A, 3, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, 2\, y_4, y_8, y_7, 0]$$

$p = -s^3 + s^9$

44 . Coloring, {5, 10}

$\Omega p(\Delta)=0$: $p = -6s^2 + 5s^3 - 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, C, B, 2, 1, 5]
B: [6, 8, 8, 7, A, 3, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_5, y_4, 0, -y_5 + y_4 + 3\, y_6, y_6, y_3, 0, 0, -y_5 + y_4 + 2\, y_6, y_2, y_6]$$

$p' = -s^5 + s^8$ $p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

45 . Coloring, {5, 11}

$\Omega p(\Delta)=0$: $p = 6s^2 + 5s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, B, C, B, C, 4, 5]
B: [6, 8, 8, 7, A, 3, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1 + y_2 - y_3 + y_4 + y_5 - y_6 - y_7, y_1, y_2, y_3, y_4, 0, 0, y_5, y_6, y_7]$$

$p = - s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-3 y_1 - 3 y_2 - 3 y_3 - 3 y_4 - 3 y_5 + 13 y_6 - 3 y_7 - 3 y_8 + 13 y_9, 3 y_1, 3 y_2, 0, 0, 3 y_3, 3 y_4, 3 y_5, 3 y_6, 3 y_7, 3 y_8, 3 y_9]$$

$p = - s^4 - s^5 + s^9 + s^{10}$

46 . Coloring, {5, 12}

$\Omega p(\Delta)=0$: $p = 9s^3 + 2s^4 + 16s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, C, B, C, 1, 9]
B: [6, 8, 8, 7, A, 3, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, y_2, y_1, y_2 + y_8, y_8, y_7, y_6, 0, y_5, y_4, y_8]$$

$p' = -s^3 + s^9$ $p = -s^3 + s^9$

47 . Coloring, {6, 7}

$\Omega p(\Delta)=0$: $p = -2s^2 + 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, A, C, B, C, 1, 5]
B: [6, 8, 8, 7, 3, A, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 10	9 *vs* 10	6 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1 + y_6, 0, y_1, 0, y_2, y_6, y_3, 0, 0, y_4, y_6, y_5]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 3y_1, 3y_2, -3y_1 - 6y_2 - 3y_3 - 3y_4 + 13y_5 - 3y_7 - 3y_8 + 13y_6, 0, 3y_2, 3y_3, 3y_4, 3y_5, 3y_7, 3y_8, 3y_6]$$

$p' = s^5 + s^6 - s^8 - s^9$ $p = s^5 - s^7 - s^8 + s^{10}$

» SYNC'D !RANK'D

48 . Coloring, {6, 8}

R: [7, 7, 7, 6, A, 3, B, B, B, C, 1, 5]
B: [6, 8, 8, 7, 3, A, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[-3\,y_1 - 7\,y_2 + 14\,y_3 + 8\,y_5,\ 0,\ 3\,y_1,\ 0,\ -5\,y_2 + 7\,y_3 + 7\,y_5,\ -7\,y_2 + 8\,y_3 - 3\,y_4 + 14\,y_5,\ 3\,y_2,\ 0,\ 0,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5]$$

$p' = -s^3 + s^6 \quad p = -s^3 + s^6 \quad p' = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0,\ y_1,\ y_2,\ 2\,y_2,\ 0,\ y_2,\ y_7,\ y_3,\ y_4,\ y_5,\ 0,\ y_6]$$

$p' = s^6 - s^8 \quad p = s^6 - s^8$

49 . Coloring, {6, 9}

R: [7, 7, 7, 6, A, 3, B, C, C, C, 1, 5]
B: [6, 8, 8, 7, 3, A, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[-3\,y_1 + 3\,y_2,\ 0,\ 3\,y_1,\ 0,\ 7\,y_2 - 3\,y_5 - 3\,y_4,\ 3\,y_2 - 3\,y_3,\ 3\,y_2,\ 0,\ 0,\ 3\,y_5,\ 3\,y_3,\ 3\,y_4]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_4, y_3, 0, y_4, y_2, y_6, 2\,y_4, y_5, y_7, 0]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

50 . Coloring, {6, 10}

$\Omega p(\Delta)=0$: $p = 2s^2 - 7s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, B, C, B, 2, 1, 5]
B: [6, 8, 8, 7, 3, A, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_4, y_5, 0, y_5 + y_7, y_7, y_2, 0, 0, y_3, y_6, y_7]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_2, y_1, 0, y_2, y_3, y_4, y_5, y_8, y_6, y_7]$$

$p = -s^7 + s^9$

51 . Coloring, {6, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 + 7s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, B, C, B, C, 4, 5]
B: [6, 8, 8, 7, 3, A, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {3, 4, 6, 7, 11}}

See Matrix

$$[0, 0, -3\,y_3 + 5\,y_4 - 3\,y_5 - 3\,y_6 + 5\,y_1 - 3\,y_2 + 5\,y_7, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 0, 0, 3\,y_1, 3\,y_2, 3\,y_7]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_3 + 8\,y_4 - 3\,y_5 + 5\,y_7, -6\,y_2 - 3\,y_1 + 5\,y_4 - 3\,y_6 + 8\,y_7, 3\,y_2, 0, 0, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$ $p' = -s^3 + s^9$

52 . Coloring, {6, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, B, C, B, C, 1, 9]
B: [6, 8, 8, 7, 3, A, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 10	9 *vs* 10	6 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, 0, y_4, y_3, 0, y_2, y_4, y_1, y_5 + 2\,y_4]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_9, y_5, y_6, 0, y_7, y_8, y_9]$$

$p = -s^4 + s^{10}$

» SYNC'D !RANK'D

53 . Coloring, {7, 8}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, A, B, B, C, 1, 5]
B: [6, 8, 8, 7, 3, 3, B, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, y_4, 0, 0, y_5, 2\,y_3, y_6]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 10\,y_2, 11\,y_1 - 15\,y_2 + 11\,y_4 - 5\,y_3 - 5\,y_5 + 11\,y_6 - 5\,y_7, 5\,y_1, 0, 5\,y_2, 5\,y_4, 5\,y_3, 5\,y_5, 0, 5\,y_6, 5\,y_7]$$

$p = -s^4 + s^6 + s^7 - s^9$ $p' = -s^4 - s^5 + s^7 + s^8$

54 . Coloring, {7, 9}

Ωp(Δ)=0: $p = 3s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, A, C, C, C, 1, 5]
B: [6, 8, 8, 7, 3, 3, B, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 6	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\ y_3, 0, 0, 0, y_1, y_3, y_2, 0, 0, y_5, 0, y_4]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\ y_3, y_1, y_2, 0, y_3, y_4, y_5, 2\ y_3, 0, y_6, 0]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$

» SYNC'D !RANK'D

55 . Coloring, {7, 10}

R: [7, 7, 7, 6, A, A, A, C, B, 2, 1, 5]
B: [6, 8, 8, 7, 3, 3, B, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_1, y_2, 0, 0, y_1, y_5, y_3, 0, 0, y_4, y_5, y_5]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, -5\ y_1 - 5\ y_2 - 5\ y_3 - 5\ y_4 + 11\ y_5 - 5\ y_6 + 11\ y_7, 5\ y_1, 0, 5\ y_2, 5\ y_3, 5\ y_4, 5\ y_5, 0, 5\ y_6, 5\ y_7]$$

$p = s^4 + s^5 - s^7 - s^8$

56 . Coloring, {7, 11}

R: [7, 7, 7, 6, A, A, A, C, B, C, 4, 5]
B: [6, 8, 8, 7, 3, 3, B, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, 3\,y_5, 0, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_5 - 9\,y_6 - 3\,y_2 + 13\,y_3 - 3\,y_4 + 13\,y_7, 6\,y_6, 3\,y_1, 0, 0, 3\,y_5, 3\,y_6, 3\,y_2, 3\,y_3, 0, 3\,y_4, 3\,y_7]$$

$p' = -s^2 - s^3 + s^7 + s^8$ $p = -s^2 - s^3 + s^7 + s^8$

57 . Coloring, {7, 12}

R: [7, 7, 7, 6, A, A, A, C, B, C, 1, 9]
B: [6, 8, 8, 7, 3, 3, B, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 - y_4 + y_5 + y_6, 0, 0, 0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_7, y_1, y_2, y_3, y_7, y_4, y_5, 0, 0, y_6, y_7]$$

$p' = -s^5 + s^8 \quad p = -s^5 + s^8$

58 . Coloring, {8, 9}

R: [7, 7, 7, 6, A, A, B, B, C, C, 1, 5]
B: [6, 8, 8, 7, 3, 3, A, C, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_4, 0, 0, 0, y_3, y_2, y_1, 0, 0, y_4, y_3 + y_2, y_1]$$

$p' = s^3 - s^6 \quad p' = s^2 - s^5 \quad p = s^2 - s^5$

Omega Rank for B : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_4, y_3, 0, y_2, y_8, y_7, y_6, y_5, y_{10}, y_9]$$

59 . Coloring, {8, 10}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, B, B, B, 2, 1, 5]
B: [6, 8, 8, 7, 3, 3, A, C, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 2\,y_3, y_3, y_4, 0, 0, y_5, y_6, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_2, 0, y_2, 2\,y_1 - 3\,y_2, y_3, y_5, -3\,y_1 + 4\,y_2 + 2\,y_3, 0, y_4]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$ $p = -s^4 + s^8$

60 . Coloring, {8, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, B, B, B, C, 4, 5]
B: [6, 8, 8, 7, 3, 3, A, C, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 7	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_5, y_1, 2\,y_1 + 4\,y_5 - 3\,y_3, 0, 0, -3\,y_5 + 2\,y_3, y_5, y_6, y_4, y_3, 0, y_2]$$

$p = -s^5 + s^9$ $p' = -s^5 + s^7$ $p = -s^5 + s^7$

61 . Coloring, {8, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, B, B, B, C, 1, 9]

B: [6, 8, 8, 7, 3, 3, A, C, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_1, y_2, 2\,y_4, y_3, y_4, y_5, y_6, 0, y_8, 0, y_7]$$

$p = -s^5 + s^9$

62 . Coloring, {9, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, B, C, C, 2, 1, 5]
B: [6, 8, 8, 7, 3, 3, A, B, B, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_4, y_3, y_5, 0, 0, y_7, y_6, 2\,y_3]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

63 . Coloring, {9, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, B, C, C, C, 4, 5]
B: [6, 8, 8, 7, 3, 3, A, B, B, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_4, 0, 0, y_7, y_5, y_6]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_7, 2\,y_5, y_8, y_6, 0]$$

$p = -s^4 + s^9$

64 . Coloring, {9, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 - s^3 - 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, B, C, C, C, 1, 9]
B: [6, 8, 8, 7, 3, 3, A, B, B, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[7\,y_5, 0, 0, 0, 0, 9\,y_5 + 9\,y_6 - 7\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4, 7\,y_6, 0, 7\,y_1, 7\,y_2, 7\,y_3, 7\,y_4]$$

$p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_5, 2\,y_4, y_4, y_3, y_8, 0, y_7, y_6, 0]$$

$p = -s^3 + s^9$

65 . Coloring, {10, 11}

$\Omega p(\Delta)=0$: $p = s^2 + 3s^3 - 6s^4 + 8s^5 - 24s^6 + 32s^7 - 32s^8$

R: [7, 7, 7, 6, A, A, B, C, B, 2, 4, 5]
B: [6, 8, 8, 7, 3, 3, A, B, C, C, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1 - y_2 - y_6 + y_7 + y_3 - y_4 + y_5, 0, y_1, y_2, y_6, y_7, 0, 0, y_3, y_4, y_5]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-y_1 - y_2 + 2\,y_4 + 2\,y_5 - y_3 - y_6, 0, y_1, 0, 0, y_2, y_4 + y_5 - y_7, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

M \; N

$$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 1164 & 0 & 1260 & 1812 & 0 & 1472 \\ 0 & 0 & 0 & 956 & 0 & 0 & 2328 & 0 & 0 & 1539 & 0 & 885 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1212 & 0 & 1284 & 1305 & 0 & 1907 \\ 0 & 956 & 0 & 0 & 1260 & 1164 & 0 & 0 & 0 & 0 & 2328 & 0 \\ 0 & 0 & 0 & 1260 & 0 & 0 & 2132 & 0 & 0 & 1284 & 0 & 1032 \\ 0 & 0 & 0 & 1164 & 0 & 0 & 478 & 0 & 736 & 1794 & 0 & 1536 \\ 1164 & 2328 & 1212 & 0 & 2132 & 478 & 0 & 478 & 0 & 0 & 3624 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 478 & 0 & 1396 & 1770 & 0 & 2064 \\ 1260 & 0 & 1284 & 0 & 0 & 736 & 0 & 1396 & 0 & 0 & 1032 & 0 \\ 1812 & 1539 & 1305 & 0 & 1284 & 1794 & 0 & 1770 & 0 & 0 & 1912 & 0 \\ 0 & 0 & 0 & 2328 & 0 & 0 & 3624 & 0 & 1032 & 1912 & 0 & 2520 \\ 1472 & 885 & 1907 & 0 & 1032 & 1536 & 0 & 2064 & 0 & 0 & 2520 & 0 \end{bmatrix}$$

$$\begin{bmatrix} 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 \\ 1 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 \end{bmatrix}$$

$\tau = 74$, $r' = 1/2$

R: [7, 7, 7, 6, A, A, B, C, B, 2, 4, 5]
B: [6, 8, 8, 7, 3, 3, A, B, C, C, 1, 9]

Ranges

Action of R on ranges, [[24], [24], [6], [16], [19], [24], [6], [16], [24], [24], [6], [16], [21], [21], [14], [29], [7], [17], [29], [29], [7], [17], [30], [15], [30], [8], [18], [15], [5], [13]]
Action of B on ranges, [[21], [22], [22], [20], [23], [26], [27], [25], [26], [27], [27], [25], [9], [9], [1], [11], [12], [10], [11], [12], [12], [10], [29], [3], [30], [30], [28], [4], [4], [2]]

Cycles: R , {{2, 4, 6, 7, 10, 11}}, B , {{9, 12}, {1, 3, 6, 8, 11}}

$\beta(\{1, 7\}) = 291/11416$
$\beta(\{1, 9\}) = 315/11416$
$\beta(\{1, 10\}) = 453/11416$
$\beta(\{1, 12\}) = 46/1427$
$\beta(\{2, 4\}) = 239/11416$
$\beta(\{2, 7\}) = 291/5708$
$\beta(\{2, 10\}) = 1539/45664$
$\beta(\{2, 12\}) = 885/45664$
$\beta(\{3, 7\}) = 303/11416$
$\beta(\{3, 9\}) = 321/11416$

β({3, 10}) = 1305/45664
β({3, 12}) = 1907/45664
β({4, 5}) = 315/11416
β({4, 6}) = 291/11416
β({4, 11}) = 291/5708
β({5, 7}) = 533/11416
β({5, 10}) = 321/11416
β({5, 12}) = 129/5708
β({6, 7}) = 239/22832
β({6, 9}) = 23/1427
β({6, 10}) = 897/22832
β({6, 12}) = 48/1427
β({7, 8}) = 239/22832
β({7, 11}) = 453/5708
β({8, 9}) = 349/11416
β({8, 10}) = 885/22832
β({8, 12}) = 129/2854
β({9, 11}) = 129/5708
β({10, 11}) = 239/5708
β({11, 12}) = 315/5708

Partitions
α([{1, 2, 3, 5, 6, 8, 11}, {4, 7, 9, 10, 12}]) = 1/1

b1 = {1, 2, 3, 5, 6, 8, 11} , b2 = {4, 7, 9, 10, 12}

Action of R and B on the blocks of the partitions: = [2, 1] [1, 2]
with invariant measure [1, 1]

N by blocks, check: true . See partition graph.

See level-2 partition graph.

Right Group	
Coloring	{10, 11}
Rank	2
R,B	[7, 7, 7, 6, A, A, B, C, B, 2, 4, 5], [6, 8, 8, 7, 3, 3, A, B, C, C, 1, 9]
π_2	[0, 0, 0, 0, 0, 1164, 0, 1260, 1812, 0, 1472, 0, 956, 0, 0, 2328, 0, 0, 1539, 0, 885, 0, 0, 0, 1212, 0, 1284, 1305, 0, 1907, 1260, 1164, 0, 0, 0, 0, 2328, 0, 0, 2132, 0, 0, 1284, 0, 1032, 478, 0, 736, 1794, 0, 1536, 478, 0, 0, 3624, 0, 1396, 1770, 0, 2064, 0, 1032, 0, 1912, 0, 2520]
u_2	[0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 1, 0, 1, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 0, 1] (dim 1)
wpp	[7, 7, 7, 5, 7, 7, 5, 7, 5, 5, 7, 5]

66 . Coloring, {10, 12}

R: [7, 7, 7, 6, A, A, B, C, B, 2, 1, 9]
B: [6, 8, 8, 7, 3, 3, A, B, C, C, 4, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_6, y_4, 0, y_5, y_5, y_3, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_4, y_3, y_7, y_8, 0, y_6, y_5, y_9]$$

67 . Coloring, {11, 12}

R: [7, 7, 7, 6, A, A, B, C, B, C, 4, 9]
B: [6, 8, 8, 7, 3, 3, A, B, C, 2, 1, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	8 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_7, 0, y_3, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_6, y_4, y_8, y_5, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^9$ $p' = -s^4 + s^9$

68 . Coloring, {2, 3, 4}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, B, C, B, C, 1, 5]
B: [6, 7, 7, 6, 3, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[2 y_1, 0, 0, 0, 2 y_2, 0, -7 y_1 + 3 y_2 + 4 y_4, -27 y_1 + 7 y_2 - 2 y_3 + 16 y_4, 0, 2 y_3, -16 y_1 + 4 y_2 + 10 y_4, 2 y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, -3 y_1 - 3 y_2 - 3 y_3 - 3 y_4 + 13 y_5 - 3 y_6 - 3 y_7 + 13 y_8, 3 y_1, 3 y_2, 0, 3 y_3, 3 y_4, 0, 3 y_5, 3 y_6, 3 y_7, 3 y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

69 . Coloring, {2, 3, 5}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, B, C, B, C, 1, 5]
B: [6, 7, 7, 7, A, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[6 y_1 - 5 y_3 + 6 y_4 + 6 y_5 - 5 y_6, 0, 5 y_1 - 5 y_2 + 5 y_4 + 5 y_5 - 5 y_7, 0, 5 y_1, 5 y_2, 5 y_3, 5 y_4, 0, 5 y_5, 5 y_6, 5 y_7]$$

$p = -s^3 - s^5 + s^6 + s^8$ $p' = -s^3 - s^5 + s^6 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, -6\,y_1 - 3\,y_5 + 13\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_6, 3\,y_1 - 3\,y_4, 3\,y_1, 0, 3\,y_4, 3\,y_5, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = -s^3 + s^9$ $p = s^3 - s^5 - s^6 + s^8$

70 . Coloring, {2, 3, 6}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, B, C, B, C, 1, 5]
B: [6, 7, 7, 7, 3, A, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 6

See Matrix

$$[5\,y_5 + 6\,y_2 - 8\,y_3 - 8\,y_1 + 5\,y_6, 0, -y_4 + 4\,y_5 + 5\,y_2 - 6\,y_3 - 6\,y_1 + 4\,y_6, 0, y_4, y_5, y_2, y_3, 0, y_1, -2\,y_5 - 4\,y_2 + 5\,y_3 + 5\,y_1 - 2\,y_6, y_6]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$ $p' = s^5 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_6 + 13\,y_3 - 3\,y_4 - 9\,y_5 + 13\,y_2, 3\,y_5, 3\,y_1, 0, 3\,y_5, 3\,y_6, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_2]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = -s^3 + s^9$ $p = s^3 - s^5 - s^6 + s^8$

71 . Coloring, {2, 3, 7}

R: [7, 8, 8, 6, A, A, A, C, B, C, 1, 5]
B: [6, 7, 7, 7, 3, 3, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_5, y_3, 2\,y_5, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 6\,y_2, -3\,y_1 - 9\,y_2 - 3\,y_3 + 13\,y_4 - 3\,y_5 + 13\,y_6, 3\,y_1, 0, 3\,y_2, 3\,y_3, 0, 3\,y_4, 0, 3\,y_5, 3\,y_6]$$

$p' = s^3 + s^4 - s^6 - s^7$ $p = s^3 + s^4 - s^6 - s^7$

72 . Coloring, {2, 3, 8}

Ωp(Δ)=0: $p = 2s^2 - s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, B, B, B, C, 1, 5]
B: [6, 7, 7, 7, 3, 3, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	4 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[y_4, 0, 0, 0, y_3, -10\,y_4 - 7\,y_3 + 3\,y_2 + 16\,y_1, y_2, -20\,y_4 - 14\,y_3 + 6\,y_2 + 32\,y_1, 0, y_1, -8\,y_4 - 4\,y_3 + 2\,y_2 + 13\,y_1, -11\,y_4 - 8\,y_3 + 4\,y_2 + 18\,y_1]$$

$p = -s^2 + s^5$ $p = -s^2 + s^8$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -y_1 - 3\,y_3 - y_2 + 6\,y_5 - y_4, y_1, 2\,y_3, 0, y_3, y_2, 0, y_5, y_4, 0, y_5]$$

$p' = s^4 - s^7$ $p = -s^3 + s^6$ $p' = s^3 - s^6$

» SYNC'D !RANK'D

73 . Coloring, {2, 3, 9}

$\Omega p(\Delta)=0$: $p = 6s^2 + 5s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, B, C, C, C, 1, 5]
B: [6, 7, 7, 7, 3, 3, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$[-4\,y_1 - 2\,y_2 + 2\,y_3 + 2\,y_4, 0, 0, 0, 16\,y_1 + 9\,y_2 - 11\,y_3 - 2\,y_4, 2\,y_1, 14\,y_1 + 7\,y_2 - 9\,y_3 - 2\,y_4, 4\,y_1, 0, 2\,y_2, 2\,y_3, 2\,y_4]$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p = -s^2 + s^8$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$[0, y_1, y_2, y_3, 0, y_6, y_4, 0, 2\,y_6, y_5, 2\,y_2 - 2\,y_6, 0]$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

74 . Coloring, {2, 3, 10}

R: [7, 8, 8, 6, A, A, B, C, B, 2, 1, 5]
B: [6, 7, 7, 7, 3, 3, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[3\,y_7,\ 3\,y_8,\ 0,\ 0,\ 3\,y_5,\ 3\,y_6,\ 3\,y_4,\ 3\,y_3,\ 0,\ 3\,y_2,\ 3\,y_1,\ 5\,y_7 - 3\,y_8 - 3\,y_5 - 3\,y_6 + 5\,y_4 - 3\,y_3 - 3\,y_2 + 5\,y_1]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0,\ 0,\ y_1,\ y_1,\ 0,\ y_4,\ 2\,y_1 - 2\,y_4 + y_2 + y_3 - y_5,\ 0,\ y_2,\ y_3,\ y_4,\ y_5]$$

$$p = -s^5 + s^6 \quad p = -s^5 + s^7 \quad p = -s^5 + s^8$$

75 . Coloring, {2, 3, 11}

R: [7, 8, 8, 6, A, A, B, C, B, C, 4, 5]
B: [6, 7, 7, 7, 3, 3, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0,\ 0,\ 0,\ y_1,\ y_2,\ y_3,\ y_4,\ 2\,y_4,\ 0,\ y_5,\ y_6,\ y_7]$$

$$p = -s^5 + s^8$$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[-3\,y_2 - 3\,y_1 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8,\ 3\,y_2,\ 3\,y_1,\ 0,\ 0,\ 3\,y_3,\ 3\,y_4,\ 0,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$$p = -s^5 - s^6 + s^8 + s^9$$

76 . Coloring, {2, 3, 12}

R: [7, 8, 8, 6, A, A, B, C, B, C, 1, 9]
B: [6, 7, 7, 7, 3, 3, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, y_3, 2\,y_2, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_5, y_4, y_4, y_6, y_3, 0, 0, y_2, y_6, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

77 . Coloring, {2, 4, 5}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, B, C, B, C, 1, 5]
B: [6, 7, 8, 6, A, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, y_7, 0, y_7, y_5, y_6]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}, {3, 4, 6, 8, 11}}

See Matrix

$$[0, -3\,y_3 + 6\,y_7 - 3\,y_6 + 6\,y_8, -3\,y_1 - 3\,y_4 - 3\,y_2 + 7\,y_7 - 3\,y_5 + 7\,y_8, 3\,y_1, 0, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_8]$$

$p = -2s - 3s^2 - 2s^3 + s^5 + 2s^6 + 3s^7 + 2s^8 - s^{10}$ $p = s + 2s^2 + 2s^3 + s^4 - s^6 - 2s^7 - 2s^8 - s^9$

78 . Coloring, {2, 4, 6}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, 3, B, C, B, C, 1, 5]
B: [6, 7, 8, 6, 3, A, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$[3y_3, 0, 3y_4, 0, 7y_3 + 4y_4 - 3y_1 - 3y_2, 0, 3y_3 + 3y_4, 3y_4, 0, 3y_1, 3y_3 + 3y_4, 3y_2]$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p' = s^2 - s^5$ $p = s^2 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$[0, 3y_2, 3y_1, -3y_2 - 3y_1 - 3y_9 - 3y_8 - 3y_7 + 13y_6 - 3y_5 - 3y_4 + 13y_3, 0, 3y_9, 3y_8, 3y_7, 3y_6, 3y_5, 3y_4, 3y_3]$

$p = -s^6 - s^7 + s^9 + s^{10}$

79 . Coloring, {2, 4, 7}

R: [7, 8, 7, 7, A, A, A, C, B, C, 1, 5]
B: [6, 7, 8, 6, 3, 3, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_5, 0, y_6, y_3, 0, y_2, y_3, y_4]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, -3y_1 - 3y_2 - 3y_3 - 3y_4 - 3y_5 + 13y_6 - 3y_7 + 13y_8, 3y_1, 3y_2, 0, 3y_3, 3y_4, 3y_5, 3y_6, 0, 3y_7, 3y_8]$$

$p = -s^3 - s^4 + s^8 + s^9$

80 . Coloring, {2, 4, 8}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, B, B, B, C, 1, 5]
B: [6, 7, 8, 6, 3, 3, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[-y_4 - y_1 - y_2 + 5y_3, 0, 0, 0, y_3, 0, y_4, y_1, 0, y_3, y_2, y_3]$$

$p = s^2 - s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 5y_8, 5y_7, 5y_6, 0, 5y_5, 5y_4, 5y_3, 5y_2, 5y_1, 0, 11y_8 - 5y_7 - 5y_6 - 5y_5 + 11y_4 - 5y_3 - 5y_2 + 11y_1]$$

$p = s^5 + s^6 - s^8 - s^9$

81 . Coloring, {2, 4, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, B, C, C, C, 1, 5]
B: [6, 7, 8, 6, 3, 3, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[-7\,y_1 + 3\,y_2 + 3\,y_3 + 4\,y_4,\ 0,\ 0,\ 0,\ -27\,y_1 + 7\,y_2 + 7\,y_3 + 16\,y_4,\ 0,\ 2\,y_1,\ 2\,y_2,\ 0,\ 2\,y_3,\ -16\,y_1 + 4\,y_2 + 4\,y_3 + 10\,y_4,\ 2\,y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[0,\ 5\,y_1,\ 11\,y_1 - 5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_5 - 5\,y_6 + 11\,y_7 - 5\,y_8,\ 5\,y_2,\ 0,\ 5\,y_3,\ 5\,y_4,\ 5\,y_5,\ 5\,y_6,\ 5\,y_7,\ 5\,y_8,\ 0]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

82 . Coloring, {2, 4, 10}

R: [7, 8, 7, 7, A, A, B, C, B, 2, 1, 5]
B: [6, 7, 8, 6, 3, 3, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[y_1 + y_2 - y_3 + y_4 + y_5 - y_6 + y_7,\ y_1,\ 0,\ 0,\ y_2,\ 0,\ y_3,\ y_4,\ 0,\ y_5,\ y_6,\ y_7]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, 0, y_2, y_3, 0, y_1, y_6 + y_7 - y_4, -y_2 - y_3 - y_1 + 2\,y_6 + 2\,y_7 - y_5, y_6, y_7, y_5, y_4]$$

$p' = s^3 - s^8 \quad p = s^3 - s^8$

83 . Coloring, {2, 4, 11}

R: [7, 8, 7, 7, A, A, B, C, B, C, 4, 5]
B: [6, 7, 8, 6, 3, 3, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_1, y_1, 0, y_2, y_3, 0, y_2 - y_3, y_4, y_4]$$

$p' = -s^3 + s^6 \quad p = -s^2 + s^5 \quad p' = -s^2 + s^5$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[3\,y_3, 3\,y_2, 3\,y_1, 0, 0, -3\,y_3 - 3\,y_1 - 3\,y_4 + 8\,y_5 - 3\,y_6 + 8\,y_8, -3\,y_2 + 5\,y_5 - 3\,y_7 + 5\,y_8, 3\,y_4, 3\,y_5, 3\,y_7, 3\,y_6, 3\,y_8]$$

$p' = -s - 2s^2 - 2s^3 - s^4 + s^6 + 2s^7 + 2s^8 + s^9 \quad p = -s - 2s^2 - 2s^3 - s^4 + s^6 + 2s^7 + 2s^8 + s^9$

84 . Coloring, {2, 4, 12}

R: [7, 8, 7, 7, A, A, B, C, B, C, 1, 9]
B: [6, 7, 8, 6, 3, 3, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_6, y_5, y_4, 2\,y_5, y_3, y_2]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}, {3, 4, 6, 8, 11}}

See Matrix

$$[0, 5\,y_1, 11\,y_1 - 5\,y_2 - 5\,y_3 - 5\,y_4 + 11\,y_6 - 5\,y_5 + 11\,y_7 - 5\,y_8 - 5\,y_9, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_6, 5\,y_5, 0, 5\,y_7, 5\,y_8, 5\,y_9]$$

$p = -s^3 - s^4 - s^5 + s^8 + s^9 + s^{10}$

85 . Coloring, {2, 5, 6}

R: [7, 8, 7, 6, 3, 3, B, C, B, C, 1, 5]
B: [6, 7, 8, 7, A, A, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, y_7, y_6, y_5, y_6, 0, 0, y_4, y_3]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 6\,y_3 + 13\,y_4 - 3\,y_5 - 3\,y_6 + 13\,y_7, 0, 3\,y_1, 0, 3\,y_3, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = s^4 + s^5 - s^7 - s^8$ $p = s^4 - s^6 - s^7 + s^9$

86 . Coloring, {2, 5, 7}

$\Omega p(\Delta)=0$: $p = 3s^4 + 4s^5 + 8s^7 + 16s^8$

R: [7, 8, 7, 6, 3, A, A, C, B, C, 1, 5]
B: [6, 7, 8, 7, A, 3, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_3, y_4, 0, y_2, y_4, y_1]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 3y_1 + 3y_4, 3y_1, -6y_1 - 9y_4 - 3y_2 - 3y_3 + 13y_7 - 3y_5 + 13y_6, 0, 3y_4, 3y_2, 3y_3, 3y_7, 3y_4, 3y_5, 3y_6]$$

$p = -s^4 - s^5 + s^7 + s^8$ $p = s^4 - s^6 - s^7 + s^9$ $p = -s^4 + s^{10}$

87 . Coloring, {2, 5, 8}

R: [7, 8, 7, 6, 3, A, B, B, B, C, 1, 5]
B: [6, 7, 8, 7, A, 3, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_3, 0, y_2, 0, y_1, y_7, y_8, y_7, 0, y_6, y_5, y_4]$$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, 5y_1, 5y_3, -14y_1 + 18y_3 - 14y_2 + 18y_4 + 18y_5 - 14y_6 + 18y_7, 0, -7y_1 + 9y_3 - 7y_2 + 9y_4 + 9y_5 - 7y_6 + 9y_7, 5y_2, 5y_4, 5y_5, 5y_6, 0, 5y_7]$$

$p = s^4 - s^6 - s^7 + s^9$ $p = -s^4 - s^5 + s^7 + s^8$

88 . Coloring, {2, 5, 9}

R: [7, 8, 7, 6, 3, A, B, C, C, C, 1, 5]
B: [6, 7, 8, 7, A, 3, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, 0, y_2, 0, y_7, y_4, y_3, y_4, 0, y_5, y_6, y_8]$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$[0, y_3, y_2, y_1, 0, y_6, y_4, y_5, 2\,y_6, y_7, y_8, 0]$

$p = -s^6 + s^9$

89 . Coloring, {2, 5, 10}

R: [7, 8, 7, 6, 3, A, B, C, B, 2, 1, 5]
B: [6, 7, 8, 7, A, 3, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$[y_3, y_2, y_1, 0, y_9, y_8, y_6, y_7, 0, y_4, y_5, y_{10}]$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_7, y_4, y_8, y_5, y_6, y_9]$$

90 . Coloring, {2, 5, 11}

R: [7, 8, 7, 6, 3, A, B, C, B, C, 4, 5]
B: [6, 7, 8, 7, A, 3, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_1 - y_2 - y_3 + y_4, y_1 - y_2 - y_3 + y_4, y_1, y_2 + y_3, y_2, 0, y_3, y_4, y_4]$$

$p = -s^2 + s^3 - s^4 + s^9$ $p = -s^2 + s^3 - s^4 + s^5$ $p = -s^2 + s^6$ $p' = -s^2 + s^6$ $p' = -s^3 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}, {9, 12}}

See Matrix

$$[-3 y_1 - 3 y_2 - 3 y_4 + 6 y_8 - 3 y_6 + 6 y_7, -3 y_3 + 7 y_8 - 3 y_5 + 7 y_7, 3 y_1, 0, 0, 3 y_2, 3 y_3, 3 y_4, 3 y_8, 3 y_5, 3 y_6, 3 y_7]$$

$p = -s - 2s^2 - 2s^3 - s^4 + s^6 + 2s^7 + 2s^8 + s^9$ $p = 2s + 3s^2 + 2s^3 - s^5 - 2s^6 - 3s^7 - 2s^8 + s^{10}$

91 . Coloring, {2, 5, 12}

R: [7, 8, 7, 6, 3, A, B, C, B, C, 1, 9]
B: [6, 7, 8, 7, A, 3, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, y_3, y_2, y_3, y_7, y_4, y_5, y_6]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_4, y_3, y_4 + y_7, y_7, y_2, y_6, 0, y_5, y_8, y_7]$$

$p' = -s^6 + s^9$ $p = -s^6 + s^9$

92 . Coloring, {2, 6, 7}

R: [7, 8, 7, 6, A, 3, A, C, B, C, 1, 5]
B: [6, 7, 8, 7, 3, A, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_3 + y_6, 0, y_3, 0, y_4, y_6, y_5, y_6, 0, y_2, y_6, y_1]$$

$p = s^4 - s^7$ $p' = s^5 - s^8$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, -3y_1 - 6y_2 - 3y_3 - 6y_7 + 13y_6 - 3y_5 + 13y_4, 3y_2, 3y_1, 0, 3y_2, 3y_3, 3y_7, 3y_6, 3y_7, 3y_5, 3y_4]$$

$p' = s^5 + s^6 - s^8 - s^9$ $p = s^4 - s^{10}$ $p' = s^4 - s^6 - s^7 + s^9$

93 . Coloring, {2, 6, 8}

R: [7, 8, 7, 6, A, 3, B, B, B, C, 1, 5]
B: [6, 7, 8, 7, 3, A, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[3\,y_1,\ 0,\ 3\,y_2,\ 0,\ 3\,y_3,\ -7\,y_1 - 7\,y_2 + 14\,y_3 + 8\,y_5 - 3\,y_4,\ -6\,y_3 + 6\,y_5 + 3\,y_4,\ -7\,y_1 - 7\,y_2 + 14\,y_3 + 8\,y_5 - 3\,y_4,\ 0,\ 3\,y_5,\ 3\,y_4,\ -5\,y_1 - 5\,y_2 + 7\,y_3 + 7\,y_5]$$

$p' = s^3 - s^6$ $p = -s^3 + s^6$ $p' = s^4 - s^7$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0,\ y_1,\ 3\,y_1 + 3\,y_3 - 10\,y_4 + 3\,y_5,\ 6\,y_1 + 6\,y_3 - 20\,y_4 + 6\,y_5,\ 0,\ 3\,y_1 + 3\,y_3 - 10\,y_4 + 3\,y_5,\ y_3,\ 3\,y_1 + 3\,y_3 - 9\,y_4 + 3\,y_5 - y_2,\ y_2,\ y_5,\ 0,\ y_4]$$

$p = -s^3 + s^9$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$

94 . Coloring, {2, 6, 9}

R: [7, 8, 7, 6, A, 3, B, C, C, C, 1, 5]
B: [6, 7, 8, 7, 3, A, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[-y_1 - y_3 + y_5 + y_2,\ 0,\ y_1,\ 0,\ -2\,y_3 + 2\,y_5 + 2\,y_2 - y_4,\ y_3 - 2\,y_5 + y_4,\ y_2,\ y_3 - 2\,y_5 + y_4,\ 0,\ y_3,\ y_5,\ y_4]$$

$p = -s^3 + s^6$ $p = -s^3 + s^9$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_3, y_2, 0, y_3, y_4, y_6, 2\,y_3, y_7, y_5, 0]$$

$p = s^5 - s^8$ $p' = s^5 - s^8$

95 . Coloring, {2, 6, 10}

R: [7, 8, 7, 6, A, 3, B, C, B, 2, 1, 5]
B: [6, 7, 8, 7, 3, A, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[7\,y_4, 7\,y_1, -7\,y_4 + 9\,y_1 + 9\,y_2 - 7\,y_3 - 7\,y_5 + 9\,y_6 + 9\,y_9 - 7\,y_7 + 9\,y_8, 0, 7\,y_2, 7\,y_3, 7\,y_5, 7\,y_6, 0, 7\,y_9, 7\,y_7, 7\,y_8]$$

$p = -s^3 - s^4 - s^5 + s^8 + s^9 + s^{10}$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, 2\,y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^7 + s^8$ $p = -s^7 + s^9$

96 . Coloring, {2, 6, 11}

R: [7, 8, 7, 6, A, 3, B, C, B, C, 4, 5]
B: [6, 7, 8, 7, 3, A, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -7\,y_1 + 9\,y_2 - 7\,y_3 - 7\,y_4 + 9\,y_5 + 9\,y_6 - 7\,y_7 + 9\,y_8, 7\,y_1, 7\,y_2, 7\,y_3, 7\,y_4, 7\,y_5, 0, 7\,y_6, 7\,y_7, 7\,y_8]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 - 3\,y_5 + 13\,y_8 - 3\,y_6 - 3\,y_7 + 13\,y_9, 3\,y_1, 3\,y_2, 0, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_8, 3\,y_6, 3\,y_7, 3\,y_9]$$

$$p = -s^6 - s^7 + s^9 + s^{10}$$

97 . Coloring, {2, 6, 12}

R: [7, 8, 7, 6, A, 3, B, C, B, C, 1, 9]
B: [6, 7, 8, 7, 3, A, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, 0, y_4, y_3, y_4, y_2, y_4, y_1, 2\,y_5 + y_4]$$

$$p' = s^5 - s^8 \quad p' = s^4 - s^7 \quad p = s^4 - s^7$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_5, y_3, y_4, y_2, y_9, y_6, y_1, 0, y_7, y_8, y_9]$$

$$p = -s^7 + s^{10}$$

98 . Coloring, {2, 7, 8}

R: [7, 8, 7, 6, A, A, A, B, B, C, 1, 5]
B: [6, 7, 8, 7, 3, 3, B, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_4, y_3, y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 2y_1 - 2y_4 - 2y_5 + 2y_3, y_1, 2y_4 + 2y_5 - y_6 - y_2, 0, y_1 - y_4 - y_5 + y_3, y_6, y_4, y_5, 0, y_2, y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

99 . Coloring, {2, 7, 9}

R: [7, 8, 7, 6, A, A, A, C, C, C, 1, 5]
B: [6, 7, 8, 7, 3, 3, B, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2y_3, 0, 0, 0, y_1, y_3, y_2, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2y_4, y_1, y_2, 0, y_4, y_3, y_5, 2y_4, 0, y_6, 0]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

100 . Coloring, {2, 7, 10}

R: [7, 8, 7, 6, A, A, A, C, B, 2, 1, 5]
B: [6, 7, 8, 7, 3, 3, B, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_7, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = s^4 - s^9$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 5\,y_2, 5\,y_3, 0, -5\,y_2 - 5\,y_3 - 5\,y_1 - 5\,y_4 + 11\,y_5 - 5\,y_6 + 11\,y_7, 5\,y_1, 5\,y_4, 5\,y_5, 0, 5\,y_6, 5\,y_7]$$

$p = -s^4 - s^5 + s^7 + s^8$

101 . Coloring, {2, 7, 11}

R: [7, 8, 7, 6, A, A, A, C, B, C, 4, 5]
B: [6, 7, 8, 7, 3, 3, B, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, y_2, y_1, 2\,y_6, y_6, 0, y_5, y_6, y_4]$$

$p' = -s^4 + s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 - 3\,y_5 + 13\,y_6 - 3\,y_7 + 13\,y_8,\ 3\,y_1,\ 3\,y_2,\ 0,\ 0,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 0,\ 3\,y_7,\ 3\,y_8]$$

$$p = s^3 + s^4 - s^8 - s^9$$

102 . Coloring, {2, 7, 12}

R: [7, 8, 7, 6, A, A, A, C, B, C, 1, 9]
B: [6, 7, 8, 7, 3, 3, B, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_7, y_6, y_7, y_5, y_4, y_3, y_2]$$

$$p = -s^2 + s^8$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_7, y_2, y_1, y_5, y_7, y_3, y_4, 0, 0, y_6, y_7]$$

$$p' = s^5 - s^8 \quad p = -s^5 + s^8$$

103 . Coloring, {2, 8, 9}

R: [7, 8, 7, 6, A, A, B, B, C, C, 1, 5]
B: [6, 7, 8, 7, 3, 3, A, C, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_2, 0, 0, 0, -y_1 + y_3, y_1, -y_1 + y_4, y_1, 0, y_2, y_3, y_4]$$

$p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_5, 0, y_3, y_6, y_4, y_7, y_8, y_9, y_{10}]$$

104 . Coloring, {2, 8, 10}

R: [7, 8, 7, 6, A, A, B, B, B, 2, 1, 5]
B: [6, 7, 8, 7, 3, 3, A, C, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	4 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, 2\,y_3, y_3, y_4, y_6, 0, y_7, y_5, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_2, 0, y_2, 2\,y_1 - 2\,y_2, y_3, y_4, -2\,y_1 + 4\,y_2 + 2\,y_3, 0, -5\,y_1 + 9\,y_2 + 3\,y_3 + y_4]$$

$p = -s^4 + s^6$ $p = -s^4 + s^7$ $p = -s^4 + s^8$ $p = -s^4 + s^5$

105 . Coloring, {2, 8, 11}

R: [7, 8, 7, 6, A, A, B, B, B, C, 4, 5]
B: [6, 7, 8, 7, 3, 3, A, C, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_5, y_6, 2\,y_7, y_7, 0, y_2, y_3, y_4]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[y_6, y_5, y_4, 0, 0, y_3, y_5, y_2, y_1, y_5, 0, -y_6 + 5\,y_5 - y_4 - y_3 - y_2 - y_1]$$

$p' = s^6 - s^8$ $p' = s^5 - s^7$ $p = s^5 - s^9$

106 . Coloring, {2, 8, 12}

R: [7, 8, 7, 6, A, A, B, B, B, C, 1, 9]
B: [6, 7, 8, 7, 3, 3, A, C, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, 0, 0, 0, 0, y_2, y_1, y_2, y_3, y_4, y_6, y_5]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[0, 2\,y_1 - y_4 + 2\,y_3 - y_5, y_1 + y_2 + y_3 - y_6, 2\,y_2, y_1, y_2, y_4, y_3, 0, y_5, 0, y_6]$$

$p = -s^2 + s^5 + s^6 - s^9$ $p = -s^2 - s^3 + 2s^6 + s^8 - s^9$ $p' = -s^3 - s^5 + s^6 + s^8$

107 . Coloring, {2, 9, 10}

R: [7, 8, 7, 6, A, A, B, C, C, 2, 1, 5]
B: [6, 7, 8, 7, 3, 3, A, B, B, C, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[y_4, y_6, 0, 0, 5\,y_4 - y_6 - y_1 - y_2 - y_3 - y_5, y_1, y_4, y_2, 0, y_3, y_4, y_5]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1 + y_2 - y_3 + y_4 + y_5 + y_6 - y_7 - y_8, y_1, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

108 . Coloring, {2, 9, 11}

R: [7, 8, 7, 6, A, A, B, C, C, C, 4, 5]
B: [6, 7, 8, 7, 3, 3, A, B, B, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_6, y_5, y_7, 2\,y_2, y_2, 0, y_3, y_1, y_4]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[5\,y_5 - y_1 - y_2 - y_3 - y_4 - y_6,\ y_5,\ y_1,\ 0,\ 0,\ y_2,\ y_5,\ y_3,\ y_4,\ y_5,\ y_6,\ 0]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

109 . Coloring, {2, 9, 12}

R: [7, 8, 7, 6, A, A, B, C, C, C, 1, 9]
B: [6, 7, 8, 7, 3, 3, A, B, B, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[2\,y_2,\ 0,\ 0,\ 0,\ 0,\ 5\,y_2 - 2\,y_3,\ 2\,y_2,\ 5\,y_2 - 2\,y_3,\ -2\,y_1 + 2\,y_3,\ 2\,y_1,\ 2\,y_2,\ 2\,y_3]$$

$p = -s^3 + s^6$ $p = -s^3 + s^7$ $p = -s^3 + s^8$ $p = -s^3 + s^5$ $p = -s^3 + s^4$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0,\ y_1,\ y_2,\ y_3,\ 2\,y_4,\ y_4,\ y_5,\ y_6,\ 0,\ y_8,\ y_7,\ 0]$$

$p = -s^6 + s^9$

110 . Coloring, {2, 10, 11}

R: [7, 8, 7, 6, A, A, B, C, B, 2, 4, 5]
B: [6, 7, 8, 7, 3, 3, A, B, C, C, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[7\,y_1, 0, 7\,y_2, 0, 0, 7\,y_3, 9\,y_1 + 9\,y_2 + 9\,y_3 + 9\,y_4 - 7\,y_7 - 7\,y_6 + 9\,y_5 - 7\,y_8, 7\,y_4, 7\,y_7, 7\,y_6, 7\,y_5, 7\,y_8]$$

$$p = -s^3 - s^4 + s^8 + s^9$$

111 . Coloring, {2, 10, 12}

R: [7, 8, 7, 6, A, A, B, C, B, 2, 1, 9]
B: [6, 7, 8, 7, 3, 3, A, B, C, C, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_8, y_7, y_6, y_5, y_4, y_3, 0, y_2, y_1, -y_8 + y_7 + y_6 + y_5 - y_4 + y_3 + y_2 - y_1]$$

$$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$$

112 . Coloring, {2, 11, 12}

R: [7, 8, 7, 6, A, A, B, C, B, C, 4, 9]
B: [6, 7, 8, 7, 3, 3, A, B, C, 2, 1, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_6, 0, y_5, 2\,y_3, y_3, y_4, y_2, y_1, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[5\,y_5 - y_2 - y_1 - y_3 - y_4 - y_6 - y_7, y_5, y_2, 0, y_1, y_3, y_5, y_4, 0, y_5, y_6, y_7]$$

$p' = -s^3 + s^8$ $p' = -s^4 + s^9$ $p = -s^3 + s^8$

113 . Coloring, {3, 4, 5}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, B, C, B, C, 1, 5]
B: [6, 8, 7, 6, A, 3, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[2\,y_2 + 2\,y_3 + 2\,y_6 - y_1 - y_5, 0, y_2 + y_3 + y_6 - y_4, 0, y_2, 0, y_1, y_3, 0, y_6, y_5, y_4]$$

$p = -s^2 - s^4 + s^5 + s^7$ $p' = -s^2 - s^4 + s^5 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, -3\,y_2 - 3\,y_3 + 5\,y_6 - 3\,y_7 + 8\,y_8, -3\,y_1 - 3\,y_5 + 8\,y_6 - 3\,y_4 + 5\,y_8, 3\,y_1, 0, 3\,y_2, 3\,y_3, 3\,y_5, 3\,y_6, 3\,y_4, 3\,y_7, 3\,y_8]$$

$p = -s + s^9$ $p' = -s + s^9$

114 . Coloring, {3, 4, 6}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, B, C, B, C, 1, 5]
B: [6, 8, 7, 6, 3, A, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$[y_2, 0, y_1, 0, -y_1 + y_4, 0, y_3, y_2 - y_5, 0, y_5, y_4, y_3]$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$[0, 3y_8, 3y_7, 3y_6, 0, 3y_5, 3y_4, 3y_3, 3y_2, -3y_7 - 3y_6 - 3y_3 + 8y_2 + 5y_1, -3y_8 - 3y_5 - 3y_4 + 5y_2 + 8y_1, 3y_1]$

$p' = s^3 - s^9$ $p = s^3 - s^9$

115 . Coloring, {3, 4, 7}

R: [7, 7, 8, 7, A, A, A, C, B, C, 1, 5]
B: [6, 8, 7, 6, 3, 3, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, 0, y_3, y_4, 0, y_6, y_4, y_5]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, -3y_1 - 3y_2 - 3y_3 - 3y_4 - 3y_5 + 13y_6 - 3y_7 + 13y_8, 3y_1, 3y_2, 0, 3y_3, 3y_4, 3y_5, 3y_6, 0, 3y_7, 3y_8]$$

$p = -s^3 - s^4 + s^8 + s^9$

116 . Coloring, {3, 4, 8}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, B, B, B, C, 1, 5]
B: [6, 8, 7, 6, 3, 3, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[5y_4 - y_1 - y_2 - y_3, 0, 0, 0, y_4, 0, y_1, y_2, 0, y_4, y_3, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_5, y_1, y_2, 0, y_6, y_3, y_4, y_7, y_8, 0, y_9]$$

117 . Coloring, {3, 4, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, B, C, C, C, 1, 5]
B: [6, 8, 7, 6, 3, 3, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[10\,y_2 - 16\,y_4 + 4\,y_3,\ 0,\ 0,\ 0,\ 2\,y_2,\ 0,\ 4\,y_2 - 7\,y_4 + 3\,y_3,\ 2\,y_1,\ 0,\ 16\,y_2 - 2\,y_1 - 27\,y_4 + 7\,y_3,\ 2\,y_4,\ 2\,y_3]$$

$p' = -s^3 + s^6$ $p' = s^2 - s^5$ $p = s^2 - s^5$

Omega Rank for B : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0,\ y_8,\ y_6,\ y_7,\ 0,\ y_4,\ y_5,\ y_3,\ y_1,\ y_2,\ y_9,\ 0]$$

118 . Coloring, {3, 4, 10}

R: [7, 7, 8, 7, A, A, B, C, B, 2, 1, 5]
B: [6, 8, 7, 6, 3, 3, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_8,\ y_1,\ 0,\ 0,\ y_2,\ 0,\ y_3,\ y_4,\ 0,\ y_5,\ y_6,\ y_7]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0,\ 0,\ y_1,\ y_2,\ 0,\ y_3,\ y_4,\ y_5,\ y_6,\ y_7,\ y_8,\ y_9]$$

119 . Coloring, {3, 4, 11}

R: [7, 7, 8, 7, A, A, B, C, B, C, 4, 5]

B: [6, 8, 7, 6, 3, 3, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_1, y_1, 0, y_2 + y_3, y_2, 0, y_3, y_4, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[-3 y_1 - 3 y_4 + 8 y_5 - 3 y_6 + 5 y_8, -3 y_2 - 3 y_3 + 5 y_5 - 3 y_7 + 8 y_8, 3 y_1, 0, 0, 3 y_2, 3 y_3, 3 y_4, 3 y_5, 3 y_6, 3 y_7, 3 y_8]$$

$p = -s + s^9$ $p' = -s + s^9$

120 . Coloring, {3, 4, 12}

R: [7, 7, 8, 7, A, A, B, C, B, C, 1, 9]
B: [6, 8, 7, 6, 3, 3, A, B, C, 2, 4, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, y_3, y_4, 2 y_3, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, y_1 + y_2 - y_3 - y_4 - y_5 + y_7 + y_6 - y_9 + y_8, y_1, y_2, y_3, y_4, y_5, y_7, 0, y_6, y_9, y_8]$$

$$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9 - s^{10}$$

121 . Coloring, {3, 5, 6}

R: [7, 7, 8, 6, 3, 3, B, C, B, C, 1, 5]
B: [6, 8, 7, 7, A, A, A, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[7 y_1, 0, 7 y_2, 0, 9 y_1 - 7 y_2 - 7 y_3 + 9 y_4 - 7 y_5 + 9 y_6 - 7 y_7, 7 y_3, 7 y_4, 7 y_5, 0, 0, 7 y_6, 7 y_7]$$

$$p = - s^2 - s^3 - s^4 + s^6 + s^7 + s^8$$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, -3 y_1 - 3 y_4 + 5 y_2 - 3 y_6 + 8 y_5, 0, -3 y_3 + 8 y_2 - 3 y_7 + 5 y_5, 0, 3 y_1, 3 y_4, 3 y_3, 3 y_2, 3 y_7, 3 y_6, 3 y_5]$$

$$p' = - s^2 + s^8 \quad p = - s^2 + s^8$$

122 . Coloring, {3, 5, 7}

R: [7, 7, 8, 6, 3, A, A, C, B, C, 1, 5]
B: [6, 8, 7, 7, A, 3, B, B, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_4 - y_3 + y_5, 0, -y_2 + y_4, 0, y_3, y_5, y_2, y_1, 0, y_4 + y_5 - y_1, y_5, y_4]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$ $p = -s^5 + s^8$ $p = -s^5 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3y_1, 3y_1 - 3y_5, -6y_1 - 3y_5 - 3y_2 - 3y_3 + 13y_4 - 3y_6 + 13y_7, 0, 3y_5, 3y_2, 3y_3, 3y_4, 3y_5, 3y_6, 3y_7]$$

$p = -s^4 + s^6 + s^7 - s^9$ $p = -s^4 - s^5 + s^7 + s^8$ $p = -s^4 + s^{10}$

123 . Coloring, {3, 5, 8}

R: [7, 7, 8, 6, 3, A, B, B, B, C, 1, 5]
B: [6, 8, 7, 7, A, 3, A, C, C, 2, 4, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_1, 0, y_4, 0, y_3, y_2, y_7, y_8, 0, y_5, y_6, y_9]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_1, y_2, 2y_3, 0, y_3, y_4, y_5, y_8, y_6, 0, y_7]$$

$p = -s^7 + s^9$

124 . Coloring, {3, 5, 9}

R: [7, 7, 8, 6, 3, A, B, C, C, C, 1, 5]
B: [6, 8, 7, 7, A, 3, A, B, B, 2, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[y_4, 0, -y_1 - y_2 - y_3 - y_5 + 5\,y_4 - y_6, 0, y_1, y_2, y_4, y_3, 0, y_5, y_4, y_6]$$

$p' = -s^3 + s^7$ $p = -s^3 + s^7$ $p' = -s^4 + s^8$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_8, y_7, y_6, 0, y_5, y_4, y_3, 2\,y_5, y_2, y_1, 0]$$

$p = s^3 - s^9$

125 . Coloring, {3, 5, 10}

R: [7, 7, 8, 6, 3, A, B, C, B, 2, 1, 5]
B: [6, 8, 7, 7, A, 3, A, B, C, C, 4, 9]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[-5\,y_1 + 11\,y_2 + 11\,y_3 - 5\,y_4 - 5\,y_5 + 11\,y_6 - 5\,y_7 - 5\,y_8 + 11\,y_9, 5\,y_1, 5\,y_2, 0, 5\,y_3, 5\,y_4, 5\,y_5, 5\,y_6, 0, 5\,y_7, 5\,y_8, 5\,y_9]$$

$p = s^4 + s^5 + s^6 - s^8 - s^9 - s^{10}$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_7, y_1, 0, y_5, y_4, y_5, y_3, y_2, y_7, y_6]$$

$p' = s^6 - s^8$ $p = s^6 - s^8$

126 . Coloring, {3, 5, 11}

R: [7, 7, 8, 6, 3, A, B, C, B, C, 4, 5]
B: [6, 8, 7, 7, A, 3, A, B, C, 2, 1, 9]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_8, y_7, y_4, y_5, y_6, y_8 - y_7 - y_4 + y_5 - y_6 - y_1 + y_2 + y_3, 0, y_1, y_2, y_3]$$

$p = -s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}, {9, 12}} order: 8

See Matrix

$$[-3 y_1 - 3 y_3 + 8 y_7 - 3 y_6 + 5 y_8, -3 y_4 - 3 y_2 + 5 y_7 - 3 y_5 + 8 y_8, 3 y_1, 0, 0, 3 y_4, 3 y_2, 3 y_3, 3 y_7, 3 y_6, 3 y_5, 3 y_8]$$

$p = -s + s^9$ $p' = -s + s^9$

127 . Coloring, {3, 5, 12}

R: [7, 7, 8, 6, 3, A, B, C, B, C, 1, 9]
B: [6, 8, 7, 7, A, 3, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, y_3, y_2, y_5, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 - y_7 - y_3 + y_4 + y_5 - y_6, y_2 - y_7, y_1, y_2, y_7, y_3, y_4, 0, y_5, y_6, y_7]$$

$p = s^3 - s^9$ $p' = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p' = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

128 . Coloring, {3, 6, 7}

R: [7, 7, 8, 6, A, 3, A, C, B, C, 1, 5]
B: [6, 8, 7, 7, 3, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_2 - y_3 + y_5, 0, y_2 - y_3, 0, y_1, y_5, y_2, y_3, 0, y_4, y_5, y_6]$$

$p' = -s^5 + s^8$ $p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 3y_7, 3y_3, -3y_7 - 6y_3 - 3y_4 - 3y_5 + 13y_6 - 3y_2 - 3y_1 + 13y_8, 0, 3y_3, 3y_4, 3y_5, 3y_6, 3y_2, 3y_1, 3y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$ $p = s^5 - s^7 - s^8 + s^{10}$

129 . Coloring, {3, 6, 8}

R: [7, 7, 8, 6, A, 3, B, B, B, C, 1, 5]
B: [6, 8, 7, 7, 3, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-3\,y_1 + 14\,y_2 - 7\,y_3 - 7\,y_5 + 8\,y_6,\ 0,\ 3\,y_1,\ 0,\ 3\,y_2,\ 3\,y_3,\ 8\,y_2 - 7\,y_3 - 3\,y_4 - 7\,y_5 + 14\,y_6,\ 3\,y_4,\ 0,\ 7\,y_2 - 5\,y_3 - 5\,y_5 + 7\,y_6,\ 3\,y_5,\ 3\,y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0,\ y_2,\ y_3,\ 2\,y_3,\ 0,\ y_3,\ y_1,\ y_4,\ y_5,\ y_6,\ 0,\ y_7]$$

$p' = -s^6 + s^8$ $p = -s^6 + s^8$

130 . Coloring, {3, 6, 9}

R: [7, 7, 8, 6, A, 3, B, C, C, C, 1, 5]
B: [6, 8, 7, 7, 3, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 6

See Matrix

$$[y_4,\ 0,\ -y_1 - y_2 - y_5 - y_3 + 5\,y_4 - y_6,\ 0,\ y_1,\ y_2,\ y_4,\ y_5,\ 0,\ y_3,\ y_4,\ y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0,\ y_1,\ y_3,\ y_2,\ 0,\ y_3,\ y_4,\ y_5,\ 2\,y_3,\ y_6,\ y_7,\ 0]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

131 . Coloring, {3, 6, 10}

R: [7, 7, 8, 6, A, 3, B, C, B, 2, 1, 5]
B: [6, 8, 7, 7, 3, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_1, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^6 + s^8$ $p' = -s^6 + s^8$

132 . Coloring, {3, 6, 11}

R: [7, 7, 8, 6, A, 3, B, C, B, C, 4, 5]
B: [6, 8, 7, 7, 3, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_9, y_7, y_8, y_6, y_5, y_4, 0, y_3, y_1, y_2]$$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[3\,y_1, -3\,y_4 - 3\,y_5 + 5\,y_2 - 3\,y_6 + 8\,y_7, -3\,y_1 - 3\,y_3 + 8\,y_2 - 3\,y_8 + 5\,y_7, 0, 0, 3\,y_4, 3\,y_5, 3\,y_3, 3\,y_2, 3\,y_8, 3\,y_6, 3\,y_7]$$

$p' = s^3 - s^9$ $p = -s^3 + s^9$

133 . Coloring, {3, 6, 12}

R: [7, 7, 8, 6, A, 3, B, C, B, C, 1, 9]
B: [6, 8, 7, 7, 3, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_4, y_5, y_3, y_6, y_4, y_8, y_7]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 + y_2 - y_3 - y_5 + y_4 + y_6 - y_7, y_1, y_2, y_3, y_8, y_5, y_4, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$ $p = -s^4 + s^{10}$

134 . Coloring, {3, 7, 8}

R: [7, 7, 8, 6, A, A, A, B, B, C, 1, 5]
B: [6, 8, 7, 7, 3, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_6, y_7, y_2, y_7, 0, y_3, y_4, y_5]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 14\,y_2, 7\,y_1, 11\,y_1 - 16\,y_2 - 7\,y_3 + 9\,y_4 - 7\,y_5 + 9\,y_6, 0, 7\,y_2, 7\,y_3, 14\,y_1 - 21\,y_2, 7\,y_4, 0, 7\,y_5, 7\,y_6]$$

$p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 + s^9$ $p = -s^3 - s^4 + s^6 + s^7$

135 . Coloring, {3, 7, 9}

R: [7, 7, 8, 6, A, A, A, C, C, C, 1, 5]
B: [6, 8, 7, 7, 3, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	5 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\,y_3, 0, 0, 0, y_1, y_3, y_2, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 2\,y_5, y_2, y_1, 0, y_5, y_4, 2\,y_2 - 3\,y_5, 2\,y_5, 0, y_3, 0]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$ $p' = -s^4 + s^7$

136 . Coloring, {3, 7, 10}

R: [7, 7, 8, 6, A, A, A, C, B, 2, 1, 5]
B: [6, 8, 7, 7, 3, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6, y_5, 0, 0, y_4, y_3, y_2, y_3, 0, y_1, y_3, y_6 - y_3]$$

$p = -s^4 + s^7$ $p' = s^5 - s^8$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, -5\,y_1 - 10\,y_3 - 5\,y_2 + 11\,y_4 - 5\,y_5 + 11\,y_6, 5\,y_1, 0, 5\,y_3, 5\,y_2, 5\,y_3, 5\,y_4, 0, 5\,y_5, 5\,y_6]$$

$p' = s^3 + s^4 - s^6 - s^7$ $p = s^3 - s^5 - s^6 + s^8$

137 . Coloring, {3, 7, 11}

R: [7, 7, 8, 6, A, A, A, C, B, C, 4, 5]
B: [6, 8, 7, 7, 3, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_6, y_5, y_4, 2\,y_3, y_3, 0, y_2, y_3, y_1]$$

$p' = -s^4 + s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 7, 11}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 - 3\,y_5 + 13\,y_6 - 3\,y_7 + 13\,y_8, 3\,y_1, 3\,y_2, 0, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 0, 3\,y_7, 3\,y_8]$$

$p = s^3 + s^4 - s^8 - s^9$

138 . Coloring, {3, 7, 12}

R: [7, 7, 8, 6, A, A, A, C, B, C, 1, 9]
B: [6, 8, 7, 7, 3, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_3, 0, 0, 0, 0, y_2, y_1, y_2, y_4, y_6, y_5, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_6, y_2, y_1, y_3, y_6, y_4, 2\,y_3 - 3\,y_6, 0, 0, y_5, y_6]$$

$p' = -s^5 + s^8$ $p = -s^4 + s^7$ $p' = -s^4 + s^7$

139 . Coloring, {3, 8, 9}

R: [7, 7, 8, 6, A, A, B, B, C, C, 1, 5]
B: [6, 8, 7, 7, 3, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_2, 0, 0, 0, -y_3 + y_1, y_3, y_4, y_3, 0, y_2, y_1, y_3 + y_4]$$

$p' = -s^3 + s^6$ $p = -s^2 + s^8$ $p = -s^2 + s^5$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

140 . Coloring, {3, 8, 10}

R: [7, 7, 8, 6, A, A, B, B, B, 2, 1, 5]
B: [6, 8, 7, 7, 3, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 2\,y_6, y_6, y_3, y_6, 0, y_4, y_5, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_4, 0, y_4, y_3, y_4, y_2, y_6, 0, y_5]$$

$p = -s^5 + s^7$ $p' = -s^5 + s^7$

141 . Coloring, {3, 8, 11}

R: [7, 7, 8, 6, A, A, B, B, B, C, 4, 5]
B: [6, 8, 7, 7, 3, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, y_6, y_5, 2\,y_4, y_4, 0, y_3, y_2, y_1]$$

$$p = s^5 - s^8$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, y_4, y_2, 0, 0, y_3, y_5, y_6, y_7, y_8, 0, y_9]$$

142 . Coloring, {3, 8, 12}

R: [7, 7, 8, 6, A, A, B, B, B, C, 1, 9]
B: [6, 8, 7, 7, 3, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$$p = -s^5 + s^8$$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_1, y_2, 2\,y_3, y_4, y_3, y_5, y_6, 0, y_7, 0, y_8]$$

$$p = -s^2 + s^9$$

143 . Coloring, {3, 9, 10}

R: [7, 7, 8, 6, A, A, B, C, C, 2, 1, 5]
B: [6, 8, 7, 7, 3, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_4, y_5, y_6, y_5, 0, y_3, y_7, y_8]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, y_4, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^3 + s^9$

144 . Coloring, {3, 9, 11}

R: [7, 7, 8, 6, A, A, B, C, C, C, 4, 5]
B: [6, 8, 7, 7, 3, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_5, y_6, y_7, 2\,y_2, y_2, 0, y_3, y_4, y_1]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_3, y_2, y_1, 0, 0, y_6, y_5, y_4, y_9, y_8, y_7, 0]$$

145 . Coloring, {3, 9, 12}

R: [7, 7, 8, 6, A, A, B, C, C, C, 1, 9]
B: [6, 8, 7, 7, 3, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[2\,y_2,\ 0,\ 0,\ 0,\ 0,\ 5\,y_2 - 2\,y_3,\ 2\,y_2,\ 5\,y_2 - 2\,y_3,\ -2\,y_1 + 2\,y_3,\ 2\,y_1,\ 2\,y_2,\ 2\,y_3]$$

$p = -s^3 + s^4$ $p = -s^3 + s^5$ $p = -s^3 + s^6$ $p = -s^3 + s^7$ $p = -s^3 + s^8$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0,\ y_1,\ y_2,\ y_3,\ 2\,y_4,\ y_4,\ y_5,\ y_6,\ 0,\ y_7,\ y_8,\ 0]$$

$p = -s^3 + s^9$

146 . Coloring, {3, 10, 11}

R: [7, 7, 8, 6, A, A, B, C, B, 2, 4, 5]
B: [6, 8, 7, 7, 3, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0,\ y_4,\ 0,\ y_1,\ y_2,\ y_3,\ y_5,\ y_6,\ 0,\ y_7,\ y_8,\ y_9]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

147 . Coloring, {3, 10, 12}

R: [7, 7, 8, 6, A, A, B, C, B, 2, 1, 9]
B: [6, 8, 7, 7, 3, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_4 + y_3 - 2\,y_6, 0, 0, 0, y_6, y_5, y_6, y_4, y_3, y_2, -y_6 + y_3]$$

$p = s^4 - s^7$ $p' = -s^4 + s^7$ $p' = s^5 - s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_5, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

148 . Coloring, {3, 11, 12}

R: [7, 7, 8, 6, A, A, B, C, B, C, 4, 9]
B: [6, 8, 7, 7, 3, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, 0, y_1, 2\,y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_1 - y_2 + y_5 + y_6 + y_7 - y_4 - y_3 + y_8 - y_9, y_1, y_2, 0, y_5, y_6, y_7, y_4, 0, y_3, y_8, y_9]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$

149 . Coloring, {4, 5, 6}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, B, C, B, C, 1, 5]
B: [6, 8, 8, 6, A, A, A, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, y_4, 0, y_3, 0, 0, 0, y_2, y_1]$$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, 2y_1, 0, -2y_3 - 2y_4 - 39y_6 + 11y_1 + 11y_2 + 11y_5, 0, 2y_2, 0, 2y_3, 3y_1 + 3y_2 + 3y_5 - 11y_6, 2y_4, 2y_5, 2y_6]$$

$p = -s + s^7$ $p' = -s + s^7$

150 . Coloring, {4, 5, 7}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$

R: [7, 7, 7, 7, 3, A, A, C, B, C, 1, 5]
B: [6, 8, 8, 6, A, 3, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_6, 0, 0, y_4, y_5, y_7]$$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, -3\,y_1 - 3\,y_8 - 3\,y_4 - 3\,y_5 + 13\,y_6 - 3\,y_7 - 3\,y_2 + 13\,y_3, 3\,y_1, 3\,y_8, 0, 3\,y_4, 0, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_2, 3\,y_3]$$

$p = -s^3 - s^4 + s^8 + s^9$

151 . Coloring, {4, 5, 8}

Ωp(Δ)=0: $p' = s^3 - 8s^6 - 16s^7$ $p = s^3 - 8s^6 - 16s^7$

R: [7, 7, 7, 7, 3, A, B, B, B, C, 1, 5]
B: [6, 8, 8, 6, A, 3, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 2\,y_6, 2\,y_5, -4\,y_6 + 6\,y_4, 0, 2\,y_4, 0, 2\,y_3, 2\,y_2, -6\,y_6 + 9\,y_4, 0, 2\,y_1]$$

$p' = s^5 - s^7$ $p = s^5 - s^7$

152 . Coloring, {4, 5, 9}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, B, C, C, C, 1, 5]
B: [6, 8, 8, 6, A, 3, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_2, 0, y_1, 0, y_4, 0, y_3, 0, 0, y_7, y_6, y_5]$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$[0, 2\,y_7, 2\,y_6, 2\,y_4, 0, 2\,y_5, 0, 2\,y_3, 2\,y_1, 3\,y_1, 2\,y_2, 0]$

$p = -s^3 + s^8$

153 . Coloring, {4, 5, 10}

$\Omega p(\Delta)=0$: $p = 3s^2 - 2s^3 + 8s^5 - 32s^7$ $p' = -3s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, B, C, B, 2, 1, 5]
B: [6, 8, 8, 6, A, 3, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_2, y_3, y_4, 0, y_3, 0, y_1, 0, 0, y_6, y_5, y_6]$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, 0, -y_1 - y_2 - y_3 + y_7 + y_4 - y_5 + y_6, y_1, 0, y_2, 0, y_3, y_7, y_4, y_5, y_6]$$

$$p = -s^2 - s^3 + s^7 + s^8$$

154 . Coloring, {4, 5, 11}

$\Omega p(\Delta)=0$: $p = 3s^2 + 2s^3 - 8s^5 + 32s^7$ $p' = 3s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, B, C, B, C, 4, 5]
B: [6, 8, 8, 6, A, 3, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_2, y_1, y_4, 0, y_3, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[-3y_1 - 3y_2 - 3y_3 - 3y_4 + 13y_5 - 3y_6 - 3y_7 + 13y_8, 3y_1, 3y_2, 0, 0, 3y_3, 0, 3y_4, 3y_5, 3y_6, 3y_7, 3y_8]$$

$$p = -s^3 - s^4 + s^8 + s^9$$

155 . Coloring, {4, 5, 12}

$\Omega p(\Delta)=0$: $p = 3s^2 - 10s^3 - 40s^5 + 32s^6 - 32s^7 + 128s^8$ $p' = 3s^2 + 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, A, B, C, B, C, 1, 9]
B: [6, 8, 8, 6, A, 3, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	8 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, 0, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_3, y_2, y_1, y_9, y_8, 0, y_7, 0, y_6, y_5, y_4]$$

156 . Coloring, {4, 6, 7}

Ωp(Δ)=0: $p' = s^2 + 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, A, 3, A, C, B, C, 1, 5]
B: [6, 8, 8, 6, 3, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, y_3, 0, y_2, 0, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, 2y_1, 2y_2, 11y_1 + 11y_2 + 11y_3 - 2y_4 - 39y_6 - 2y_5 + 11y_7, 0, 2y_3, 0, 2y_4, 2y_6, 2y_5, 2y_7, 3y_1 + 3y_2 + 3y_3 - 11y_6 + 3y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

157 . Coloring, {4, 6, 8}

$\Omega p(\Delta)=0$: $p' = s^3 + 4s^4 - 8s^6 - 16s^7$ $p = s^3 - 16s^5 - 8s^6 + 16s^7 + 64s^8$

R: [7, 7, 7, 7, A, 3, B, B, B, C, 1, 5]
B: [6, 8, 8, 6, 3, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[2 y_1, 0, -2 y_1 - 2 y_4 + 2 y_3 + 2 y_2, 0, 2 y_4, 0, -9 y_4 - 2 y_3 + 7 y_2, 0, 0, 2 y_3, 2 y_2, -7 y_4 - 2 y_3 + 5 y_2]$$

$p' = -s^2 + s^5$ $p = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, y_2, 2 y_2, 0, y_3, 0, y_4, y_5, y_6, 0, y_7]$$

$p = -s^6 + s^8$

158 . Coloring, {4, 6, 9}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, B, C, C, C, 1, 5]
B: [6, 8, 8, 6, 3, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$[16\,y_1, 0, 16\,y_3, 0, 16\,y_2, 0, 20\,y_1 + 20\,y_3 + 27\,y_2 - 25\,y_4, 0, 0, -20\,y_2 + 28\,y_4, 16\,y_4, 28\,y_1 + 28\,y_3 + 25\,y_2 - 35\,y_4]$

$p' = -s^3 + s^6 \quad p = s^2 - s^5 \quad p' = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$[0, y_7, y_6, y_5, 0, y_4, 0, y_3, 2\,y_6, y_1, y_2, 0]$

$p = -s^2 + s^8$

159 . Coloring, {4, 6, 10}

$\Omega p(\Delta)=0: \quad p' = s^2 - 2s^3 + 8s^4 - 8s^5 + 32s^7 \quad p = s^2 + 4s^4 + 8s^5 - 16s^6 + 32s^7 + 64s^8$

R: [7, 7, 7, 7, A, 3, B, C, B, 2, 1, 5]
B: [6, 8, 8, 6, 3, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, y_2, y_7, 0, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$[0, 0, y_1, y_2, 0, y_3, 0, y_6, y_4, y_5, y_7, y_8]$

160 . Coloring, {4, 6, 11}

$\Omega p(\Delta)=0: \quad p' = s^2 + 2s^3 + 8s^4 + 8s^5 - 32s^7 \quad p = s^2 + 4s^4 - 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, A, 3, B, C, B, C, 4, 5]
B: [6, 8, 8, 6, 3, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, -y_2 - 6\,y_1 + 4\,y_3 + 5\,y_4, y_2, 5\,y_1 - 2\,y_3 - 4\,y_4, 0, y_1, 0, 0, -8\,y_1 + 5\,y_3 + 6\,y_4, y_3, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_7 + 8\,y_3 - 3\,y_4 + 5\,y_2, -3\,y_1 - 3\,y_6 + 5\,y_3 - 3\,y_5 + 8\,y_2, 3\,y_1, 0, 0, 3\,y_6, 0, 3\,y_7, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_2]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

161 . Coloring, {4, 6, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 - 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, B, C, B, C, 1, 9]
B: [6, 8, 8, 6, 3, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, 0, y_3, 0, 0, 0, y_1, 0, y_5, y_3, y_4, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_9, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

162 . Coloring, {4, 7, 8}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^5 + 32s^7$ $p = s^2 - 4s^4 - 8s^5 + 16s^6 + 32s^7 - 64s^8$

R: [7, 7, 7, 7, A, A, A, B, B, C, 1, 5]
B: [6, 8, 8, 6, 3, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, 0, y_3, 0, 0, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_4, y_2, y_1, 0, y_2 + y_1 - y_6 - y_5 + y_3, 0, y_6, y_5, 0, y_4, y_3]$$

$p' = s^6 - s^7$ $p = s^6 - s^8$

163 . Coloring, {4, 7, 9}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, A, C, C, C, 1, 5]
B: [6, 8, 8, 6, 3, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 5	6 *vs* 7

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[y_1, 0, 0, 0, y_2, 0, y_3, 0, 0, y_5, 0, y_4]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_3, y_1, y_5, 0, y_4, 0, y_2, y_3, 0, y_6, 0]$$

$p = -s^2 + s^7$

164 . Coloring, {4, 7, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, A, C, B, 2, 1, 5]
B: [6, 8, 8, 6, 3, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_2, y_1, 0, 0, y_2, 0, y_3, 0, 0, y_4, y_5, y_5]$$

$p' = -s^3 + s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, 0, -5y_1 - 5y_2 - 5y_3 + 11y_4 - 5y_5 + 11y_6, 5y_1, 0, 5y_2, 0, 5y_3, 5y_4, 0, 5y_5, 5y_6]$$

$p = -s - s^2 + s^6 + s^7$

165 . Coloring, {4, 7, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, A, C, B, C, 4, 5]
B: [6, 8, 8, 6, 3, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_3, 0, y_2, 0, 0, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 + 13\,y_7, 3\,y_1, 3\,y_2, 0, 0, 3\,y_3, 0, 3\,y_4, 3\,y_5, 0, 3\,y_6, 3\,y_7]$$

$p = -s^2 - s^3 + s^7 + s^8$

166 . Coloring, {4, 7, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, A, C, B, C, 1, 9]
B: [6, 8, 8, 6, 3, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_4, 0, 0, 0, 0, 0, y_3, 0, -y_4 + y_3 - y_1 + y_2 + y_5, y_1, y_2, y_5]$$

$p = s - s^2 + s^3 - s^4 + s^5 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 2\,y_7, y_3, y_2, y_1, y_4, 0, y_6, 0, 0, y_5, y_7]$$

$p = -s^3 + s^8$

167 . Coloring, {4, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, B, B, C, C, 1, 5]
B: [6, 8, 8, 6, 3, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 6	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[2 y_1, 0, 0, 0, 2 y_2, 0, -27 y_2 + 16 y_3 + 7 y_1, 0, 0, 3 y_1 - 7 y_2 + 4 y_3, 2 y_3, -16 y_2 + 10 y_3 + 4 y_1]$$

$p' = s^2 - s^5$ $p = -s + s^4$ $p' = -s + s^4$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_5, y_6, y_4, 0, y_1, 0, y_2, y_3, y_8, y_9, y_7]$$

168 . Coloring, {4, 8, 10}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, A, B, B, B, 2, 1, 5]
B: [6, 8, 8, 6, 3, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_3, 0, y_4, 0, 0, y_5, y_6, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_1 + y_5 + y_2 - y_4, y_3, 0, y_1, 0, y_5, y_2, y_3, 0, y_4]$$

$p = -s^5 + s^7$ $p = -s^5 + s^6$

169 . Coloring, {4, 8, 11}

Ωp(Δ)=0: $p = s^2 + 56s^5 + 16s^6 - 64s^7 - 256s^8$ $p' = s^2 - 16s^4 - 8s^5 + 16s^6 + 64s^7$ $p' = s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 7, 7, 7, A, A, B, B, B, C, 4, 5]
B: [6, 8, 8, 6, 3, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	3 *vs* 6	5 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 5y_3 - y_1 - y_2, y_3, 0, y_1, 0, 0, y_3, y_2, y_3]$$

$p = -s + s^4$ $p' = -s^2 + s^5$ $p' = -s + s^4$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_4, y_1, y_2 + y_3 - y_5, 0, 0, y_1, 0, y_2, y_3, y_4, 0, y_5]$$

$p = -s^5 + s^7$ $p = -s^5 + s^6$ $p = -s^5 + s^8$

170 . Coloring, {4, 8, 12}

Ωp(Δ)=0: $p = -s^2 + 4s^4 + 8s^5 - 16s^6 + 32s^7 - 64s^8$ $p = s^2 + 2s^3 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, A, B, B, B, C, 1, 9]
B: [6, 8, 8, 6, 3, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, 0, 0, 0, 0, 0, y_5, 0, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, y_2, y_1 + y_3 - y_5, y_4, y_1, y_2, 0, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^4 - s^5 + s^6$ $p' = -s^3 + s^7$ $p = -s^3 + s^7$

171 . Coloring, {4, 9, 10}

$\Omega p(\Delta)=0$: $p = 3s^2 + 10s^3 + 40s^5 + 32s^6 + 32s^7 + 128s^8$ $p' = -3s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, A, B, C, C, 2, 1, 5]
B: [6, 8, 8, 6, 3, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, y_6, 0, 0, y_5, 0, y_4, 0, 0, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1, y_8, y_7]$$

172 . Coloring, {4, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^2 - 10s^3 - 40s^5 + 32s^6 - 32s^7 + 128s^8$ $p' = 3s^2 + 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, A, B, C, C, C, 4, 5]
B: [6, 8, 8, 6, 3, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	3 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, y_1, y_2, 0, y_3, 0, 0, y_1, y_2, y_3]$$

$p' = -s + s^4$ $p' = -s^2 + s^5$ $p = -s + s^4$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, 0, y_5, y_6, y_6, y_7, 0]$$

$p = -s^3 + s^8$

173 . Coloring, {4, 9, 12}

$\Omega p(\Delta)=0$: $p = -9s^2 + 4s^4 + 24s^5 - 16s^6 - 96s^7 + 64s^8$ $p = 3s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, B, C, C, C, 1, 9]
B: [6, 8, 8, 6, 3, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-y_1 + 2y_4 - y_3, 0, 0, 0, 0, 0, y_1, 0, -y_2 + y_4, y_2, y_3, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_2, y_1, y_3, y_6, y_4, 0, y_5, 0, y_6, y_7, 0]$$

$$p = -s^3 + s^8$$

174 . Coloring, {4, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, B, C, B, 2, 4, 5]
B: [6, 8, 8, 6, 3, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, 0, y_5, 0, 0, y_4, y_7, y_6]$$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-7y_1 - 7y_2 - 7y_3 + 9y_7 + 9y_4 - 7y_5 + 9y_6, 0, 7y_1, 0, 0, 7y_2, 0, 7y_3, 7y_7, 7y_4, 7y_5, 7y_6]$$

$$p = -s^2 - s^3 + s^7 + s^8$$

175 . Coloring, {4, 10, 12}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, B, C, B, 2, 1, 9]
B: [6, 8, 8, 6, 3, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, 2\,y_3 - 2\,y_5, 0, 0, 0, 0, y_2, 0, y_3, 2\,y_5, y_4, y_5]$$

$p = s^3 - s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_8, y_7, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1]$$

176 . Coloring, {4, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, B, C, B, C, 4, 9]
B: [6, 8, 8, 6, 3, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, 0, y_2, 0, y_3, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 2\,y_3 - 2\,y_7, y_2, 0, y_3, y_4, 0, y_5, 0, 2\,y_7, y_6, y_7]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

177 . Coloring, {5, 6, 7}

R: [7, 7, 7, 6, 3, 3, A, C, B, C, 1, 5]
B: [6, 8, 8, 7, A, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_5, y_6, 0, 0, y_4, y_5, y_7]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8, 0, 3\,y_1, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

178 . Coloring, {5, 6, 8}

Ωp(Δ)=0: $p = 3s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, B, B, B, C, 1, 5]
B: [6, 8, 8, 7, A, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, 0, y_6, 2\,y_4]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_7, 0, 2\,y_6, 0, y_6, y_5, y_4, y_2, y_3, 0, y_1]$$

$p = s^6 - s^8$

179 . Coloring, {5, 6, 9}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, B, C, C, C, 1, 5]
B: [6, 8, 8, 7, A, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_4, y_3, y_5, 0, 0, 0, y_6, 4\,y_3]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, y_3, y_4, y_5, 2\,y_3, y_6, y_7, 0]$$

$p = -s^2 + s^8$

» SYNC'D !RANK'D

180 . Coloring, {5, 6, 10}

R: [7, 7, 7, 6, 3, 3, B, C, B, 2, 1, 5]
B: [6, 8, 8, 7, A, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_6, y_3, 0, y_4, y_6, y_2, 0, 0, 0, y_5, y_6]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_7, y_2, 2\,y_7, y_3, y_4, y_5, y_6]$$

$p = s^6 - s^8$

181 . Coloring, {5, 6, 11}

R: [7, 7, 7, 6, 3, 3, B, C, B, C, 4, 5]
B: [6, 8, 8, 7, A, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, 0, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[11\,y_1 + 11\,y_2 + 11\,y_3 - 2\,y_4 - 2\,y_5 + 11\,y_6 - 39\,y_7, 2\,y_1, 0, 0, 0, 2\,y_2, 2\,y_3, 2\,y_4, 3\,y_1 + 3\,y_2 + 3\,y_3 + 3\,y_6 - 11\,y_7, 2\,y_5, 2\,y_6, 2\,y_7]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

182 . Coloring, {5, 6, 12}

R: [7, 7, 7, 6, 3, 3, B, C, B, C, 1, 9]
B: [6, 8, 8, 7, A, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_2, 0, y_1, 0, 0, y_4, y_3, 0, 3\,y_1 - 4\,y_4, 0, y_5, 3\,y_4]$$

$p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, y_8, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^3 + s^9$

183 . Coloring, {5, 7, 8}

R: [7, 7, 7, 6, 3, A, A, B, B, C, 1, 5]
B: [6, 8, 8, 7, A, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_3, 0, 0, y_2, 2\,y_4, y_1]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 5\,y_6, 5\,y_7, 5\,y_3, 0, 5\,y_6 - 5\,y_7, 5\,y_4, 5\,y_5, 5\,y_2, 5\,y_6 - 5\,y_7, 5\,y_1, 5\,y_7 + 11\,y_3 + 11\,y_4 - 5\,y_5 - 5\,y_2 - 15\,y_6 + 11\,y_1]$$

$p' = s^4 + s^5 - s^7 - s^8 \quad p = -s^4 + s^6 + s^7 - s^9 \quad p = -s^4 + s^{10}$

184 . Coloring, {5, 7, 9}

R: [7, 7, 7, 6, 3, A, A, C, C, C, 1, 5]
B: [6, 8, 8, 7, A, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	6 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[2\,y_3, 0, y_1, 0, y_2, y_3, y_4, 0, 0, y_5, 0, y_6]$$

$p = -s^2 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_1 - y_4, y_3, 0, y_4, y_2, y_5, 2\,y_4, y_4, y_6, 0]$$

$p' = s^4 - s^7 \quad p = s^4 - s^7 \quad p' = s^5 - s^8$

185 . Coloring, {5, 7, 10}

$\Omega p(\Delta)=0: \quad p = -2s^2 - s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, A, C, B, 2, 1, 5]
B: [6, 8, 8, 7, A, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_1, y_2, 0, y_3, y_6, y_4, 0, 0, y_5, y_6, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, -3\,y_1 - 3\,y_4 - 3\,y_2 - 3\,y_3 + 10\,y_6 - 3\,y_5, 3\,y_1, 0, 3\,y_4, 3\,y_2, 3\,y_3, -3\,y_4 + 3\,y_6, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

186 . Coloring, {5, 7, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 - s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, A, C, B, C, 4, 5]
B: [6, 8, 8, 7, A, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_7, y_8, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[3\,y_8, 3\,y_7, 3\,y_6, 0, 0, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_4, -3\,y_8 - 3\,y_7 - 3\,y_6 - 3\,y_5 - 6\,y_4 - 3\,y_3 + 13\,y_2 + 13\,y_1, 3\,y_1]$$

$p = s^3 - s^5 - s^8 + s^{10}$ $p' = s^3 + s^4 - s^8 - s^9$

187 . Coloring, {5, 7, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, A, C, B, C, 1, 9]
B: [6, 8, 8, 7, A, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_2 - y_3 - y_4 + y_5 + y_6, 0, y_1, 0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p' = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$ $p = s^2 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_3 - y_8, y_2, y_3, y_8, y_4, y_5, 0, y_6, y_7, y_8]$$

$p' = -s^6 + s^9$ $p = -s^6 + s^9$

188 . Coloring, {5, 8, 9}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, B, B, C, C, 1, 5]
B: [6, 8, 8, 7, A, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_{10}, y_9, y_8, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

189 . Coloring, {5, 8, 10}

R: [7, 7, 7, 6, 3, A, B, B, B, 2, 1, 5]
B: [6, 8, 8, 7, A, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_4, y_3, 0, -2\,y_3 + 4\,y_5, -y_3 + 2\,y_5, y_2, 0, 0, y_5, y_6, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 2\,y_2 - y_4, 8\,y_2 - 4\,y_4 - 2\,y_1, 0, 4\,y_2 - 2\,y_4 - y_1, y_1, y_2, y_3, y_4, 0, y_5]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$ $p = -s^4 + s^8$

190 . Coloring, {5, 8, 11}

R: [7, 7, 7, 6, 3, A, B, B, B, C, 4, 5]
B: [6, 8, 8, 7, A, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	5 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_4, y_3, y_2, y_1, y_4 - y_3 - y_2 + y_1 - y_7 + y_6 + y_5, 0, 0, y_7, y_6, y_5]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[8 y_1 - 4 y_2 - 10 y_3, y_1, y_2, 0, 0, y_3, 4 y_1 - 2 y_2 - 5 y_3, y_5, 3 y_1 - 4 y_3 - y_5 + y_4, 10 y_1 - 5 y_2 - 12 y_3, 0, y_4]$$

$p' = s^7 - s^8$ $p' = s^6 - s^8$ $p' = s^5 - s^8$ $p = s^5 - s^9$

191 . Coloring, {5, 8, 12}

R: [7, 7, 7, 6, 3, A, B, B, B, C, 1, 9]
B: [6, 8, 8, 7, A, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_2, y_3, 0, y_5, y_6, y_7, y_4]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, y_2, 4 y_2 - 2 y_3, y_5, 2 y_2 - y_3, y_3, y_4, 0, y_7, 0, y_6]$$

$p = -s^3 + s^8$ $p' = s^3 - s^8$

192 . Coloring, {5, 9, 10}

R: [7, 7, 7, 6, 3, A, B, C, C, 2, 1, 5]
B: [6, 8, 8, 7, A, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 2\,y_2 - 3\,y_3, 0, 2\,y_5, y_3, y_4, 0, 0, y_5, y_6, 2\,y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

193 . Coloring, {5, 9, 11}

R: [7, 7, 7, 6, 3, A, B, C, C, C, 4, 5]
B: [6, 8, 8, 7, A, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1 + y_7 - y_5 + y_6 + y_2 - y_3 - y_4, y_1, y_7, y_5, y_6, 0, 0, y_2, y_3, y_4]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_8, 2\,y_5, y_7, y_6, 0]$$

$p = -s^4 + s^9$

194 . Coloring, {5, 9, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 3s^3 - 6s^4 - 8s^5 - 24s^6 - 32s^7 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, C, C, C, 1, 9]
B: [6, 8, 8, 7, A, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	6 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-y_2 + y_3 + y_4 - y_5 + y_6, 0, y_1, 0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, -y_1 + y_2 - y_3 - y_4 + y_5 + y_6 - y_7, y_1, y_2, 2\,y_3, y_3, y_4, y_5, 0, y_6, y_7, 0]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = -s^3 + s^9$

M \; N

$ [[0, 0, 0, 0, 0, 270, 0, 0, 402, 168, 0, 892] , [0, 0, 0, 352, 0, 84, 0, 624, 0, 672, 0, 0] , [0, 0, 0, 168, 0, 336, 0, 210, 0, 576, 0, 442] , [0, 352, 168, 0, 402, 0, 270, 0, 0, 0, 540, 0] , [0, 0, 0, 402, 0, 446, 0, 221, 0, 663, 0, 0] , [270, 84, 336, 0, 446, 0, 260, 0, 0, 0, 336, 0] , [0, 0, 0, 270, 0, 260, 0, 260, 667, 681, 0, 1326] , [0, 624, 210, 0, 221, 0, 260, 0, 0, 0, 417, 0] , [402, 0, 0, 0, 0, 0, 667, 0, 0, 0, 663, 0] , [168, 672, 576, 0, 663, 0, 681, 0, 0, 0, 704, 0] , [0, 0, 0, 540, 0, 336, 0, 417, 663, 704, 0, 804] , [892, 0, 442, 0, 0, 0, 1326, 0, 0, 0, 804, 0]] $ $ [[0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1] , [0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1] , [0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1] , [1, 1, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0] , [0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1] , [1, 1, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0] , [0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1] , [1, 1, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0] , [1, 1, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0] , [0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1] , [1, 1, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0]] $

$\tau = 72$, $r' = 1/2$

R: [7, 7, 7, 6, 3, A, B, C, C, C, 1, 9]
B: [6, 8, 8, 7, A, 3, A, B, B, 2, 4, 5]

Ranges

Action of R on ranges, [[24], [25], [25], [23], [20], [24], [25], [25], [20], [24], [25], [25], [23], [10], [21], [1], [12], [13], [13], [28], [3], [29], [29], [29], [27], [4], [4], [4], [2]]
Action of B on ranges, [[10], [21], [6], [17], [22], [11], [26], [7], [22], [11], [26], [7], [18], [24], [24], [15], [12], [28], [8], [12], [9], [28], [28], [8], [19], [16], [16], [5], [14]]

Cycles: R , {{9, 12}, {1, 7, 11}}, B , {{2, 4, 7, 8, 10, 11}}

β({1, 6}) = 135/6928
β({1, 9}) = 201/6928
β({1, 10}) = 21/1732
β({1, 12}) = 223/3464
β({2, 4}) = 11/433
β({2, 6}) = 21/3464
β({2, 8}) = 39/866
β({2, 10}) = 21/433
β({3, 4}) = 21/1732
β({3, 6}) = 21/866
β({3, 8}) = 105/6928
β({3, 10}) = 18/433
β({3, 12}) = 221/6928
β({4, 5}) = 201/6928
β({4, 7}) = 135/6928
β({4, 11}) = 135/3464
β({5, 6}) = 223/6928
β({5, 8}) = 221/13856
β({5, 10}) = 663/13856
β({6, 7}) = 65/3464
β({6, 11}) = 21/866
β({7, 8}) = 65/3464
β({7, 9}) = 667/13856
β({7, 10}) = 681/13856
β({7, 12}) = 663/6928
β({8, 11}) = 417/13856
β({9, 11}) = 663/13856
β({10, 11}) = 22/433
β({11, 12}) = 201/3464

Partitions
α([{1, 2, 3, 5, 7, 11}, {4, 6, 8, 9, 10, 12}]) = 1/1

b1 = {1, 2, 3, 5, 7, 11} ` , ` b2 = {4, 6, 8, 9, 10, 12}

Action of R and B on the blocks of the partitions: = [1, 2] [2, 1]
with invariant measure [1, 1]

N by blocks, check: true . ` See partition graph.

` ` See level-2 partition graph.

`

Right Group	
Coloring	{5, 9, 12}
Rank	2
R,B	[7, 7, 7, 6, 3, A, B, C, C, C, 1, 9], [6, 8, 8, 7, A, 3, A, B, B, 2, 4, 5]
π_2	[0, 0, 0, 0, 270, 0, 0, 402, 168, 0, 892, 0, 352, 0, 84, 0, 624, 0, 672, 0, 0, 168, 0, 336, 0, 210, 0, 576, 0, 442, 402, 0, 270, 0, 0, 0, 540, 0, 446, 0, 221, 0, 663, 0, 0, 260, 0, 0, 0, 336, 0, 260, 667, 681, 0, 1326, 0, 0, 417, 0, 0, 663, 0, 704, 0, 804]
u_2	[0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1, 1, 0, 1, 0, 1, 1, 1, 0, 1, 1, 0, 1, 0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1, 1, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1, 0, 0, 1, 0, 0, 1, 0, 1, 0, 1] (dim 1)

wpp	[6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6]

195 . Coloring, {5, 10, 11}

$\Omega p(\Delta)=0$: $p = -6s^2 - s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, B, C, B, 2, 4, 5]
B: [6, 8, 8, 7, A, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_8, y_7, y_6, y_5, y_4, y_3, 0, 0, y_2, y_1, -y_8 - y_7 + y_6 + y_5 - y_4 + y_3 + y_2 - y_1]$$

$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[7\,y_1, 0, 7\,y_3, 0, 0, 7\,y_2, 9\,y_1 + 9\,y_3 + 9\,y_2 + 9\,y_4 - 7\,y_5 - 7\,y_6 + 9\,y_8 - 7\,y_7, 7\,y_4, 7\,y_5, 7\,y_6, 7\,y_8, 7\,y_7]$$

$p = s^3 + s^4 - s^8 - s^9$

196 . Coloring, {5, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, C, B, 2, 1, 9]
B: [6, 8, 8, 7, A, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_6, 0, 0, y_6, y_3, 0, y_6 + y_4, y_4, y_5, y_6]$$

$p' = s^5 - s^8$ $p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

197 . Coloring, {5, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, C, B, C, 4, 9]
B: [6, 8, 8, 7, A, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_7, y_7 + y_1 - y_2 - y_3 - y_4 + y_5 + y_6, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_7, y_8, 0, y_9, y_6, y_7]$$

$p = -s^5 + s^{10}$

198 . Coloring, {6, 7, 8}

R: [7, 7, 7, 6, A, 3, A, B, B, C, 1, 5]
B: [6, 8, 8, 7, 3, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\,y_1, 0, y_1, 0, y_2, y_3, y_4, 0, 0, y_5, 2\,y_3, y_6]$$

$p = -s^4 + s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 11\,y_1 - 10\,y_2 + 11\,y_3 - 5\,y_4 - 5\,y_5 - 5\,y_6 + 11\,y_8 - 5\,y_7, 5\,y_2, 5\,y_1, 0, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 5\,y_6, 5\,y_8, 5\,y_7]$$

$p = -s^5 - s^6 + s^8 + s^9$ $p = s^5 - s^7 - s^8 + s^{10}$

199 . Coloring, {6, 7, 9}

R: [7, 7, 7, 6, A, 3, A, C, C, C, 1, 5]
B: [6, 8, 8, 7, 3, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\,y_3, 0, y_1, 0, y_2, y_3, y_4, 0, 0, y_5, 0, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, y_7, y_1, 0, y_7, y_6, y_5, 2\,y_7, y_4, y_3, 0]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

200 . Coloring, {6, 7, 10}

$\Omega p(\Delta)=0$: $p = 2s^2 + s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, A, C, B, 2, 1, 5]
B: [6, 8, 8, 7, 3, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 10	9 *vs* 10	5 *vs* 9	4 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_4, y_3, y_4 - y_5, 0, y_4, y_5, y_2, 0, 0, y_1, y_5, y_5]$$

$p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, -3\,y_1 + 3\,y_2, 3\,y_3 + 3\,y_1, 0, -3\,y_1 + 3\,y_2, 3\,y_3, 3\,y_2, 7\,y_3 + 4\,y_2 - 3\,y_4, 3\,y_1, 3\,y_3 + 3\,y_2, 3\,y_4]$$

$p' = -s^3 + s^7$ $p = -s^3 + s^9$ $p = -s^3 + s^5$ $p' = -s^3 + s^5$ $p = -s^3 + s^7$

» SYNC'D !RANK'D

201 . Coloring, {6, 7, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 - s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, A, C, B, C, 4, 5]
B: [6, 8, 8, 7, 3, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[-3\,y_2 - 3\,y_3 + 5\,y_4 - 3\,y_5 + 8\,y_7, -3\,y_2 - 3\,y_1 + 8\,y_4 - 3\,y_6 + 5\,y_7, 3\,y_2, 0, 0, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$ $p' = -s^3 + s^9$

202 . Coloring, {6, 7, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, A, C, B, C, 1, 9]
B: [6, 8, 8, 7, 3, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[-y_1 + y_6 + y_7 - y_2 - y_3 + y_4 + y_5, 0, y_1, 0, 0, y_6, y_7, 0, y_2, y_3, y_4, y_5]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1 + 2\,y_5 - y_6, y_1, y_2, y_5 + y_6, y_5, y_3, y_4, 0, y_6, y_7, y_5]$$

$p' = s^6 - s^9$ $p = -s^5 + s^8$ $p' = s^5 - s^8$

203 . Coloring, {6, 8, 9}

$\Omega p(\Delta)=0$: $p = -2s^2 + 3s^3 - 2s^4 + 16s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, B, B, C, C, 1, 5]
B: [6, 8, 8, 7, 3, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_1, 0, y_2, 0, -2\,y_1 - 2\,y_2 + 5\,y_3 + 5\,y_5 - 4\,y_4, y_3, 4\,y_1 + 4\,y_2 - 6\,y_3 - 6\,y_5 + 5\,y_4, 0, 0, 5\,y_1 + 5\,y_2 - 8\,y_3 - 8\,y_5 + 6\,y_4, y_5, y_4]$$

$p' = -s^4 + s^7$ $p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_9, y_8, 0, y_9, y_7, y_6, y_5, y_4, y_3, y_2]$$

$p = -s^2 + s^{10}$

204 . Coloring, {6, 8, 10}

R: [7, 7, 7, 6, A, 3, B, B, B, 2, 1, 5]
B: [6, 8, 8, 7, 3, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_3, y_1, 0, 2\,y_5, y_5, y_6, 0, 0, 2\,y_1 - y_5, y_4, 0]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_1, 0, y_1, -3\,y_1 + 2\,y_2, y_2, y_3, y_4, 0, y_5]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$ $p = -s^4 + s^8$

205 . Coloring, {6, 8, 11}

R: [7, 7, 7, 6, A, 3, B, B, B, C, 4, 5]
B: [6, 8, 8, 7, 3, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {3, 4, 6, 7, 11}}

See Matrix

$$[0, 0, -5\,y_1 + 11\,y_2 - 5\,y_3 - 5\,y_4 + 11\,y_5 - 5\,y_6 + 11\,y_7, 5\,y_1, 5\,y_2, 5\,y_3, 5\,y_4, 0, 0, 5\,y_5, 5\,y_6, 5\,y_7]$$

$p = s + s^2 + s^3 - s^6 - s^7 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_5, y_4, y_5, 0, 0, y_3, y_5, y_2, y_1, y_6, 0, y_7]$$

$p = s^6 - s^8$ $p' = s^6 - s^8$

206 . Coloring, {6, 8, 12}

R: [7, 7, 7, 6, A, 3, B, B, B, C, 1, 9]
B: [6, 8, 8, 7, 3, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, 0, y_4, y_3, 0, y_2, y_4, y_1, y_5 + y_4]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_1, y_2, 2\,y_4, y_3, y_4, y_5, y_6, 0, y_7, 0, y_8]$$

$p = -s^5 + s^9$

207 . Coloring, {6, 9, 10}

R: [7, 7, 7, 6, A, 3, B, C, C, 2, 1, 5]
B: [6, 8, 8, 7, 3, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 2\,y_3, y_4, y_6, 0, 0, y_5, y_7, 2\,y_4]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_8, y_5, 0, y_8, y_6, y_7, y_4, y_2, y_3, y_1]$$

$p = -s^3 + s^9$

208 . Coloring, {6, 9, 11}

R: [7, 7, 7, 6, A, 3, B, C, C, C, 4, 5]
B: [6, 8, 8, 7, 3, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {3, 4, 6, 7, 11}}

See Matrix

$$[0, 0, -7\,y_1 + 9\,y_2 - 7\,y_3 - 7\,y_4 + 9\,y_5 - 7\,y_6 + 9\,y_7, 7\,y_1, 7\,y_2, 7\,y_3, 7\,y_4, 0, 0, 7\,y_5, 7\,y_6, 7\,y_7]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_2, y_3, y_6, 0, 0, y_1, y_6, y_4, 2\,y_6, y_5, y_7, 0]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

209 . Coloring, {6, 9, 12}

R: [7, 7, 7, 6, A, 3, B, C, C, C, 1, 9]
B: [6, 8, 8, 7, 3, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_3, 0, 3\,y_2, 0, 0, 3\,y_1, 3\,y_3 + 3\,y_2, 0, 7\,y_3 + 7\,y_2 - 3\,y_1 - 3\,y_4, 3\,y_1, 3\,y_3 + 3\,y_2 - 3\,y_1, 3\,y_4]$$

$p = -s^3 + s^5$ $p = -s^3 + s^7$ $p' = -s^3 + s^7$ $p' = -s^3 + s^5$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, y_1, y_2, 2\,y_4, y_4, y_5, y_7, 0, y_6, y_8, 0]$$

$p = -s^3 + s^9$

210 . Coloring, {6, 10, 11}

$\Omega p(\Delta)=0$: $p = -2s^2 + 5s^3 + 2s^4 - 16s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, B, C, B, 2, 4, 5]
B: [6, 8, 8, 7, 3, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$[0, y_6, y_7, y_4, y_5, y_1, y_2, 0, 0, y_3, y_9, y_8]$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$[y_1, 0, y_3, 0, 0, y_2, y_3, y_7, y_4, y_8, y_5, y_6]$

$p = -s^7 + s^9$

211 . Coloring, {6, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, B, C, B, 2, 1, 9]
B: [6, 8, 8, 7, 3, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	5 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$[y_5, y_2, y_2 - y_4, 0, 0, y_4, y_1, 0, y_2, y_4, y_3, y_4]$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$[0, 0, y_2, y_1, y_6, y_7, y_5, y_4, 0, y_3, y_8, y_9]$

212 . Coloring, {6, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, B, C, B, C, 4, 9]
B: [6, 8, 8, 7, 3, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$[0, 0, y_2, y_1, 0, y_4, y_5, 0, y_8, y_3, y_7, y_6]$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$[y_1, y_2, y_6, 0, y_5, y_4, y_7, y_3, 0, y_8, y_9, y_7]$

$p = -s^4 + s^{10}$

213 . Coloring, {7, 8, 9}

R: [7, 7, 7, 6, A, A, A, B, C, C, 1, 5]
B: [6, 8, 8, 7, 3, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_6, y_3, 0, 0, y_4, y_6, y_5]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_6, y_7, y_8, 0, y_6, y_5, y_3, y_4, 0, y_2, y_1]$$

$p = -s^6 + s^9$

214 . Coloring, {7, 8, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, A, B, B, 2, 1, 5]
B: [6, 8, 8, 7, 3, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_4, y_5, 0, 0, 2\,y_1, y_1, y_2, 0, 0, y_3, 2\,y_1, 0]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 5\,y_6, 5\,y_7, 0, 5\,y_3, 5\,y_4, 5\,y_5, 5\,y_1, 0, 5\,y_2, -5\,y_6 + 11\,y_7 - 5\,y_3 + 11\,y_4 - 5\,y_5 - 5\,y_1 + 11\,y_2]$$

$p = s^4 + s^5 - s^7 - s^8$

» SYNC'D !RANK'D

215 . Coloring, {7, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, A, B, B, C, 4, 5]
B: [6, 8, 8, 7, 3, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, 0, 2\,y_1, 2\,y_2, 2\,y_3, 3\,y_5, 0, 0, 2\,y_4, 2\,y_5, 2\,y_6]$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$[y_1, 2\,y_4, y_3, 0, 0, y_2, y_4, y_5, y_6, 0, y_7, y_8]$

$p = s^7 - s^9$

216 . Coloring, {7, 8, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 5s^3 - 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, A, B, B, C, 1, 9]
B: [6, 8, 8, 7, 3, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 - y_4 + y_5 + y_6, 0, 0, 0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 10\,y_3, 11\,y_1 - 5\,y_2 - 15\,y_3 + 11\,y_4 - 5\,y_5 + 11\,y_6 - 5\,y_7, 5\,y_1, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 0, 0, 5\,y_6, 5\,y_7]$$

$p = s^2 - s^5 - s^6 + s^9$ $p' = s^2 + s^3 + s^4 - s^6 - s^7 - s^8$

217 . Coloring, {7, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, A, C, C, 2, 1, 5]
B: [6, 8, 8, 7, 3, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[2\,y_3, y_1, 0, 0, y_2, y_3, y_4, 0, 0, y_5, 0, 2\,y_3]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, 2\,y_1 - 2\,y_3, 0, y_6, 2\,y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

218 . Coloring, {7, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, A, C, C, C, 4, 5]
B: [6, 8, 8, 7, 3, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 6	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_1, 2\,y_2, 2\,y_3, 3\,y_1, 0, 0, 2\,y_4, 0, 2\,y_5]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 2\,y_4, y_2, 0, 0, y_3, y_4, y_5, 2\,y_4, 0, y_6, 0]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$

» SYNC'D !RANK'D

219 . Coloring, {7, 9, 12}

Ωp(Δ)=0: $p = 2s^2 - 3s^3 + 2s^4 + 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, A, C, C, C, 1, 9]
B: [6, 8, 8, 7, 3, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	4 *vs* 6	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_1 - 2\,y_2 - 2\,y_3 + 2\,y_4, 0, 0, 0, 0, y_1 - y_2 - y_3 + y_4, y_1, 0, y_2, y_3, 0, y_4]$$

$p' = s^4 - s^5$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_4, y_2, y_3, 2\,y_4, y_4, y_5, y_6, 0, 0, y_1, 0]$$

$p' = -s^4 + s^7 \quad p = -s^4 + s^7$

» SYNC'D !RANK'D

220 . Coloring, {7, 10, 11}

R: [7, 7, 7, 6, A, A, A, C, B, 2, 4, 5]
B: [6, 8, 8, 7, 3, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_4, y_4, y_5, y_6, 0, 0, y_2, y_3, y_3]$$

$p' = -s^4 + s^7 \quad p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[-5\,y_1 - 5\,y_2 - 5\,y_3 - 5\,y_7 + 11\,y_4 - 5\,y_5 + 11\,y_6, 0, 5\,y_1, 0, 0, 5\,y_2, 5\,y_3, 5\,y_7, 5\,y_4, 0, 5\,y_5, 5\,y_6]$$

$p = -s^2 - s^3 + s^7 + s^8$

221 . Coloring, {7, 10, 12}

R: [7, 7, 7, 6, A, A, A, C, B, 2, 1, 9]
B: [6, 8, 8, 7, 3, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_5, y_3, 0, y_6, y_7, y_4, y_5]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, 0, y_7, 3\, y_4]$$

$p = -s^5 + s^8$

222 . Coloring, {7, 11, 12}

R: [7, 7, 7, 6, A, A, A, C, B, C, 4, 9]
B: [6, 8, 8, 7, 3, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, 0, y_3, y_1, 0, -y_2 + y_3 + y_1 - y_4 + y_5 + y_6, y_4, y_5, y_6]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 2\, y_7, y_2, 0, y_3, y_4, y_7, y_5, 0, 0, y_6, y_7]$$

$p' = -s^3 + s^8$ $p = -s^3 + s^8$

223 . Coloring, {8, 9, 10}

R: [7, 7, 7, 6, A, A, B, B, C, 2, 1, 5]
B: [6, 8, 8, 7, 3, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_7, y_4, 0, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_4, 0, y_5, y_3, y_2, y_7, y_8, y_9, y_6]$$

224 . Coloring, {8, 9, 11}

R: [7, 7, 7, 6, A, A, B, B, C, C, 4, 5]
B: [6, 8, 8, 7, 3, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	10 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_3, y_2, y_1, 0, 0, y_{10}, y_9, y_8, y_7, y_6, y_5, y_4]$$

225 . Coloring, {8, 9, 12}

R: [7, 7, 7, 6, A, A, B, B, C, C, 1, 9]
B: [6, 8, 8, 7, 3, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-y_1 + 2\,y_5 + 2\,y_2 - y_3, 0, 0, 0, 0, y_5 + y_2 - y_4, y_1, 0, y_5, y_2, y_3, y_4]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_1, y_3, y_2, y_4, y_7, y_5, y_6, 0, y_8, y_7, y_9]$$

$p = s^6 - s^{10}$

226 . Coloring, {8, 10, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, B, B, B, 2, 4, 5]
B: [6, 8, 8, 7, 3, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_4, 0, y_3, y_1, y_7, y_2, 0, 0, y_5, y_6, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_2, 0, y_1, 0, 0, -3\,y_2 + 2\,y_5, y_2, y_3, y_4, y_5, 0, y_6]$$

$p = s^5 - s^7 \quad p' = -s^5 + s^7$

227 . Coloring, {8, 10, 12}

$\Omega p(\Delta)=0: \quad p = 2s^2 + s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, B, B, B, 2, 1, 9]
B: [6, 8, 8, 7, 3, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, y_4, 0, 2\,y_3, y_5, y_6, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_3, y_2, y_3, y_4, y_5, 0, y_6, 0, y_7]$$

$p = -s^4 + s^8$

228 . Coloring, {8, 11, 12}

$\Omega p(\Delta)=0: \quad p = -2s^2 + s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, B, B, B, C, 4, 9]
B: [6, 8, 8, 7, 3, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[2\, y_4, y_1, y_2, 0, y_3, -3\, y_4 + 2\, y_6, y_4, y_5, 0, y_6, 0, y_7]$$

$p = s^4 - s^8$ $p' = s^4 - s^8$

229 . Coloring, {9, 10, 11}

$\Omega p(\Delta)=0$: $p = 9s^3 - 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, B, C, C, 2, 4, 5]
B: [6, 8, 8, 7, 3, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_7, 0, y_8, y_4, y_5, y_6, 0, 0, y_3, y_1, y_2]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_4, 0, y_3, 0, 0, y_1, y_2, y_7, y_8, y_9, y_5, y_6]$$

230 . Coloring, {9, 10, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 - 5s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, B, C, C, 2, 1, 9]
B: [6, 8, 8, 7, 3, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-y_1 + 2\,y_4, y_1, 0, 0, 0, -y_2 + 2\,y_4, y_2, 0, y_4, -y_3 + 2\,y_4, y_3, y_4]$$

$p = -s^4 + s^6$ $p = -s^4 + s^7$ $p = -s^4 + s^8$ $p = -s^4 + s^5$

Omega Rank for B : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_6, y_7, y_8, y_9, y_1, y_2, 0, y_3, y_4, y_5]$$

231 . Coloring, {9, 11, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 + 5s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, B, C, C, C, 4, 9]
B: [6, 8, 8, 7, 3, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_2, y_3, y_1, 0, 2\,y_5, y_4, y_5, y_6, 0, y_7, y_8, 0]$$

$p = -s^4 + s^9$

232 . Coloring, {10, 11, 12}

R: [7, 7, 7, 6, A, A, B, C, B, 2, 4, 9]
B: [6, 8, 8, 7, 3, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_4, 0, y_3, 0, y_1, y_2, y_5, y_6, 0, y_7, y_8, y_9]$$

233 . Coloring, {2, 3, 4, 5}

Ωp(Δ)=0: $p' = 3s^2 + 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = 3s^2 + 14s^3 - 24s^5 + 32s^6 - 32s^7 - 128s^8$

R: [7, 8, 8, 7, 3, A, B, C, B, C, 1, 5]
B: [6, 7, 7, 6, A, 3, A, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[7\,y_1, 0, 9\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4 - 7\,y_5 + 9\,y_6 - 7\,y_7, 0, 7\,y_2, 0, 7\,y_3, 7\,y_4, 0, 7\,y_5, 7\,y_6, 7\,y_7]$$

$p = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$[0, 3y_1, -3y_1 - 3y_4 - 3y_3 - 3y_2 + 13y_5 - 3y_6 - 3y_7 + 13y_8, 3y_4, 0, 3y_3, 3y_2, 0, 3y_5, 3y_6, 3y_7, 3y_8]$

$p = -s^5 - s^6 + s^8 + s^9$

234 . Coloring, {2, 3, 4, 6}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 + 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, 3, B, C, B, C, 1, 5]
B: [6, 7, 7, 6, 3, A, A, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$[7y_5 - 3y_2 - 3y_4, 0, -3y_1 + 3y_5, 0, 3y_1, 0, 3y_2, 3y_5 - 3y_3, 0, 3y_3, 3y_4, 3y_5]$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$[0, -6y_5 - 3y_3 - 3y_1 - 3y_7 + 13y_2 - 3y_6 + 13y_4, 3y_5, 3y_3, 0, 3y_1, 3y_7, 0, 3y_2, 3y_6, 3y_5, 3y_4]$

$p = -s^4 - s^5 + s^7 + s^8$ $p = s^4 - s^6 - s^7 + s^9$

235 . Coloring, {2, 3, 4, 7}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, A, C, B, C, 1, 5]
B: [6, 7, 7, 6, 3, 3, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, 0, y_3, 2\,y_5, 0, y_6, y_5, y_4]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, 3\,y_2, 3\,y_1, -3\,y_2 - 3\,y_1 - 3\,y_7 - 3\,y_6 + 13\,y_5 - 3\,y_4 + 13\,y_3, 0, 3\,y_7, 3\,y_6, 0, 3\,y_5, 0, 3\,y_4, 3\,y_3]$$

$p = s^2 + s^3 - s^7 - s^8$

236 . Coloring, {2, 3, 4, 8}

Ωp(Δ)=0: $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, A, B, B, B, C, 1, 5]
B: [6, 7, 7, 6, 3, 3, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	4 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[-y_3 - y_2 - y_1 + 5\,y_4, 0, 0, 0, y_4, 0, y_3, y_2, 0, y_4, y_1, y_4]$$

$p' = -s^3 + s^6$ $p' = -s^2 + s^5$ $p = s^2 - s^5$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, y_4, -y_4 + 2\,y_1, y_3, 0, y_2, -y_3 + 2\,y_1, 0, y_1, -y_2 + 2\,y_1, 0, y_1]$$

$p' = s^6 - s^7$ $p' = s^5 - s^7$ $p' = s^4 - s^7$ $p = s^4 - s^8$

237 . Coloring, {2, 3, 4, 9}

$\Omega p(\Delta)=0$: $p = 3s^2 + 2s^3 + 8s^5 + 32s^7$ $p = -9s^2 + 4s^4 - 24s^5 + 16s^6 - 96s^7 + 64s^8$

R: [7, 8, 8, 7, A, A, B, C, C, C, 1, 5]
B: [6, 7, 7, 6, 3, 3, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[y_3, 0, 0, 0, 5\,y_3 - y_1 - y_2 - y_4, 0, y_3, y_1, 0, y_2, y_3, y_4]$$

$p' = -s^3 + s^6$ $p' = -s^2 + s^5$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_3, y_2, 0, y_4, y_5, 0, y_6, y_7, y_8, 0]$$

238 . Coloring, {2, 3, 4, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 8s^6 + 16s^7$ $p' = s^3 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, A, A, B, C, B, 2, 1, 5]
B: [6, 7, 7, 6, 3, 3, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[7\,y_1,\ 9\,y_1 - 7\,y_7 + 9\,y_6 - 7\,y_5 - 7\,y_4 + 9\,y_3 - 7\,y_2,\ 0,\ 0,\ 7\,y_7,\ 0,\ 7\,y_6,\ 7\,y_5,\ 0,\ 7\,y_4,\ 7\,y_3,\ 7\,y_2]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0,\ 0,\ -y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7,\ y_1,\ 0,\ y_2,\ y_3,\ 0,\ y_4,\ y_5,\ y_6,\ y_7]$$

$p = -s^7 + s^8$

239 . Coloring, {2, 3, 4, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, B, C, B, C, 4, 5]
B: [6, 7, 7, 6, 3, 3, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0,\ 0,\ 0,\ 2\,y_1,\ 2\,y_2,\ 0,\ -7\,y_1 + 3\,y_2 + 4\,y_4,\ -27\,y_1 + 7\,y_2 - 2\,y_3 + 16\,y_4,\ 0,\ 2\,y_3,\ -16\,y_1 + 4\,y_2 + 10\,y_4,\ 2\,y_4]$$

$p' = -s^3 + s^6$ $p' = -s^2 + s^5$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8,\ 3\,y_1,\ 3\,y_2,\ 0,\ 0,\ 3\,y_3,\ 3\,y_4,\ 0,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

240 . Coloring, {2, 3, 4, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, B, C, B, C, 1, 9]
B: [6, 7, 7, 6, 3, 3, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, y_5, y_3, y_5, y_6, y_4]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_3, y_4, y_5, 0, 0, y_6, y_7, y_7]$$

$p = s^5 - s^8$ $p' = s^5 - s^8$

241 . Coloring, {2, 3, 5, 6}

R: [7, 8, 8, 6, 3, 3, B, C, B, C, 1, 5]
B: [6, 7, 7, 7, A, A, A, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	9 *vs* 10	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[6\,y_1 + 6\,y_2 - 5\,y_3 + 6\,y_4 - 5\,y_5, 0, 5\,y_1 + 5\,y_2 + 5\,y_4 - 5\,y_6, 0, 5\,y_1, 5\,y_2, 5\,y_3, 5\,y_4, 0, 0, 5\,y_5, 5\,y_6]$$

$p = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$ $p = -s^2 - s^4 + s^5 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_1 - 6\,y_5 - 3\,y_2 + 13\,y_3 - 3\,y_4 + 13\,y_6, 0, 3\,y_1, 0, 3\,y_5, 3\,y_2, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

242 . Coloring, {2, 3, 5, 7}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, A, C, B, C, 1, 5]
B: [6, 7, 7, 7, A, 3, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$[y_1, 0, y_2, 0, y_3, y_8, y_6, y_5, 0, y_4, y_8, y_7]$

$p = -s^5 + s^9$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$[0, 3y_1 + 3y_4, 3y_1, -6y_1 - 9y_4 - 3y_2 + 13y_3 - 3y_5 + 13y_6, 0, 3y_4, 3y_2, 0, 3y_3, 3y_4, 3y_5, 3y_6]$

$p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 + s^9$ $p = -s^3 - s^4 + s^6 + s^7$

243 . Coloring, {2, 3, 5, 8}

R: [7, 8, 8, 6, 3, A, B, B, B, C, 1, 5]
B: [6, 7, 7, 7, A, 3, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_1, 0, y_8, 0, y_6, y_7, y_2, y_3, 0, y_4, y_5, y_9]$$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -y_1 - 3\,y_2 - y_3 + 6\,y_5 - y_4, y_1, 2\,y_2, 0, y_2, y_3, 0, y_5, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

244 . Coloring, {2, 3, 5, 9}

R: [7, 8, 8, 6, 3, A, B, C, C, C, 1, 5]
B: [6, 7, 7, 7, A, 3, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[5\,y_1, 0, 11\,y_1 - 5\,y_2 - 5\,y_7 + 11\,y_8 - 5\,y_5 - 5\,y_6 + 11\,y_3 - 5\,y_4, 0, 5\,y_2, 5\,y_7, 5\,y_8, 5\,y_5, 0, 5\,y_6, 5\,y_3, 5\,y_4]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_4, 0, y_3, y_5, 0, 2\,y_3, y_6, 2\,y_2, 0]$$

$p = -s^4 + s^7$ $p' = s^4 - s^7$

245 . Coloring, {2, 3, 5, 10}

Ωp(Δ)=0: $p = -9s^3 + 2s^4 + 16s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, B, C, B, 2, 1, 5]
B: [6, 7, 7, 7, A, 3, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[6\,y_1 + 6\,y_2 + 6\,y_6 + 6\,y_8 - 5\,y_4 - 5\,y_7,\ 5\,y_1,\ 5\,y_2,\ 0,\ 5\,y_1 + 5\,y_2 + 5\,y_6 - 5\,y_5 - 5\,y_3 + 5\,y_8,\ 5\,y_6,\ 5\,y_4,\ 5\,y_5,\ 0,\ 5\,y_3,\ 5\,y_7,\ 5\,y_8]$$

$p = -s^4 - s^6 + s^7 + s^9$ $p = -s^4 - s^5 - s^6 + s^8 + s^9 + s^{10}$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0,\ 0,\ y_1 - y_4,\ y_1,\ 0,\ y_4,\ y_5,\ 0,\ -2\,y_1 + 3\,y_4 + y_5 - y_2 + y_3,\ y_2,\ y_4,\ y_3]$$

$p = -s^5 + s^7$ $p = -s^5 + s^8$ $p = -s^5 + s^6$

246 . Coloring, {2, 3, 5, 11}

$\Omega p(\Delta)=0$: $p = 9s^3 + 2s^4 - 16s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, B, C, B, C, 4, 5]
B: [6, 7, 7, 7, A, 3, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0,\ 0,\ y_1 + y_2 - y_3 + y_4 + y_5 + y_6 - y_7 - y_8,\ y_1,\ y_2,\ y_3,\ y_4,\ y_5,\ 0,\ y_6,\ y_7,\ y_8]$$

$p = s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8,\ 3\,y_1,\ 3\,y_2,\ 0,\ 0,\ 3\,y_3,\ 3\,y_4,\ 0,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

247 . Coloring, {2, 3, 5, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 + 5s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, B, C, B, C, 1, 9]
B: [6, 7, 7, 7, A, 3, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, 0, y_6, 0, 0, y_6, y_7, y_4, y_5, -y_6 + y_4, y_3, y_2]$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$[0, y_1, y_2 - y_5, y_2, y_2, y_5, y_3, 0, 0, y_4, y_5, y_5]$

$p = -s^3 + s^9$ $p' = -s^3 + s^6$ $p' = s^4 - s^7$ $p = -s^3 + s^6$

248 . Coloring, {2, 3, 6, 7}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, C, B, C, 1, 5]
B: [6, 7, 7, 7, 3, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	6 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, y_4, y_6 - y_5, 3\,y_5 - 2\,y_6 + y_3, y_3, 0, y_2, y_6 - y_5, y_1]$$

$p' = -s^5 + s^8$ $p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, -3\,y_1 - 6\,y_2 - 3\,y_3 + 13\,y_5 - 3\,y_4 - 3\,y_7 + 13\,y_6, 3\,y_2, 3\,y_1, 0, 3\,y_2, 3\,y_3, 0, 3\,y_5, 3\,y_4, 3\,y_7, 3\,y_6]$$

$p = s^4 + s^5 - s^7 - s^8$ $p' = s^4 + s^5 - s^7 - s^8$

» SYNC'D !RANK'D

249 . Coloring, {2, 3, 6, 8}

R: [7, 8, 8, 6, A, 3, B, B, B, C, 1, 5]
B: [6, 7, 7, 7, 3, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 6

See Matrix

$$[3\,y_1, 0, 3\,y_3, 0, 3\,y_2, -7\,y_1 - 7\,y_3 + 14\,y_2 + 8\,y_5 - 3\,y_4, 3\,y_6, -7\,y_1 - 7\,y_3 + 8\,y_2 - 3\,y_6 + 14\,y_5, 0, 3\,y_5, 3\,y_4, -5\,y_1 - 5\,y_3 + 7\,y_2 + 7\,y_5]$$

$p' = -s^4 + s^7$ $p = s^4 - s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, y_3, y_4, 2\,y_4, 0, y_4, y_2, 0, y_1, -y_3 - 4\,y_4 - y_2 + 6\,y_1, 0, y_1]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p = s^2 - s^8$ $p' = s^2 - s^5$

250 . Coloring, {2, 3, 6, 9}

R: [7, 8, 8, 6, A, 3, B, C, C, C, 1, 5]
B: [6, 7, 7, 7, 3, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 6

See Matrix

$$[3\,y_1,\ 0,\ 3\,y_2,\ 0,\ 3\,y_5,\ 3\,y_6,\ 3\,y_3,\ 3\,y_4,\ 0,\ 8\,y_1 - 7\,y_2 - 7\,y_5 + 14\,y_3 - 3\,y_4,\ 7\,y_1 - 5\,y_2 - 5\,y_5 + 7\,y_3,\ 14\,y_1 - 7\,y_2 - 7\,y_5 - 3\,y_6 + 8\,y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0,\ y_1,\ y_3,\ y_2,\ 0,\ y_3,\ y_4,\ 0,\ 2\,y_3,\ y_6,\ y_5,\ 0]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

251 . Coloring, {2, 3, 6, 10}

Ωp(Δ)=0: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, B, C, B, 2, 1, 5]
B: [6, 7, 7, 7, 3, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	5 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[3\,y_2,\ 5\,y_2 - 3\,y_1 - 3\,y_3 - 3\,y_4 + 5\,y_5 - 3\,y_6 - 3\,y_7 + 5\,y_8 - 3\,y_9,\ 3\,y_1,\ 0,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 0,\ 3\,y_7,\ 3\,y_8,\ 3\,y_9]$$

$p = -s^3 - s^4 - s^5 + s^8 + s^9 + s^{10}$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_4 + y_1 - y_3 - y_2 + y_5, 0, y_4, y_1, 0, y_3, y_2, y_4, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$ $p = -s^5 + s^8$

252 . Coloring, {2, 3, 6, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, B, C, B, C, 4, 5]
B: [6, 7, 7, 7, 3, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_1, y_2, y_3, y_5, y_6, y_4, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-3 y_1 - 6 y_4 - 3 y_6 - 3 y_7 + 13 y_2 - 3 y_3 + 13 y_5, 3 y_1, 3 y_4, 0, 0, 3 y_6, 3 y_7, 0, 3 y_2, 3 y_3, 3 y_4, 3 y_5]$$

$p = s^4 + s^5 - s^7 - s^8$ $p' = -s^4 - s^5 + s^7 + s^8$

253 . Coloring, {2, 3, 6, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 7s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, B, C, B, C, 1, 9]
B: [6, 7, 7, 7, 3, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_8, 0, y_7, 0, 0, y_6, y_5, y_4, y_3, y_6, y_2, y_1]$$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_3, y_6, y_4, 0, 0, y_5, y_6, y_6]$$

$p' = - s^4 + s^7$ $p = - s^4 + s^7$ $p' = - s^5 + s^8$

» SYNC'D !RANK'D

254 . Coloring, {2, 3, 7, 8}

Ωp(Δ)=0: $p = 2s^2 + 7s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, A, B, B, C, 1, 5]
B: [6, 7, 7, 7, 3, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_6, y_7, 2\,y_6, 0, y_5, y_4, y_3]$$

$p = - s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 2\,y_1, -y_3 - 3\,y_1 - y_2 + 6\,y_5 - y_4, y_3, 0, y_1, y_2, 0, y_5, 0, y_4, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

255 . Coloring, {2, 3, 7, 9}

$\Omega p(\Delta)=0$: $p = -2s^2 + s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, A, C, C, C, 1, 5]
B: [6, 7, 7, 7, 3, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$[2 y_4, 0, 0, 0, y_5, y_4, y_3, 2 y_4, 0, y_2, 0, y_1]$

$p = s^3 - s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 3

See Matrix

$[0, 2 y_4, y_1, y_2, 0, y_4, y_3, 0, 2 y_4, 0, y_5, 0]$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

» SYNC'D !RANK'D

256 . Coloring, {2, 3, 7, 10}

R: [7, 8, 8, 6, A, A, A, C, B, 2, 1, 5]
B: [6, 7, 7, 7, 3, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_7, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, -5\,y_1 - 5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_6 + 11\,y_5, 5\,y_1, 0, 5\,y_2, 5\,y_3, 0, 5\,y_4, 0, 5\,y_6, 5\,y_5]$$

$p = -s^3 - s^4 + s^6 + s^7$

257 . Coloring, {2, 3, 7, 11}

R: [7, 8, 8, 6, A, A, A, C, B, C, 4, 5]
B: [6, 7, 7, 7, 3, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_5, 2\,y_5, 0, y_4, y_5, y_6]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 7, 11}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_6 - 3\,y_3 + 13\,y_4 - 3\,y_5 + 13\,y_7, 3\,y_1, 3\,y_2, 0, 0, 3\,y_6, 3\,y_3, 0, 3\,y_4, 0, 3\,y_5, 3\,y_7]$$

$p = -s^2 - s^3 + s^7 + s^8$

258 . Coloring, {2, 3, 7, 12}

R: [7, 8, 8, 6, A, A, A, C, B, C, 1, 9]
B: [6, 7, 7, 7, 3, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_7, y_6, 2\,y_7, y_5, y_3, y_4, y_2]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_6, y_2, y_3, y_4, y_6, y_1, 0, 0, 0, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

259 . Coloring, {2, 3, 8, 9}

R: [7, 8, 8, 6, A, A, B, B, C, C, 1, 5]
B: [6, 7, 7, 7, 3, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_4, 0, 0, 0, y_3, y_2, y_1, 2\,y_2, 0, y_4, y_3 + y_2, 2\,y_2 + y_1]$$

$p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p' = s^2 - s^5$ $p = s^2 - s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_2, y_4, y_1, 0, y_6, y_5, 0, y_4, y_3, y_7, y_6]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

260 . Coloring, {2, 3, 8, 10}

$\Omega p(\Delta)=0$: $p = -2s^2 - 3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, B, B, B, 2, 1, 5]
B: [6, 7, 7, 7, 3, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 2\,y_3, y_3, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, -y_2 + y_3 - y_4 - y_1 + y_5, 2\,y_2, 0, y_2, y_3, 0, y_4, y_1, 0, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$

261 . Coloring, {2, 3, 8, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, B, B, B, C, 4, 5]
B: [6, 7, 7, 7, 3, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_4, 2\,y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, -y_2 - y_1 - y_3 - y_4 + 6\,y_5 - y_6, 0, 0, y_3, y_4, 0, y_5, y_6, 0, y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

» SYNC'D !RANK'D

262 . Coloring, {2, 3, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, B, B, B, C, 1, 9]
B: [6, 7, 7, 7, 3, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, y_3, 2\,y_2, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, 2\,y_4, y_5, y_4, y_3, 0, 0, y_6, 0, 2\,y_4]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

» SYNC'D !RANK'D

263 . Coloring, {2, 3, 9, 10}

$\Omega p(\Delta)=0$: $p = 6s^2 + s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, B, C, C, 2, 1, 5]
B: [6, 7, 7, 7, 3, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[5\,y_1, 11\,y_1 - 5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_5 - 5\,y_6 + 11\,y_7 - 5\,y_8, 0, 0, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 0, 5\,y_6, 5\,y_7, 5\,y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, -y_3 + y_1 + y_2 - y_4 - y_5 + y_6 + y_7, y_3, 0, y_1, y_2, 0, y_4, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

264 . Coloring, {2, 3, 9, 11}

$\Omega p(\Delta)=0$: $p = -6s^2 + s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, B, C, C, C, 4, 5]
B: [6, 7, 7, 7, 3, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_4, 2\,y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, 0, y_7, y_8, y_6, 0]$$

265 . Coloring, {2, 3, 9, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, B, C, C, C, 1, 9]
B: [6, 7, 7, 7, 3, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[5\,y_1, 0, 0, 0, 0, 5\,y_2, 5\,y_3, 10\,y_2, 11\,y_1 - 15\,y_2 + 11\,y_3 - 5\,y_4 + 11\,y_5 - 5\,y_6, 5\,y_4, 5\,y_5, 5\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, 2\,y_1, 2\,y_5, 2\,y_4, -4\,y_5 + 6\,y_4, -2\,y_5 + 3\,y_4, 2\,y_3, 0, 0, 2\,y_2, -4\,y_5 + 6\,y_4, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

266 . Coloring, {2, 3, 10, 11}

R: [7, 8, 8, 6, A, A, B, C, B, 2, 4, 5]
B: [6, 7, 7, 7, 3, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_4, 0, y_2, y_3, y_1, y_5, y_6, 0, y_8, y_9, y_7]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[-y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$$p = -s^7 + s^8$$

267 . Coloring, {2, 3, 10, 12}

R: [7, 8, 8, 6, A, A, B, C, B, 2, 1, 9]
B: [6, 7, 7, 7, 3, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_1, y_2, 0, 0, 0, y_8, y_3, y_4, y_5, y_6, y_7, y_9]$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_4, y_1, y_2, y_6, y_3, 0, 0, y_5, y_6, y_7]$$

$$p = -s^3 + s^8$$

268 . Coloring, {2, 3, 11, 12}

R: [7, 8, 8, 6, A, A, B, C, B, C, 4, 9]
B: [6, 7, 7, 7, 3, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_4, 2\, y_4, y_3, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_3, y_4, 0, y_2, y_1, y_5, 0, 0, y_6, y_7, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

269 . Coloring, {2, 4, 5, 6}

R: [7, 8, 7, 7, 3, 3, B, C, B, C, 1, 5]
B: [6, 7, 8, 6, A, A, A, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, 0, y_6, 0, y_5, 0, y_4, y_3, 0, 0, y_1, y_2]$$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 3\, y_1, 0, -3\, y_1 - 3\, y_2 - 3\, y_3 - 3\, y_4 + 13\, y_5 - 3\, y_6 - 3\, y_7 + 13\, y_8, 0, 3\, y_2, 3\, y_3, 3\, y_4, 3\, y_5, 3\, y_6, 3\, y_7, 3\, y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

270 . Coloring, {2, 4, 5, 7}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, A, C, B, C, 1, 5]
B: [6, 7, 8, 6, A, 3, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, y_6, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, -3y_1 - 3y_2 - 3y_3 - 3y_4 - 3y_5 + 13y_6 - 3y_7 - 3y_8 + 13y_9, 3y_1, 3y_2, 0, 3y_3, 3y_4, 3y_5, 3y_6, 3y_7, 3y_8, 3y_9]$$

$p = -s^4 - s^5 + s^9 + s^{10}$

271 . Coloring, {2, 4, 5, 8}

R: [7, 8, 7, 7, 3, A, B, B, B, C, 1, 5]
B: [6, 7, 8, 6, A, 3, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, y_5, y_6, y_7]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 6\,y_2 + 6\,y_4 + 6\,y_5 - 5\,y_3 - 5\,y_6, -5\,y_1 + 5\,y_2 + 5\,y_4 + 5\,y_5 - 5\,y_7, 5\,y_1, 0, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 5\,y_6, 0, 5\,y_7]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

272 . Coloring, {2, 4, 5, 9}

R: [7, 8, 7, 7, 3, A, B, C, C, C, 1, 5]
B: [6, 7, 8, 6, A, 3, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, y_2, 0, y_6, y_5, 0, y_5, y_4, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[0, 3\,y_1, 3\,y_2, 5\,y_1 - 3\,y_2 - 3\,y_3 + 5\,y_4 - 3\,y_5 - 3\,y_6 + 5\,y_7 - 3\,y_8, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8, 0]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

273 . Coloring, {2, 4, 5, 10}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, B, C, B, 2, 1, 5]
B: [6, 7, 8, 6, A, 3, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, y_9, 0, y_6, y_7, 0, y_8, y_5, y_4]$$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, 0, 7\,y_7, 7\,y_6, 0, 7\,y_5, 7\,y_4, 7\,y_3, 7\,y_2, 9\,y_7 + 9\,y_6 + 9\,y_5 - 7\,y_4 + 9\,y_3 - 7\,y_2 + 9\,y_1 - 7\,y_8, 7\,y_1, 7\,y_8]$$

$p = -s^3 - s^4 + s^8 + s^9$

274 . Coloring, {2, 4, 5, 11}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, B, C, B, C, 4, 5]
B: [6, 7, 8, 6, A, 3, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_2, y_1, y_5, 0, y_6, y_7, 0, y_7, y_4, y_3]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_4 + 7\,y_5 - 3\,y_7 + 7\,y_8, -3\,y_3 + 6\,y_5 - 3\,y_6 + 6\,y_8, 3\,y_1, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8]$$

$p = -s - 2s^2 - 2s^3 - s^4 + s^6 + 2s^7 + 2s^8 + s^9$ $p' = -s - 2s^2 - 2s^3 - s^4 + s^6 + 2s^7 + 2s^8 + s^9$

275 . Coloring, {2, 4, 5, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, B, C, B, C, 1, 9]
B: [6, 7, 8, 6, A, 3, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, 0, 0, y_4, y_5, y_3, y_5, y_2, y_1]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[0, 3y_7 + 3y_6 - 3y_5, 7y_7 + 7y_6 - 3y_1 - 3y_2 - 3y_3 - 3y_4, 3y_1, 3y_7, 3y_2, 3y_6, 3y_3, 0, 3y_7 + 3y_6, 3y_4, 3y_5]$$

$p' = s^4 - s^9$ $p' = s^3 - s^8$ $p = -s^3 + s^8$

276 . Coloring, {2, 4, 6, 7}

$\Omega p(\Delta)=0$: $p = 3s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, A, C, B, C, 1, 5]
B: [6, 7, 8, 6, 3, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, y_6, 0, y_4, y_5, 0, y_3, y_5, y_2]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, 2y_8, 2y_7, 2y_6, 0, 2y_5, 2y_4, 2y_3, 2y_2, -2y_6 - 2y_4 - 2y_3 - 39y_2 + 11y_8 + 11y_7 + 11y_5 + 11y_1, 2y_1, 3y_8 + 3y_7 + 3y_5 - 11y_2 + 3y_1]$$

$p' = -s^3 + s^9$ $p = s^3 - s^9$

277 . Coloring, {2, 4, 6, 8}

R: [7, 8, 7, 7, A, 3, B, B, B, C, 1, 5]
B: [6, 7, 8, 6, 3, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	5 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[9y_1 - 11y_4 + 7y_2 - 2y_3, 0, 2y_2, 0, -2y_1 + 2y_4 - 2y_2 + 2y_3, 0, 2y_1, 2y_2, 0, 7y_1 - 9y_4 + 7y_2 - 2y_3, 2y_3, 2y_4]$$

$p' = -s^2 + s^5$ $p = -s^2 + s^8$ $p = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 2y_1, -3y_1 + 6y_2 + 4y_5 - 3y_4 - 3y_3, -6y_1 + 12y_2 + 8y_5 - 6y_4 - 6y_3, 0, -6y_1 + 8y_2 + 12y_5 - 6y_4 - 6y_3, 2y_4, -3y_1 + 4y_2 + 6y_5 - 3y_4 - 3y_3, 2y_2, 2y_3, 0, 2y_5]$$

$p = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = -s^3 + s^9$ $p' = -s^3 + s^6$

278 . Coloring, {2, 4, 6, 9}

R: [7, 8, 7, 7, A, 3, B, C, C, C, 1, 5]
B: [6, 7, 8, 6, 3, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_1 + y_2 - y_4, 0, -2\,y_1 - y_2 + 2\,y_4 + y_3, 0, -y_3 + 2\,y_1, 0, y_1, -2\,y_1 - y_2 + 2\,y_4 + y_3, 0, y_2, y_4, y_3]$$

$p = -s^2 + s^8$ $p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_3, y_2, 0, y_5, y_4, y_6, 2\,y_3, y_7, y_8, 0]$$

$p = s^6 - s^9$

279 . Coloring, {2, 4, 6, 10}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, C, B, 2, 1, 5]
B: [6, 7, 8, 6, 3, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[3\,y_2, 3\,y_1, -3\,y_2 + 3\,y_4, 0, -3\,y_1 + 7\,y_4 - 3\,y_6 - 3\,y_5 - 3\,y_3, 0, 3\,y_4, 3\,y_6, 0, 3\,y_5, 3\,y_4, 3\,y_3]$$

$p' = s^3 - s^8$ $p' = s^2 - s^7$ $p = s^2 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_7, y_1, 0, y_1 - 2\,y_7 + y_6 + y_5 + y_4 - y_3 - y_2, y_7, y_6, y_5, y_4, y_3, y_2]$$

$p' = s^7 - s^8$ $p = s^7 - s^9$

280 . Coloring, {2, 4, 6, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, 3, B, C, B, C, 4, 5]
B: [6, 7, 8, 6, 3, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 3\,y_4, 3\,y_3, 3\,y_2, 0, 3\,y_4 + 3\,y_3, 3\,y_4, 0, 3\,y_1, 3\,y_4 + 3\,y_3, 4\,y_4 + 7\,y_3 - 3\,y_2 - 3\,y_1]$$

$p' = s^3 - s^6$ $p' = s^4 - s^7$ $p' = s^2 - s^5$ $p = s^2 - s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_5 - 3\,y_3 - 3\,y_4 + 13\,y_6 - 3\,y_8 - 3\,y_9 + 13\,y_7, 3\,y_1, 3\,y_2, 0, 0, 3\,y_5, 3\,y_3, 3\,y_4, 3\,y_6, 3\,y_8, 3\,y_9, 3\,y_7]$$

$p = -s^6 - s^7 + s^9 + s^{10}$

281 . Coloring, {2, 4, 6, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, C, B, C, 1, 9]
B: [6, 7, 8, 6, 3, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, 0, 0, y_2, y_5, y_4, y_5, y_6, y_3]$$

$p' = -s^4 + s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_7, y_5, y_6, 0, y_{10}, y_8, y_9]$$

282 . Coloring, {2, 4, 7, 8}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, A, B, B, C, 1, 5]
B: [6, 7, 8, 6, 3, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_4, 0, y_3, y_2, 0, y_7, y_6, y_5]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_1, y_3, y_2, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9]$$

283 . Coloring, {2, 4, 7, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, A, C, C, C, 1, 5]
B: [6, 7, 8, 6, 3, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\ y_3,\ 0,\ 0,\ 0,\ y_1,\ 0,\ y_2,\ y_3,\ 0,\ y_4,\ 0,\ y_5]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0,\ y_6,\ y_2,\ y_1,\ 0,\ y_3,\ y_5,\ y_4,\ y_6,\ 0,\ y_7,\ 0]$$

$p = s^3 - s^8$

284 . Coloring, {2, 4, 7, 10}

R: [7, 8, 7, 7, A, A, A, C, B, 2, 1, 5]
B: [6, 7, 8, 6, 3, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1,\ y_2,\ 0,\ 0,\ y_8,\ 0,\ y_6,\ y_7,\ 0,\ y_3,\ y_4,\ y_5]$$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0,\ 0,\ 5\ y_1,\ -5\ y_1 - 5\ y_6 - 5\ y_7 - 5\ y_4 + 11\ y_5 - 5\ y_3 + 11\ y_2,\ 0,\ 5\ y_6,\ 5\ y_7,\ 5\ y_4,\ 5\ y_5,\ 0,\ 5\ y_3,\ 5\ y_2]$$

$p = -s^2 - s^3 + s^7 + s^8$

285 . Coloring, {2, 4, 7, 11}

R: [7, 8, 7, 7, A, A, A, C, B, C, 4, 5]
B: [6, 7, 8, 6, 3, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, y_3, 0, y_4, y_6, 0, y_5, y_6, y_1]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[3 y_5, 3 y_6, 3 y_7, 0, 0, -3 y_5 - 3 y_6 - 3 y_7 - 3 y_1 - 3 y_2 + 13 y_3 - 3 y_8 + 13 y_4, 3 y_1, 3 y_2, 3 y_3, 0, 3 y_8, 3 y_4]$$

$p = -s^3 - s^4 + s^8 + s^9$

286 . Coloring, {2, 4, 7, 12}

R: [7, 8, 7, 7, A, A, A, C, B, C, 1, 9]
B: [6, 7, 8, 6, 3, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 2\,y_7, y_1, y_2, y_3, y_4, 2\,y_3 - 3\,y_7, y_5, 0, 0, y_6, y_7]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

287 . Coloring, {2, 4, 8, 9}

R: [7, 8, 7, 7, A, A, B, B, C, C, 1, 5]
B: [6, 7, 8, 6, 3, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[2\,y_1, 0, 0, 0, 10\,y_1 + 4\,y_3 + 4\,y_2 - 16\,y_4, 0, 2\,y_3, 2\,y_2, 0, 2\,y_4, 16\,y_1 + 7\,y_3 + 7\,y_2 - 27\,y_4, 4\,y_1 + 3\,y_3 + 3\,y_2 - 7\,y_4]$$

$p' = s^3 - s^6$ $p' = s^2 - s^5$ $p = s^2 - s^5$

Omega Rank for B : cycles: {{2, 7, 10}, {3, 4, 6, 8, 9, 11, 12}}

See Matrix

$$[0, 5\,y_1, 11\,y_1 - 5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_5 - 5\,y_6 + 11\,y_7 - 5\,y_8 - 5\,y_9, 5\,y_2, 0, 5\,y_3, 5\,y_4, 5\,y_5, 5\,y_6, 5\,y_7, 5\,y_8, 5\,y_9]$$

$p = -s - s^2 - s^3 + s^8 + s^9 + s^{10}$

288 . Coloring, {2, 4, 8, 10}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, B, B, B, 2, 1, 5]
B: [6, 7, 8, 6, 3, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_6, 2\,y_5, 0, -2\,y_5 + 2\,y_2, y_5, y_4, y_3, y_2, 0, y_1]$$

$p' = s^5 - s^7$ $p = s^5 - s^7$

289 . Coloring, {2, 4, 8, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, B, B, B, C, 4, 5]
B: [6, 7, 8, 6, 3, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 5\,y_4 - y_1 - y_2 - y_3, y_4, 0, y_1, y_2, 0, y_4, y_3, y_4]$$

$p' = s^2 - s^5$ $p = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[5\,y_7, 5\,y_5, 5\,y_6, 0, 0, 5\,y_3, 5\,y_4, -5\,y_7 + 11\,y_5 - 5\,y_6 - 5\,y_3 + 11\,y_4 - 5\,y_1 + 11\,y_2 - 5\,y_8, 5\,y_1, 5\,y_2, 0, 5\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

290 . Coloring, {2, 4, 8, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, B, B, B, C, 1, 9]
B: [6, 7, 8, 6, 3, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, y_3, y_4, 2\,y_3, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[0, 5\,y_1, 11\,y_1 - 5\,y_2 - 5\,y_3 - 5\,y_4 + 11\,y_5 - 5\,y_6 + 11\,y_7 - 5\,y_8, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 5\,y_6, 0, 5\,y_7, 0, 5\,y_8]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

291 . Coloring, {2, 4, 9, 10}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, B, C, C, 2, 1, 5]
B: [6, 7, 8, 6, 3, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {2, 5, 8, 10, 12}}

See Matrix

$$[7\,y_1, 9\,y_1 - 7\,y_4 + 9\,y_5 - 7\,y_6 - 7\,y_7 + 9\,y_2 - 7\,y_3, 0, 0, 7\,y_4, 0, 7\,y_5, 7\,y_6, 0, 7\,y_7, 7\,y_2, 7\,y_3]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_9, y_8, 0, y_7, y_5, y_6, y_4, y_2, y_3, y_1]$$

292 . Coloring, {2, 4, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, B, C, C, C, 4, 5]
B: [6, 7, 8, 6, 3, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2y_1, 2y_2, 0, -16y_1 + 4y_2 + 10y_3 + 10y_4, 2y_3, 0, 2y_4, -7y_1 + 3y_2 + 4y_3 + 4y_4, -27y_1 + 7y_2 + 16y_3 + 16y_4]$$

$p' = s^2 - s^5$ $p' = s^3 - s^6$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[11y_1 - 5y_4 - 5y_2 + 11y_3 - 5y_6 - 5y_7 + 11y_5 - 5y_8, 5y_1, 5y_4, 0, 0, 5y_2, 5y_3, 5y_6, 5y_7, 5y_5, 5y_8, 0]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

293 . Coloring, {2, 4, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, B, C, C, C, 1, 9]
B: [6, 7, 8, 6, 3, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[7\,y_1,\ 0,\ 0,\ 0,\ 0,\ 0,\ 7\,y_5,\ 7\,y_3,\ 7\,y_4,\ 14\,y_3,\ 7\,y_2,\ 9\,y_1 + 9\,y_5 - 21\,y_3 - 7\,y_4 + 9\,y_2]$$

$p = -s^2 - s^3 + s^5 + s^6$ $p = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[0,\ 5\,y_1,\ 5\,y_6,\ 5\,y_4,\ 5\,y_5,\ 5\,y_3,\ 5\,y_2,\ 11\,y_1 - 5\,y_6 - 5\,y_4 - 5\,y_5 - 5\,y_3 + 11\,y_2 + 11\,y_7 - 5\,y_8,\ 0,\ 5\,y_7,\ 5\,y_8,\ 0]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

294 . Coloring, {2, 4, 10, 11}

R: [7, 8, 7, 7, A, A, B, C, B, 2, 4, 5]
B: [6, 7, 8, 6, 3, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {2, 5, 8, 10, 12}}

See Matrix

$$[0,\ y_1 - y_7 + y_2 - y_3 - y_4 + y_5 - y_6,\ 0,\ y_1,\ y_7,\ 0,\ y_2,\ y_3,\ 0,\ y_4,\ y_5,\ y_6]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[y_1,\ 0,\ -y_1 - y_7 - y_5 - y_2 + 2\,y_4 + 2\,y_3,\ 0,\ 0,\ y_7,\ y_6,\ y_5,\ y_4,\ y_3,\ y_2,\ -y_6 + y_4 + y_3]$$

$p' = -s^3 + s^8$ $p = -s^3 + s^8$

295 . Coloring, {2, 4, 10, 12}

R: [7, 8, 7, 7, A, A, B, C, B, 2, 1, 9]
B: [6, 7, 8, 6, 3, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_9, y_2, y_3, y_4, y_5, 0, y_6, y_7, y_8]$$

296 . Coloring, {2, 4, 11, 12}

R: [7, 8, 7, 7, A, A, B, C, B, C, 4, 9]
B: [6, 7, 8, 6, 3, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, 0, y_3, y_2, y_5, 2\,y_2, y_4, y_6]$$

$$p = -s^4 + s^7$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[11\,y_1 - 5\,y_5 - 5\,y_6 - 5\,y_2 + 11\,y_3 - 5\,y_4 + 11\,y_7 - 5\,y_8 - 5\,y_9,\ 5\,y_1,\ 5\,y_5,\ 0,\ 5\,y_6,\ 5\,y_2,\ 5\,y_3,\ 5\,y_4,\ 0,\ 5\,y_7,\ 5\,y_8,\ 5\,y_9]$$

$p = -s^3 - s^4 - s^5 + s^8 + s^9 + s^{10}$

297 . Coloring, {2, 5, 6, 7}

R: [7, 8, 7, 6, 3, 3, A, C, B, C, 1, 5]
B: [6, 7, 8, 7, A, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_2,\ 0,\ y_1,\ 0,\ y_4,\ y_6,\ y_3,\ y_6,\ 0,\ y_5,\ y_6,\ y_7]$$

$p = -s^3 + s^8$ $p' = s^3 - s^8$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0,\ 3\,y_7,\ 0,\ 3\,y_6,\ 0,\ 3\,y_5,\ 3\,y_4,\ 3\,y_5,\ 3\,y_3,\ 3\,y_2,\ -3\,y_7 - 3\,y_6 - 6\,y_5 - 3\,y_4 + 13\,y_3 - 3\,y_2 + 13\,y_1,\ 3\,y_1]$$

$p = -s^4 + s^6 + s^7 - s^9$ $p' = -s^4 - s^5 + s^7 + s^8$

298 . Coloring, {2, 5, 6, 8}

R: [7, 8, 7, 6, 3, 3, B, B, B, C, 1, 5]
B: [6, 7, 8, 7, A, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_5, y_4, y_5, 0, 0, y_6, 2\,y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 4\,y_1, 0, -10\,y_1 - 10\,y_3 + 22\,y_2 - 10\,y_5 + 22\,y_4, 0, -5\,y_1 - 5\,y_3 + 11\,y_2 - 5\,y_5 + 11\,y_4, 4\,y_3, -5\,y_1 - 5\,y_3 + 11\,y_2 - 5\,y_5 + 11\,y_4, 4\,y_2, 4\,y_5, 0, 4\,y_4]$$

$p = -s^2 - s^3 + s^5 + s^6$ $p = s^2 - s^4 - s^5 + s^7$ $p = -s^2 + s^8$

299 . Coloring, {2, 5, 6, 9}

R: [7, 8, 7, 6, 3, 3, B, C, C, C, 1, 5]
B: [6, 7, 8, 7, A, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, y_3, y_5, y_4, y_5, 0, 0, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_3, 0, y_2, 0, y_6, y_1, y_6, 2\,y_6, y_5, y_4, 0]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$

300 . Coloring, {2, 5, 6, 10}

R: [7, 8, 7, 6, 3, 3, B, C, B, 2, 1, 5]
B: [6, 7, 8, 7, A, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_4, y_2, 0, y_3, y_4, y_5, y_6, 0, 0, y_7, y_8]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, 0, y_5, y_6, y_5, y_4, y_3, y_2, y_1]$$

$p = -s^6 + s^8$

301 . Coloring, {2, 5, 6, 11}

R: [7, 8, 7, 6, 3, 3, B, C, B, C, 4, 5]
B: [6, 7, 8, 7, A, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_2, y_3, y_1, y_6, y_7, y_8, 0, 0, y_4, y_5]$$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8, 3\,y_1, 0, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8]$$

$p = s^5 + s^6 - s^8 - s^9$

302 . Coloring, {2, 5, 6, 12}

R: [7, 8, 7, 6, 3, 3, B, C, B, C, 1, 9]
B: [6, 7, 8, 7, A, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, -y_6 + y_2, 0, 0, y_6, y_5, y_6, y_4, 0, y_3, y_2]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_5, 0, y_4, y_3, y_6, y_2, y_6, 0, y_1, y_3 - y_6, y_6]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

303 . Coloring, {2, 5, 7, 8}

R: [7, 8, 7, 6, 3, A, A, B, B, C, 1, 5]
B: [6, 7, 8, 7, A, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_3, y_4, 0, y_2, y_1, y_8]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 7\,y_1 + 7\,y_5 + 7\,y_2 - 9\,y_3 - 9\,y_4 + 7\,y_6 - 9\,y_7, 7\,y_1 + 5\,y_5 + 7\,y_2 - 9\,y_3 - 9\,y_4 + 7\,y_6 - 9\,y_7, 2\,y_1, 0, 2\,y_5, 2\,y_2, 2\,y_3, 2\,y_4, 2\,y_5, 2\,y_6, 2\,y_7]$$

$p = s^4 - s^6 - s^7 + s^9$ $p = -s^4 + s^{10}$ $p = -s^4 - s^5 + s^7 + s^8$

304 . Coloring, {2, 5, 7, 9}

R: [7, 8, 7, 6, 3, A, A, C, C, C, 1, 5]
B: [6, 7, 8, 7, A, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[2\,y_4, 0, y_1, 0, y_2, y_4, y_3, y_4, 0, y_6, 0, y_5]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_1 - y_5, y_2, 0, y_5, y_3, y_4, 2\,y_5, y_5, y_6, 0]$$

$p' = -s^4 + s^7$ $p' = -s^5 + s^8$ $p = s^4 - s^7$

305 . Coloring, {2, 5, 7, 10}

R: [7, 8, 7, 6, 3, A, A, C, B, 2, 1, 5]
B: [6, 7, 8, 7, A, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_1, y_2, y_3, 0, y_5, y_8, y_4, y_6, 0, y_7, y_8, y_9]$$

$p = -s^3 + s^{10}$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 3\,y_3, 3\,y_2, 0, 3\,y_4, 3\,y_1, -3\,y_3 - 3\,y_2 - 3\,y_4 - 3\,y_1 + 10\,y_6 - 3\,y_5, -3\,y_4 + 3\,y_6, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

306 . Coloring, {2, 5, 7, 11}

R: [7, 8, 7, 6, 3, A, A, C, B, C, 4, 5]
B: [6, 7, 8, 7, A, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_6, y_5, y_7, y_4, y_2, y_3, 0, y_1, y_3, y_8]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 - 3\,y_5 + 13\,y_6 - 3\,y_7 - 3\,y_8 + 13\,y_9, 3\,y_1, 3\,y_2, 0, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8, 3\,y_9]$$

$p = s^4 + s^5 - s^9 - s^{10}$

307 . Coloring, {2, 5, 7, 12}

R: [7, 8, 7, 6, 3, A, A, C, B, C, 1, 9]
B: [6, 7, 8, 7, A, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_7 - y_4 + y_5, y_2, 2\,y_7 - y_4 + y_5, y_7, y_3, y_4, 0, y_5, y_6, y_7]$$

$p' = s^6 - s^9$ $p = s^5 - s^8$ $p' = s^5 - s^8$

308 . Coloring, {2, 5, 8, 9}

R: [7, 8, 7, 6, 3, A, B, B, C, C, 1, 5]
B: [6, 7, 8, 7, A, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_8, 0, y_7, 0, y_6, y_5, y_4, y_5, 0, y_3, y_2, y_1]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_{10}, y_9, y_8, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

309 . Coloring, {2, 5, 8, 10}

R: [7, 8, 7, 6, 3, A, B, B, B, 2, 1, 5]
B: [6, 7, 8, 7, A, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, -y_4 + 2\,y_6, 0, 2\,y_4, y_4, y_3, y_7, 0, y_6, y_5, 0]$$

$p = -s^5 + s^8$ $p' = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_4, 0, y_4, 2\,y_1, y_5, y_3, y_4 + 2\,y_5, 0, y_2]$$

$p' = -s^4 + s^6$ $p = -s^4 + s^6$ $p = -s^4 + s^8$

310 . Coloring, {2, 5, 8, 11}

R: [7, 8, 7, 6, 3, A, B, B, B, C, 4, 5]
B: [6, 7, 8, 7, A, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_8, y_7, y_6, y_5, y_4, y_3, 0, y_2, y_1, -y_8 + y_7 + y_6 - y_5 + y_4 + y_3 + y_2 - y_1]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[7\,y_8, 7\,y_7, 7\,y_6, 0, 0, 7\,y_5, 7\,y_4, 7\,y_3, 7\,y_2, 7\,y_1, 0, -7\,y_8 + 9\,y_7 - 7\,y_6 - 7\,y_5 + 9\,y_4 - 7\,y_3 - 7\,y_2 + 9\,y_1]$$

$p = s^5 + s^6 - s^8 - s^9$

311 . Coloring, {2, 5, 8, 12}

R: [7, 8, 7, 6, 3, A, B, B, B, C, 1, 9]
B: [6, 7, 8, 7, A, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, 2\,y_4, y_3, y_4, y_5, y_6, 0, y_7, 0, y_8]$$

$p = s^6 - s^9$

312 . Coloring, {2, 5, 9, 10}

R: [7, 8, 7, 6, 3, A, B, C, C, 2, 1, 5]
B: [6, 7, 8, 7, A, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, y_4, y_3, y_5, y_9, y_6, y_7, y_8]$$

313 . Coloring, {2, 5, 9, 11}

R: [7, 8, 7, 6, 3, A, B, C, C, C, 4, 5]
B: [6, 7, 8, 7, A, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_2, y_2 - y_1 + y_3 - y_4 - y_5 - y_6 + y_7 + y_8, y_1, y_3, y_4, y_5, 0, y_6, y_7, y_8]$$

$$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[9\,y_1 - 7\,y_2 - 7\,y_3 + 9\,y_4 - 7\,y_5 - 7\,y_6 + 9\,y_7 - 7\,y_8, 7\,y_1, 7\,y_2, 0, 0, 7\,y_3, 7\,y_4, 7\,y_5, 7\,y_6, 7\,y_7, 7\,y_8, 0]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

314 . Coloring, {2, 5, 9, 12}

R: [7, 8, 7, 6, 3, A, B, C, C, C, 1, 9]

B: [6, 7, 8, 7, A, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[5\,y_1,\ 0,\ 9\,y_1+9\,y_2-7\,y_3-7\,y_4+9\,y_5-7\,y_6,\ 0,\ 0,\ 9\,y_1+9\,y_2-7\,y_3-7\,y_4+9\,y_5-7\,y_6,\ 5\,y_2,\ 9\,y_1+9\,y_2-7\,y_3-7\,y_4+9\,y_5-7\,y_6,\ 5\,y_3,\ 5\,y_4,\ 5\,y_5,\ 5\,y_6]$$

$p = -s^3 + s^9$ $p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0,\ y_2,\ y_1,\ y_3,\ 2\,y_6,\ y_6,\ y_7,\ y_8,\ 0,\ y_4,\ y_5,\ 0]$$

$p = -s^6 + s^9$

315 . Coloring, {2, 5, 10, 11}

R: [7, 8, 7, 6, 3, A, B, C, B, 2, 4, 5]
B: [6, 7, 8, 7, A, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{2, 3, 4, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[0,\ -y_1+y_2+y_3-y_4+y_5+y_6+y_7-y_8-y_9,\ y_1,\ y_2,\ y_3,\ y_4,\ y_5,\ y_6,\ 0,\ y_7,\ y_8,\ y_9]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[-5\,y_1 - 5\,y_2 - 5\,y_3 + 6\,y_4 + 6\,y_5 - 5\,y_6,\ 0,\ 5\,y_1,\ 0,\ 0,\ 5\,y_2,\ 5\,y_4 + 5\,y_5 - 5\,y_7,\ 5\,y_3,\ 5\,y_4,\ 5\,y_5,\ 5\,y_6,\ 5\,y_7]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

316 . Coloring, {2, 5, 10, 12}

R: [7, 8, 7, 6, 3, A, B, C, B, 2, 1, 9]
B: [6, 7, 8, 7, A, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_9, y_8, y_7, 0, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

$p = s^7 - s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_8, y_9, y_7]$$

317 . Coloring, {2, 5, 11, 12}

R: [7, 8, 7, 6, 3, A, B, C, B, C, 4, 9]
B: [6, 7, 8, 7, A, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_1 - y_3 - y_5 - y_6 + y_7 + y_4, 0, y_1, y_3, y_2, y_5, y_6, y_7, y_4]$$

$p = -s^3 + s^9$ $p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[3 y_8, 3 y_7, 3 y_6, 0, 3 y_5, 3 y_4, 3 y_3, 3 y_2, 0, 5 y_8 - 3 y_7 + 5 y_6 - 3 y_5 + 5 y_4 - 3 y_3 + 5 y_2 + 5 y_1 - 3 y_9, 3 y_1, 3 y_9]$$

$p = -s^3 - s^4 - s^5 + s^8 + s^9 + s^{10}$

318 . Coloring, {2, 6, 7, 8}

R: [7, 8, 7, 6, A, 3, A, B, B, C, 1, 5]
B: [6, 7, 8, 7, 3, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, -y_4 + y_6, 0, y_2, y_4, y_3, y_4, 0, y_5, y_6, y_7]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 4 y_4 + 7 y_3 + 3 y_6 - 3 y_1 - 3 y_2 - 3 y_5, 3 y_4 + 3 y_3 - 3 y_6, 3 y_1, 0, 3 y_4 + 3 y_3 - 3 y_6, 3 y_2, 3 y_4, 3 y_3, 3 y_4, 3 y_5, 3 y_6]$$

$p = -s^4 + s^{10}$ $p' = -s^4 + s^7$ $p = -s^4 + s^7$ $p' = -s^5 + s^8$

319 . Coloring, {2, 6, 7, 9}

R: [7, 8, 7, 6, A, 3, A, C, C, C, 1, 5]
B: [6, 7, 8, 7, 3, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\ y_6,\ 0,\ y_3,\ 0,\ y_4,\ y_6,\ y_5,\ y_6,\ 0,\ y_1,\ 0,\ y_2]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_1,\ y_4,\ y_2,\ 0,\ y_4,\ y_5,\ y_6,\ 2\ y_4,\ y_6,\ y_3,\ 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

320 . Coloring, {2, 6, 7, 10}

R: [7, 8, 7, 6, A, 3, A, C, B, 2, 1, 5]
B: [6, 7, 8, 7, 3, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	4 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_2 + y_7,\ y_1,\ y_2,\ 0,\ y_3,\ y_7,\ y_4,\ y_5,\ 0,\ y_6,\ y_7,\ y_8]$$

$p = -s^4 + s^9$ $p' = -s^4 + s^9$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0,\ 0,\ 3\ y_4,\ -3\ y_4 + 3\ y_2 + 3\ y_3,\ 0,\ 3\ y_4,\ 3\ y_2,\ 3\ y_3,\ -3\ y_4 + 7\ y_2 + 4\ y_3 - 3\ y_1,\ 3\ y_3,\ 3\ y_2 + 3\ y_3,\ 3\ y_1]$$

$p = s^3 - s^5$ $p' = -s^3 + s^5$ $p' = -s^4 + s^6$ $p' = -s^3 + s^7$ $p' = -s^4 + s^8$

321 . Coloring, {2, 6, 7, 11}

$\Omega p(\Delta)=0$: $p = 5s^4 + 8s^5 - 8s^7 - 16s^8$

R: [7, 8, 7, 6, A, 3, A, C, B, C, 4, 5]
B: [6, 7, 8, 7, 3, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, y_1, y_2, y_3, y_6, y_7, y_8, 0, y_4, y_8, y_5]$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$[3\,y_6, 3\,y_7, 3\,y_8, 0, 0, 3\,y_5, -3\,y_6 - 3\,y_1 + 5\,y_2 - 3\,y_3 + 8\,y_4, 3\,y_1, 3\,y_2, 3\,y_3, -3\,y_7 - 3\,y_8 - 3\,y_5 + 8\,y_2 + 5\,y_4, 3\,y_4]$

$p' = s^3 - s^9$ $p = s^3 - s^9$

322 . Coloring, {2, 6, 7, 12}

R: [7, 8, 7, 6, A, 3, A, C, B, C, 1, 9]
B: [6, 7, 8, 7, 3, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$[y_1, 0, y_2, 0, 0, y_4, y_3, y_4, y_5, y_6, y_7, y_8]$

$p = s^3 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2 + 2\,y_4 - y_5, y_2, y_1, y_4 + y_5, y_4, y_7, y_6, 0, y_5, y_3, y_4]$$

$p = s^5 - s^8$ $p' = -s^5 + s^8$ $p' = -s^6 + s^9$

323 . Coloring, {2, 6, 8, 9}

R: [7, 8, 7, 6, A, 3, B, B, C, C, 1, 5]
B: [6, 7, 8, 7, 3, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_5, 0, y_4, 0, -2\,y_5 - 2\,y_4 + 5\,y_3 + 5\,y_2 - 4\,y_1, y_3, 4\,y_5 + 4\,y_4 - 7\,y_3 - 6\,y_2 + 5\,y_1, y_3, 0, 5\,y_5 + 5\,y_4 - 8\,y_3 - 8\,y_2 + 6\,y_1, y_2, y_1]$$

$p' = -s^5 + s^8$ $p' = -s^4 + s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_3, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

$p = -s^7 + s^{10}$

324 . Coloring, {2, 6, 8, 10}

R: [7, 8, 7, 6, A, 3, B, B, B, 2, 1, 5]
B: [6, 7, 8, 7, 3, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, y_7, y_5, 0, 2\,y_4, y_4, y_2, y_3, 0, 2\,y_5 - y_4, y_1, 0]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_1, 0, y_1, 2\,y_4 + 2\,y_2 - 2\,y_3, y_4 + y_2 - y_3, y_4, y_2, 0, y_3]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$ $p = -s^4 + s^7$ $p = -s^4 + s^8$

325 . Coloring, {2, 6, 8, 11}

R: [7, 8, 7, 6, A, 3, B, B, B, C, 4, 5]
B: [6, 7, 8, 7, 3, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -5\,y_1 + 11\,y_5 - 5\,y_2 - 5\,y_3 - 5\,y_4 + 11\,y_6 - 5\,y_7 + 11\,y_8, 5\,y_1, 5\,y_5, 5\,y_2, 5\,y_3, 5\,y_4, 0, 5\,y_6, 5\,y_7, 5\,y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[6\,y_2 - 12\,y_4 - 8\,y_3 + 6\,y_1 + 6\,y_5, y_2, 3\,y_2 - 6\,y_4 - 4\,y_3 + 3\,y_1 + 3\,y_5, 0, 0, 3\,y_2 - 8\,y_4 - 2\,y_3 + 3\,y_1 + 3\,y_5, y_1, 3\,y_2 - 7\,y_4 - 3\,y_3 + 3\,y_1 + 3\,y_5, y_4, y_5, 0, y_3]$$

$p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = -s^3 + s^9$ $p = -s^3 + s^6$

326 . Coloring, {2, 6, 8, 12}

R: [7, 8, 7, 6, A, 3, B, B, B, C, 1, 9]
B: [6, 7, 8, 7, 3, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, -y_4 + y_6, 0, 0, y_4, y_2, y_4, y_3, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 10\,y_4 - 9\,y_1 - 3\,y_2 + 10\,y_3 - 3\,y_5, 3\,y_4 + 3\,y_3 - 3\,y_6, 6\,y_1, 3\,y_4, 3\,y_1, 3\,y_2, 3\,y_3, 0, 3\,y_5, 0, 3\,y_6]$$

$p = -s^2 - s^4 + s^5 + s^7$ $p' = -s^2 - s^4 + s^5 + s^7$ $p = s^2 - s^5 - s^6 + s^9$

327 . Coloring, {2, 6, 9, 10}

R: [7, 8, 7, 6, A, 3, B, C, C, 2, 1, 5]
B: [6, 7, 8, 7, 3, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {2, 5, 8, 10, 12}}

See Matrix

$$[y_1 - y_2 + y_3 - y_4 - y_5 + y_6 + y_7 - y_8 + y_9, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

$p = -s^3 - s^4 - s^5 + s^8 + s^9 + s^{10}$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^3 + s^9$ $p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

328 . Coloring, {2, 6, 9, 11}

R: [7, 8, 7, 6, A, 3, B, C, C, C, 4, 5]
B: [6, 7, 8, 7, 3, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -y_1 + y_4 - y_5 - y_6 + y_7 + y_2 - y_3 + y_8, y_1, y_4, y_5, y_6, y_7, 0, y_2, y_3, y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, 2\,y_3, y_7, y_8, 0]$$

$p = -s^6 + s^9$

329 . Coloring, {2, 6, 9, 12}

R: [7, 8, 7, 6, A, 3, B, C, C, C, 1, 9]
B: [6, 7, 8, 7, 3, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-y_1 - y_3 - y_2 + 2\,y_5 - y_4,\ 0,\ y_1,\ 0,\ 0,\ y_3,\ y_2,\ y_3,\ -2\,y_3 + y_5,\ y_3,\ y_4,\ y_5]$$

$p' = -s^5 + s^8$ $p = s^3 - s^6$ $p' = s^3 - s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0,\ y_8,\ y_7,\ y_6,\ 2\,y_5,\ y_5,\ y_4,\ y_3,\ 0,\ y_2,\ y_1,\ 0]$$

$p = s^6 - s^9$

330 . Coloring, {2, 6, 10, 11}

R: [7, 8, 7, 6, A, 3, B, C, B, 2, 4, 5]
B: [6, 7, 8, 7, 3, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0,\ 6\,y_4 - 8\,y_5 + 8\,y_1 + 4\,y_2 - 12\,y_3,\ 8\,y_4 - 17\,y_5 + 15\,y_1 + 12\,y_2 - 22\,y_3,\ 2\,y_4,\ 2\,y_5,\ 12\,y_4 - 22\,y_5 + 18\,y_1 + 14\,y_2 - 28\,y_3,\ 2\,y_1,\ 2\,y_2,\ 0,\ 2\,y_3,\ -4\,y_4 + 12\,y_5 - 8\,y_1 - 8\,y_2 + 14\,y_3,\ 8\,y_4 - 15\,y_5 + 13\,y_1 + 8\,y_2 - 18\,y_3]$$

$p' = -s^2 + s^7$ $p' = -s^3 + s^8$ $p' = -s^4 + s^9$ $p = -s + s^6$ $p' = -s + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[3\,y_1 + y_2 - y_3 - y_5 - y_4 + y_6 + y_7,\ 0,\ y_1,\ 0,\ 0,\ y_2,\ 2\,y_1,\ y_3,\ y_5,\ y_4,\ y_6,\ y_7]$$

$p = -s^7 + s^8$ $p = -s^7 + s^9$

331 . Coloring, {2, 6, 10, 12}

R: [7, 8, 7, 6, A, 3, B, C, B, 2, 1, 9]
B: [6, 7, 8, 7, 3, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2 + y_4, y_2, 0, 0, y_4, y_5, y_6, y_3, y_4, y_8, y_7]$$

$p = -s^6 + s^9$ $p' = -s^6 + s^9$

Omega Rank for B : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_3, -y_1 + y_5 + y_6, y_1, y_2, -y_3 - y_2 + y_5 + y_6, y_5 + y_6 - y_4, 0, y_4, y_5, y_6]$$

$p' = -s^2 + s^4 - s^6 + s^8$ $p' = -s^2 + s^3 - s^6 + s^7$ $p = s^2 - s^3 + s^6 - s^7$

332 . Coloring, {2, 6, 11, 12}

R: [7, 8, 7, 6, A, 3, B, C, B, C, 4, 9]
B: [6, 7, 8, 7, 3, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_6, y_5, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, y_7, y_4, y_5, y_6, 0, y_8, y_9, y_{10}]$$

333 . Coloring, {2, 7, 8, 9}

R: [7, 8, 7, 6, A, A, A, B, C, C, 1, 5]
B: [6, 7, 8, 7, 3, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_4, y_3, y_2, y_3, 0, y_5, y_6, y_7]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_6, y_1, y_2, 0, y_6, y_5, y_3, y_4, 0, y_8, y_7]$$

$p = -s^6 + s^9$

334 . Coloring, {2, 7, 8, 10}

R: [7, 8, 7, 6, A, A, A, B, B, 2, 1, 5]
B: [6, 7, 8, 7, 3, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 2\,y_3, y_3, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, -y_1 - y_2 - y_3 + 5\,y_5 - y_4, y_5, 0, y_1, y_5, y_2, y_3, 0, y_5, y_4]$$

$p = s^4 - s^8$ $p' = s^5 - s^7$ $p' = s^4 - s^6$

335 . Coloring, {2, 7, 8, 11}

R: [7, 8, 7, 6, A, A, A, B, B, C, 4, 5]
B: [6, 7, 8, 7, 3, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, y_1, y_4, 2\,y_3, y_3, 0, y_7, y_6, y_5]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_6, y_7, y_8, 0, 0, y_6 - y_7 + y_8 + y_4 - y_1 - y_2 - y_3 + y_5, y_4, y_1, y_2, 0, y_3, y_5]$$

$p = -s^8 + s^9$

336 . Coloring, {2, 7, 8, 12}

R: [7, 8, 7, 6, A, A, A, B, B, C, 1, 9]
B: [6, 7, 8, 7, 3, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_7, y_6, y_7, y_5, y_3, y_4, y_2]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 2\,y_4, y_1 + y_4 + y_3 - y_6, 2\,y_1 + 2\,y_3 - y_2 - y_5, y_1, y_4, y_2, y_3, 0, 0, y_5, y_6]$$

$p = s^2 + s^4 - s^5 - s^7$ $p' = s^2 + s^4 - s^5 - s^7$ $p' = -s^3 - s^5 + s^6 + s^8$

337 . Coloring, {2, 7, 9, 10}

R: [7, 8, 7, 6, A, A, A, C, C, 2, 1, 5]
B: [6, 7, 8, 7, 3, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[2\,y_3, y_1, 0, 0, y_2, y_3, y_4, y_5, 0, y_6, 0, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, 2\,y_1 - 2\,y_3, 0, y_6, 2\,y_3]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

338 . Coloring, {2, 7, 9, 11}

R: [7, 8, 7, 6, A, A, A, C, C, C, 4, 5]
B: [6, 7, 8, 7, 3, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_3, y_2, y_1, 2\,y_3, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_6, y_5, 0, 0, y_4, y_3, y_2, y_6, 0, y_7, 0]$$

$p = -s^3 + s^8$

339 . Coloring, {2, 7, 9, 12}

R: [7, 8, 7, 6, A, A, A, C, C, C, 1, 9]
B: [6, 7, 8, 7, 3, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_5, 0, 0, 0, 0, y_5, y_4, y_5, y_3, y_2, 0, y_1]$$

$p' = s^4 - s^6$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_3, y_1, y_2, 2\,y_3, y_3, y_4, y_5, 0, 0, y_6, 0]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

340 . Coloring, {2, 7, 10, 11}

R: [7, 8, 7, 6, A, A, A, C, B, 2, 4, 5]
B: [6, 7, 8, 7, 3, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_6, y_5, y_7, 2\,y_4, y_2, 0, y_3, y_4, y_8]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-5\,y_1 - 5\,y_5 - 5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_6 + 11\,y_7, 0, 5\,y_1, 0, 0, 5\,y_5, 5\,y_2, 5\,y_3, 5\,y_4, 0, 5\,y_6, 5\,y_7]$$

$p = -s^2 - s^3 + s^7 + s^8$

341 . Coloring, {2, 7, 10, 12}

R: [7, 8, 7, 6, A, A, A, C, B, 2, 1, 9]
B: [6, 7, 8, 7, 3, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_7, y_4, y_5, 0, 0, y_6, 3\ y_7]$$

$p = -s^5 + s^8$

342 . Coloring, {2, 7, 11, 12}

R: [7, 8, 7, 6, A, A, A, C, B, C, 4, 9]
B: [6, 7, 8, 7, 3, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, 2\ y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 2\ y_7, y_2, 0, y_6, y_3, 2\ y_6 - 2\ y_7, y_4, 0, 0, y_5, y_7]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

343 . Coloring, {2, 8, 9, 10}

R: [7, 8, 7, 6, A, A, B, B, C, 2, 1, 5]
B: [6, 7, 8, 7, 3, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_4, y_5, 0, 0, y_6, y_7, y_8, y_1, 0, y_2, y_3, y_7]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_1 - y_3 + y_2 - y_4 - y_5 - y_6 + y_8 + y_7, 0, y_3, y_2, y_4, y_5, y_6, y_8, y_7]$$

$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

344 . Coloring, {2, 8, 9, 11}

R: [7, 8, 7, 6, A, A, B, B, C, C, 4, 5]
B: [6, 7, 8, 7, 3, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, y_5, y_6, 2\,y_4, y_4, 0, y_3, y_1, y_2]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {1, 3, 6, 8, 9, 11, 12}}

See Matrix

$$[5\,y_4 - y_1 - y_2 - y_3 - y_5 - y_6 - y_7, y_4, y_1, 0, 0, y_2, y_4, y_3, y_5, y_4, y_6, y_7]$$

$p' = -s + s^8$ $p' = -s^2 + s^9$ $p = -s + s^8$

345 . Coloring, {2, 8, 9, 12}

R: [7, 8, 7, 6, A, A, B, B, C, C, 1, 9]
B: [6, 7, 8, 7, 3, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[y_2 + y_3 + y_4 - y_1 - y_5, 0, 0, 0, 0, y_2 + y_3 - y_4, y_1, y_2 + y_3 - y_4, y_2, y_3, y_5, y_4]$$

$p' = s^4 - s^7$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 2\,y_8, 2\,y_7, 2\,y_6, 2\,y_5, 7\,y_8 - 9\,y_7 + 7\,y_6 - 9\,y_5 + 7\,y_4 - 9\,y_3 + 7\,y_2 - 9\,y_1, 2\,y_4, 2\,y_3, 0, 2\,y_2, 7\,y_8 - 9\,y_7 + 7\,y_6 - 9\,y_5 + 7\,y_4 - 9\,y_3 + 7\,y_2 - 9\,y_1, 2\,y_1]$$

$p' = s^3 + s^4 + s^5 - s^7 - s^8 - s^9$ $p = s^3 - s^6 - s^7 + s^{10}$

346 . Coloring, {2, 8, 10, 11}

R: [7, 8, 7, 6, A, A, B, B, B, 2, 4, 5]
B: [6, 7, 8, 7, 3, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_6, y_5, y_6, y_3, 0, y_4, y_7, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[-2\,y_2 + 2\,y_5,\ 0,\ y_1,\ 0,\ 0,\ y_2,\ -2\,y_2 + 2\,y_5,\ y_3,\ y_4,\ y_5,\ 0,\ y_6]$$

$p' = -s^5 + s^7$ $p = -s^5 + s^7$

347 . Coloring, {2, 8, 10, 12}

R: [7, 8, 7, 6, A, A, B, B, B, 2, 1, 9]
B: [6, 7, 8, 7, 3, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1,\ y_3,\ 0,\ 0,\ 0,\ y_2,\ y_7,\ y_6,\ 2\,y_2,\ y_5,\ y_4,\ 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0,\ 0,\ y_1 + 3\,y_2 - y_3 + y_4 + y_6 - y_5,\ 2\,y_2,\ y_1,\ y_2,\ y_3,\ y_4,\ 0,\ y_6,\ 0,\ y_5]$$

$p' = -s^4 + s^5 - s^6 + s^7$ $p = s^4 - s^5 + s^6 - s^7$

348 . Coloring, {2, 8, 11, 12}

R: [7, 8, 7, 6, A, A, B, B, B, C, 4, 9]
B: [6, 7, 8, 7, 3, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_6, 0, y_1, 2\,y_3, y_3, y_4, y_2, y_5, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[y_2, y_3, y_4, 0, y_5, y_6, y_3, -y_2 + 5\,y_3 - y_4 - y_5 - y_6 - y_1, 0, y_3, 0, y_1]$$

$p = -s^3 + s^7$ $p' = -s^4 + s^8$ $p' = -s^3 + s^7$

349 . Coloring, {2, 9, 10, 11}

R: [7, 8, 7, 6, A, A, B, C, C, 2, 4, 5]
B: [6, 7, 8, 7, 3, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_2, y_3, y_4, y_9, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

350 . Coloring, {2, 9, 10, 12}

R: [7, 8, 7, 6, A, A, B, C, C, 2, 1, 9]
B: [6, 7, 8, 7, 3, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[2\,y_4,\ 5\,y_4 - 2\,y_2 - 2\,y_5,\ 0,\ 0,\ 0,\ 2\,y_2,\ 2\,y_4,\ 2\,y_1,\ 5\,y_4 - 2\,y_1 - 2\,y_3,\ 2\,y_3,\ 2\,y_4,\ 2\,y_5]$$

$p' = -s^5 + s^8$ $p = s^5 - s^6$ $p' = -s^5 + s^7$ $p' = -s^5 + s^6$

Omega Rank for B : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0,\ 0,\ y_1 + y_2 + y_3 - y_4 + y_5 + y_6 - y_7 - y_8,\ y_1,\ y_2,\ y_3,\ y_4,\ y_5,\ 0,\ y_6,\ y_7,\ y_8]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

351 . Coloring, {2, 9, 11, 12}

R: [7, 8, 7, 6, A, A, B, C, C, C, 4, 9]
B: [6, 7, 8, 7, 3, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0,\ 0,\ 0,\ y_1,\ 0,\ y_2,\ 2\,y_7,\ y_7,\ y_3,\ y_4,\ y_5,\ y_6]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[5\,y_5 - y_1 - y_2 - y_3 - y_4 - y_6,\ y_5,\ y_1,\ 0,\ y_2,\ y_3,\ y_5,\ y_4,\ 0,\ y_5,\ y_6,\ 0]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

352 . Coloring, {2, 10, 11, 12}

R: [7, 8, 7, 6, A, A, B, C, B, 2, 4, 9]
B: [6, 7, 8, 7, 3, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$[0, y_1, 0, y_2, 0, y_8, y_3, y_4, y_5, y_6, y_7, y_9]$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$[y_6, 0, y_7, 0, y_8, y_9, y_5, y_1, 0, y_2, y_3, y_4]$

353 . Coloring, {3, 4, 5, 6}

R: [7, 7, 8, 7, 3, 3, B, C, B, C, 1, 5]
B: [6, 8, 7, 6, A, A, A, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$[y_1 + y_2 - y_3 + y_4 - y_5 + y_6, 0, y_1, 0, y_2, 0, y_3, y_4, 0, 0, y_5, y_6]$

$p = -s - s^2 - s^3 + s^5 + s^6 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, 3\,y_1, 0, -3\,y_2 + 8\,y_3 - 3\,y_7 + 5\,y_6, 0, -3\,y_1 - 3\,y_4 + 5\,y_3 - 3\,y_5 + 8\,y_6, 3\,y_4, 3\,y_2, 3\,y_3, 3\,y_7, 3\,y_5, 3\,y_6]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

354 . Coloring, {3, 4, 5, 7}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, A, C, B, C, 1, 5]
B: [6, 8, 7, 6, A, 3, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_5, 0, y_4, 0, y_3, 0, y_5 - y_4 + y_3, y_2, 0, y_5 + y_3 - y_2, y_1, y_5 + y_3 - y_1]$$

$p' = s^6 - s^7$ $p' = s^5 - s^7$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_6 - 3\,y_4 + 13\,y_5 - 3\,y_7 - 3\,y_8 + 13\,y_9, 3\,y_1, 3\,y_2, 0, 3\,y_3, 3\,y_6, 3\,y_4, 3\,y_5, 3\,y_7, 3\,y_8, 3\,y_9]$$

$p = -s^4 - s^5 + s^9 + s^{10}$

355 . Coloring, {3, 4, 5, 8}

R: [7, 7, 8, 7, 3, A, B, B, B, C, 1, 5]
B: [6, 8, 7, 6, A, 3, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, y_5, 0, y_4, y_3, 0, y_8, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_3, y_1, y_2, 0, y_4, y_5, y_6, y_7, y_8, 0, y_9]$$

356 . Coloring, {3, 4, 5, 9}

R: [7, 7, 8, 7, 3, A, B, C, C, C, 1, 5]
B: [6, 8, 7, 6, A, 3, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[7\,y_1, 0, 9\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4 - 7\,y_5 + 9\,y_6 - 7\,y_7, 0, 7\,y_2, 0, 7\,y_3, 7\,y_4, 0, 7\,y_5, 7\,y_6, 7\,y_7]$$

$$p = s^2 + s^3 + s^4 - s^6 - s^7 - s^8$$

Omega Rank for B : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_6, y_5, y_7, y_8, y_9, 0]$$

357 . Coloring, {3, 4, 5, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, B, C, B, 2, 1, 5]
B: [6, 8, 7, 6, A, 3, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[-5\,y_1 + 11\,y_2 + 11\,y_3 - 5\,y_4 + 11\,y_5 - 5\,y_6 - 5\,y_7 + 11\,y_8,\ 5\,y_1,\ 5\,y_2,\ 0,\ 5\,y_3,\ 0,\ 5\,y_4,\ 5\,y_5,\ 0,\ 5\,y_6,\ 5\,y_7,\ 5\,y_8]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0,\ 0,\ y_1,\ y_2,\ 0,\ y_3,\ y_9,\ y_4,\ y_5,\ y_6,\ y_7,\ y_8]$$

358 . Coloring, {3, 4, 5, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, B, C, B, C, 4, 5]
B: [6, 8, 7, 6, A, 3, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0,\ 0,\ y_1 + y_3 + y_2 - y_6,\ y_5,\ y_1,\ 0,\ y_4,\ y_3,\ 0,\ y_2,\ -y_5 + 2\,y_1 - y_4 + 2\,y_3 + 2\,y_2,\ y_6]$$

$p' = -s^2 - s^4 + s^5 + s^7$ $p = -s^2 - s^4 + s^5 + s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[-3\,y_1 - 3\,y_4 + 8\,y_5 - 3\,y_6 + 5\,y_8,\ -3\,y_2 - 3\,y_3 + 5\,y_5 - 3\,y_7 + 8\,y_8,\ 3\,y_1,\ 0,\ 0,\ 3\,y_2,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$p = s - s^9$ $p' = s - s^9$

359 . Coloring, {3, 4, 5, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, B, C, B, C, 1, 9]
B: [6, 8, 7, 6, A, 3, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, y_5, y_6, y_7, -y_5 + y_6 + y_7 - y_1 - y_2 + y_3 + y_4 - y_8 + y_9, y_1, y_2, y_3, 0, y_4, y_8, y_9]$$

$p = - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$

360 . Coloring, {3, 4, 6, 7}

$\Omega p(\Delta)=0$: $p = - 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, A, C, B, C, 1, 5]
B: [6, 8, 7, 6, 3, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_6, 0, y_4, 0, y_5, 0, y_3, y_6 - y_4, 0, y_2, y_4, y_1]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, 2y_8, 2y_7, 2y_6, 0, 2y_5, 2y_4, 2y_3, 2y_2, 11y_8 + 11y_7 - 2y_6 + 11y_5 - 2y_4 - 2y_3 - 39y_2 + 11y_1, 2y_1, 3y_8 + 3y_7 + 3y_5 - 11y_2 + 3y_1]$$

$p' = -s^3 + s^9$ $p = -s^3 + s^9$

361 . Coloring, {3, 4, 6, 8}

R: [7, 7, 8, 7, A, 3, B, B, B, C, 1, 5]
B: [6, 8, 7, 6, 3, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[-2y_1 + 9y_2 + 9y_3 - 11y_5 - 2y_4, 0, 2y_1, 0, -2y_2 - 2y_3 + 2y_4 + 2y_5, 0, 2y_2, 2y_3, 0, 7y_2 + 7y_3 - 2y_4 - 9y_5, 2y_4, 2y_5]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_6, y_5, 2y_5, 0, 2y_4, y_4, y_2, y_3, y_1, 0, y_7]$$

$p = s^6 - s^8$ $p' = s^6 - s^8$

362 . Coloring, {3, 4, 6, 9}

R: [7, 7, 8, 7, A, 3, B, C, C, C, 1, 5]
B: [6, 8, 7, 6, 3, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[4\,y_4 + 4\,y_5 + 3\,y_1 + 3\,y_2 - 7\,y_3,\ 0,\ 2\,y_4,\ 0,\ 2\,y_5,\ 0,\ 10\,y_4 + 10\,y_5 + 4\,y_1 + 4\,y_2 - 16\,y_3,\ 2\,y_1,\ 0,\ 2\,y_2,\ 2\,y_3,\ 16\,y_4 + 16\,y_5 + 7\,y_1 + 7\,y_2 - 27\,y_3]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0,\ y_1,\ y_2,\ y_3,\ 0,\ y_8,\ y_4,\ y_5,\ 2\,y_2,\ y_6,\ y_7,\ 0]$$

$p = -s^3 + s^9$

363 . Coloring, {3, 4, 6, 10}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, B, C, B, 2, 1, 5]
B: [6, 8, 7, 6, 3, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_9,\ y_8,\ y_7,\ 0,\ y_6,\ 0,\ y_5,\ y_4,\ 0,\ y_3,\ y_2,\ y_1]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_1, 0, y_2, y_6, y_3, y_4, y_5, y_6, y_7]$$

$p' = s^6 - s^8$ $p = s^6 - s^8$

364 . Coloring, {3, 4, 6, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, B, C, B, C, 4, 5]
B: [6, 8, 7, 6, 3, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, -y_1 + y_4, y_2 + y_5, y_1, 0, y_3, y_2, 0, y_5, y_4, y_3]$$

$p = -s^3 + s^6$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[3 y_8, 3 y_7, 3 y_6, 0, 0, 3 y_5, 3 y_4, 3 y_3, 3 y_2, -3 y_8 - 3 y_6 - 3 y_3 + 8 y_2 + 5 y_1, -3 y_7 - 3 y_5 - 3 y_4 + 5 y_2 + 8 y_1, 3 y_1]$$

$p' = -s^3 + s^9$ $p = -s^3 + s^9$

365 . Coloring, {3, 4, 6, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, B, C, B, C, 1, 9]
B: [6, 8, 7, 6, 3, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7 - y_8 + y_9, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

$p = s^5 - s^6 + s^7 - s^8 + s^9 - s^{10}$

366 . Coloring, {3, 4, 7, 8}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, A, B, B, C, 1, 5]
B: [6, 8, 7, 6, 3, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_5, 0, 0, 0, y_4, 0, y_3, y_2, 0, y_1, y_7, y_6]$$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, 7y_4, 7y_5, 7y_6, 0, 9y_4 - 7y_5 - 7y_6 - 7y_1 + 9y_2 + 9y_3 - 7y_7 + 9y_8, 7y_1, 7y_2, 7y_3, 0, 7y_7, 7y_8]$$

$p = -s^3 - s^4 + s^8 + s^9$

367 . Coloring, {3, 4, 7, 9}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, A, C, C, C, 1, 5]
B: [6, 8, 7, 6, 3, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\ y_3, 0, 0, 0, y_1, 0, y_2, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_6, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, 0]$$

$p = -s^3 + s^8$

368 . Coloring, {3, 4, 7, 10}

R: [7, 7, 8, 7, A, A, A, C, B, 2, 1, 5]
B: [6, 8, 7, 6, 3, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6 + y_4, y_1, 0, 0, y_2, 0, y_3, y_6, 0, y_5, y_6, y_4]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, 0, 5\,y_1, -5\,y_1 - 5\,y_4 - 5\,y_5 - 5\,y_3 + 11\,y_2 - 5\,y_6 + 11\,y_7, 0, 5\,y_4, 5\,y_5, 5\,y_3, 5\,y_2, 0, 5\,y_6, 5\,y_7]$$

$$p = s^2 + s^3 - s^7 - s^8$$

369 . Coloring, {3, 4, 7, 11}

R: [7, 7, 8, 7, A, A, A, C, B, C, 4, 5]
B: [6, 8, 7, 6, 3, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, y_1, 0, y_3, y_5, 0, y_4, y_5, y_6]$$

$$p = -s^4 + s^7$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[3\,y_3, -3\,y_3 - 3\,y_1 - 3\,y_2 - 3\,y_4 - 3\,y_5 + 13\,y_6 - 3\,y_7 + 13\,y_8, 3\,y_1, 0, 0, 3\,y_2, 3\,y_4, 3\,y_5, 3\,y_6, 0, 3\,y_7, 3\,y_8]$$

$$p = -s^3 - s^4 + s^8 + s^9$$

370 . Coloring, {3, 4, 7, 12}

R: [7, 7, 8, 7, A, A, A, C, B, C, 1, 9]
B: [6, 8, 7, 6, 3, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 2\,y_7, y_3, y_4, y_5, y_6, y_1, 2\,y_5 - 3\,y_7, 0, 0, y_2, y_7]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

371 . Coloring, {3, 4, 8, 9}

R: [7, 7, 8, 7, A, A, B, B, C, C, 1, 5]
B: [6, 8, 7, 6, 3, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[2\,y_1, 0, 0, 0, 2\,y_2, 0, 7\,y_1 - 27\,y_2 - 2\,y_3 + 16\,y_4, 2\,y_3, 0, 3\,y_1 - 7\,y_2 + 4\,y_4, 2\,y_4, 4\,y_1 - 16\,y_2 + 10\,y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 3, 4, 6, 7, 8, 9, 10, 11, 12}} order: 10

See Matrix

$$[0, y_1, y_2, y_3, 0, y_6, y_4, y_5, y_7, y_8, y_9, y_{10}]$$

372 . Coloring, {3, 4, 8, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, B, B, B, 2, 1, 5]
B: [6, 8, 7, 6, 3, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 2\,y_5, 0, y_3, y_5, 0, y_4, y_6, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_4, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7]$$

$p = -s^6 + s^8$

373 . Coloring, {3, 4, 8, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, B, B, B, C, 4, 5]
B: [6, 8, 7, 6, 3, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_2, y_4, 0, y_1, -y_2 - y_1 + 5\,y_4 - y_3, 0, y_4, y_3, y_4]$$

$p' = s^2 - s^5$ $p' = s^3 - s^6$ $p = s^2 - s^5$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, y_3, y_2, 0, 0, y_4, y_5, y_6, y_8, y_7, 0, y_9]$$

374 . Coloring, {3, 4, 8, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, B, B, B, C, 1, 9]
B: [6, 8, 7, 6, 3, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, 0, 0, 0, 0, 0, y_3, y_2, y_4, 2\,y_2, y_5, y_6]$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, 0, y_9]$

375 . Coloring, {3, 4, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, B, C, C, 2, 1, 5]
B: [6, 8, 7, 6, 3, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, y_2, 0, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$

Omega Rank for B : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_5, y_4, 0, y_3, y_1, y_2, y_9, y_8, y_7, y_6]$$

376 . Coloring, {3, 4, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, B, C, C, C, 4, 5]
B: [6, 8, 7, 6, 3, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, 10\,y_1 - 16\,y_3 + 4\,y_4, 2\,y_1, 0, 4\,y_1 - 7\,y_3 + 3\,y_4, 16\,y_1 - 2\,y_2 - 27\,y_3 + 7\,y_4, 0, 2\,y_2, 2\,y_3, 2\,y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, y_7, y_8, y_9, 0]$$

377 . Coloring, {3, 4, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, B, C, C, C, 1, 9]
B: [6, 8, 7, 6, 3, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[7\,y_1, 0, 0, 0, 0, 0, 7\,y_2, 7\,y_3, 9\,y_1 + 9\,y_2 - 21\,y_3 + 9\,y_4 - 7\,y_5, 14\,y_3, 7\,y_4, 7\,y_5]$$

$p = -s^2 - s^3 + s^5 + s^6$ $p = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_8, y_6, 0, y_7, y_9, 0]$$

378 . Coloring, {3, 4, 10, 11}

R: [7, 7, 8, 7, A, A, B, C, B, 2, 4, 5]
B: [6, 8, 7, 6, 3, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_5, 0, y_4, y_3, 0, y_2, y_1, 0, y_8, y_7, y_6]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_5, 0, y_4, 0, 0, y_3, y_1, y_2, y_7, y_8, y_9, y_6]$$

379 . Coloring, {3, 4, 10, 12}

R: [7, 7, 8, 7, A, A, B, C, B, 2, 1, 9]
B: [6, 8, 7, 6, 3, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_4, 0, 0, 0, 0, y_2, y_5, y_6, 2\,y_5, y_3, y_4]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

380 . Coloring, {3, 4, 11, 12}

R: [7, 7, 8, 7, A, A, B, C, B, C, 4, 9]
B: [6, 8, 7, 6, 3, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, 0, y_2, y_3, y_4, 2\,y_3, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_1 - y_2 + y_3 + y_4 + y_5 - y_6 - y_7 + y_8 - y_9, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9 - s^{10}$

381 . Coloring, {3, 5, 6, 7}

R: [7, 7, 8, 6, 3, 3, A, C, B, C, 1, 5]
B: [6, 8, 7, 7, A, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1 - y_2 + y_3 - y_4 - y_5 + y_6, 0, y_1, 0, y_2, y_7, y_3, y_4, 0, y_5, y_7, y_6]$$

$p = s^5 - s^9$ $p' = s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8, 0, 3\,y_1, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

382 . Coloring, {3, 5, 6, 8}

R: [7, 7, 8, 6, 3, 3, B, B, B, C, 1, 5]
B: [6, 8, 7, 7, A, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, y_3, y_2, y_4, y_7, 0, 0, y_6, 2\,y_2]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, 0, 2\,y_2, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7]$$

$p = -s^6 + s^8$

383 . Coloring, {3, 5, 6, 9}

R: [7, 7, 8, 6, 3, 3, B, C, C, C, 1, 5]
B: [6, 8, 7, 7, A, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[y_5, 0, y_4, 0, y_3, y_2, y_5, y_1, 0, 0, y_5, 5\,y_5 - y_4 - y_3 - y_2 - y_1]$$

$p' = -s^2 + s^6$ $p = -s^2 + s^6$ $p' = s^3 - s^7$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, y_7, y_3, y_4, 2\,y_7, y_5, y_6, 0]$$

$p = -s^2 + s^8$

384 . Coloring, {3, 5, 6, 10}

R: [7, 7, 8, 6, 3, 3, B, C, B, 2, 1, 5]
B: [6, 8, 7, 7, A, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[5\,y_7, -14\,y_7 + 18\,y_6 + 18\,y_5 - 14\,y_4 + 18\,y_3 - 14\,y_2 + 18\,y_1, 5\,y_6, 0, 5\,y_5, -7\,y_7 + 9\,y_6 + 9\,y_5 - 7\,y_4 + 9\,y_3 - 7\,y_2 + 9\,y_1, 5\,y_4, 5\,y_3, 0, 0, 5\,y_2, 5\,y_1]$$

$p = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$ $p' = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = s^6 - s^8$

385 . Coloring, {3, 5, 6, 11}

R: [7, 7, 8, 6, 3, 3, B, C, B, C, 4, 5]
B: [6, 8, 7, 7, A, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_8, y_6, y_7, y_5, y_4, y_3, 0, 0, y_1, y_2]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_3 + 8\,y_4 - 3\,y_5 + 5\,y_7, -3\,y_1 - 3\,y_2 + 5\,y_4 - 3\,y_6 + 8\,y_7, 0, 0, 0, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

386 . Coloring, {3, 5, 6, 12}

R: [7, 7, 8, 6, 3, 3, B, C, B, C, 1, 9]
B: [6, 8, 7, 7, A, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 - y_2 - y_3 + y_4 + y_5 - y_6, 0, y_1, y_2, y_7, y_3, y_4, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^9$ $p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

387 . Coloring, {3, 5, 7, 8}

R: [7, 7, 8, 6, 3, A, A, B, B, C, 1, 5]
B: [6, 8, 7, 7, A, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 10

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_6, 0, y_5, 0, y_4, y_3, y_6 - y_5 + y_4 - y_3, y_2, 0, y_6 + y_4 - y_2, y_1, y_6 + y_4 - y_1]$$

$p' = -s^3 + s^4 - s^7 + s^8$ $p' = s^2 - s^3 + s^6 - s^7$ $p = s^2 - s^4 + s^6 - s^8$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, y_4 + y_5 - y_2 + y_3, y_4 + y_5 - y_2, y_4 + y_5 + y_2 + y_3 - y_6 - y_1, 0, y_3, y_6, y_4, y_5, y_3, y_1, y_2]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$ $p = -s^4 + s^{10}$

388 . Coloring, {3, 5, 7, 9}

R: [7, 7, 8, 6, 3, A, A, C, C, C, 1, 5]
B: [6, 8, 7, 7, A, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[2\,y_1,\ 0,\ -y_1 + y_3 + y_4 - y_2,\ 0,\ -2\,y_1 + y_3 + y_4,\ y_1,\ y_2,\ y_3,\ 0,\ y_4,\ 0,\ y_3 + y_4]$$

$p' = -s^4 + s^5$ $p = s^4 - s^5$ $p' = -s^4 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_2 + y_6,\ y_2,\ y_1,\ 0,\ y_6,\ y_3,\ y_4,\ 2\,y_6,\ y_6,\ y_5,\ 0]$$

$p' = -s^4 + s^7$ $p' = -s^5 + s^8$ $p = s^4 - s^7$

389 . Coloring, {3, 5, 7, 10}

R: [7, 7, 8, 6, 3, A, A, C, B, 2, 1, 5]
B: [6, 8, 7, 7, A, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	5 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[-5\,y_1 + 11\,y_2 + 11\,y_3 - 10\,y_7 - 5\,y_4 + 11\,y_5 - 5\,y_6 + 11\,y_8,\ 5\,y_1,\ 5\,y_2,\ 0,\ 5\,y_3,\ 5\,y_7,\ 5\,y_4,\ 5\,y_5,\ 0,\ 5\,y_6,\ 5\,y_7,\ 5\,y_8\ ]$$

$p = s^3 - s^6 - s^7 + s^{10}$ $p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, -3\,y_1 - 3\,y_2 - 6\,y_3 + 10\,y_5 - 3\,y_4, 3\,y_1, 0, 3\,y_3, 3\,y_2, 3\,y_3, -3\,y_3 + 3\,y_5, 3\,y_3, 3\,y_4, 3\,y_5]$$

$$p = -s^3 + s^6 \quad p' = -s^3 + s^6 \quad p' = -s^4 + s^7 \quad p = -s^3 + s^9$$

390 . Coloring, {3, 5, 7, 11}

R: [7, 7, 8, 6, 3, A, A, C, B, C, 4, 5]
B: [6, 8, 7, 7, A, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, -y_4 + y_5 - y_2, -y_1 + y_4 + y_5, y_1, y_2, 2\,y_4, -y_3 + y_4 + y_5, 0, y_3, y_4, y_5]$$

$$p = -s^5 + s^6 \quad p = -s^5 + s^8 \quad p = -s^5 + s^9 \quad p = -s^5 + s^7$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[3\,y_9, 3\,y_8, 3\,y_7, 0, 0, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, -3\,y_9 - 3\,y_8 - 3\,y_7 - 3\,y_6 - 3\,y_5 - 3\,y_4 + 13\,y_3 - 3\,y_2 + 13\,y_1, 3\,y_1]$$

$$p = -s^4 - s^5 + s^9 + s^{10}$$

391 . Coloring, {3, 5, 7, 12}

R: [7, 7, 8, 6, 3, A, A, C, B, C, 1, 9]
B: [6, 8, 7, 7, A, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[2\,y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, 0, y_1, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8 \quad p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_3 - y_8, y_2, y_3, y_8, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^6 + s^9 \quad p' = -s^6 + s^9$

392 . Coloring, {3, 5, 8, 9}

R: [7, 7, 8, 6, 3, A, B, B, C, C, 1, 5]
B: [6, 8, 7, 7, A, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_1, 0, y_2, 0, y_7, y_3, y_4, y_5, 0, y_6, y_9, y_8]$$

Omega Rank for B : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

393 . Coloring, {3, 5, 8, 10}

R: [7, 7, 8, 6, 3, A, B, B, B, 2, 1, 5]
B: [6, 8, 7, 7, A, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_1, -5\,y_6 + 4\,y_1 - 2\,y_4, 0, 2\,y_6, y_6, y_5, y_4, 0, 2\,y_1 - 2\,y_6 - y_4, y_3, 0]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_6, 2\,y_5, 0, y_5, y_4, y_5, y_3, y_2, 0, y_1]$$

$p' = s^5 - s^7$ $p = s^5 - s^7$

394 . Coloring, {3, 5, 8, 11}

R: [7, 7, 8, 6, 3, A, B, B, B, C, 4, 5]
B: [6, 8, 7, 7, A, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_3, y_3 - y_1 + y_2 - y_7 - y_8 - y_6 + y_5 + y_4, y_1, y_2, y_7, y_8, 0, y_6, y_5, y_4]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_8, y_9, y_4, y_5, y_6, 0, y_7]$$

395 . Coloring, {3, 5, 8, 12}

R: [7, 7, 8, 6, 3, A, B, B, B, C, 1, 9]
B: [6, 8, 7, 7, A, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_7, 0, 0, y_7, y_6, y_5, y_4, y_5, y_3, y_2]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_7, y_4, 2\,y_6, y_5, y_6, y_1, y_2, 0, y_3, 0, y_8]$$

$p = -s^4 + s^9$

396 . Coloring, {3, 5, 9, 10}

R: [7, 7, 8, 6, 3, A, B, C, C, 2, 1, 5]
B: [6, 8, 7, 7, A, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[-3\,y_1 + 10\,y_8 - 3\,y_7 - 3\,y_5 + 10\,y_6 - 3\,y_3 - 3\,y_4, 3\,y_1, 3\,y_8 + 3\,y_6 - 3\,y_2, 0, 3\,y_8, 3\,y_7, 3\,y_5, 3\,y_6, 0, 3\,y_3, 3\,y_4, 3\,y_2]$$

$p' = -s^4 - s^6 + s^7 + s^9$ $p = s^4 + s^6 - s^7 - s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_1, 0, y_4, y_3, y_4, y_7, y_8, y_6, y_5]$$

$$p = -s^3 + s^9$$

397 . Coloring, {3, 5, 9, 11}

R: [7, 7, 8, 6, 3, A, B, C, C, C, 4, 5]
B: [6, 8, 7, 7, A, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_2, y_2 - y_1 + y_4 - y_5 - y_6 - y_3 + y_7 + y_8, y_1, y_4, y_5, y_6, 0, y_3, y_7, y_8]$$

$$p = s^6 - s^7 + s^8 - s^9$$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_2, y_3, y_1, 0, 0, y_6, y_4, y_5, y_9, y_7, y_8, 0]$$

398 . Coloring, {3, 5, 9, 12}

R: [7, 7, 8, 6, 3, A, B, C, C, C, 1, 9]
B: [6, 8, 7, 7, A, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[y_4, 0, y_1, 0, 0, y_1, y_4, y_3, 5\,y_4 - 2\,y_1 - 2\,y_3 - y_2, y_3, y_4, y_2]$$

$p = -s^3 + s^5$ $p' = -s^3 + s^5$ $p = -s^3 + s^7$ $p' = -s^3 + s^7$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, y_1, y_2, 2\,y_4, y_4, y_5, y_6, 0, y_7, y_8, 0]$$

$p = -s^3 + s^9$

399 . Coloring, {3, 5, 10, 11}

R: [7, 7, 8, 6, 3, A, B, C, B, 2, 4, 5]
B: [6, 8, 7, 7, A, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 3\,y_8, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3, -8\,y_7 + 5\,y_6 - 3\,y_5 + 5\,y_3 + 5\,y_2 - 8\,y_1, 0, 3\,y_2, -3\,y_8 - 11\,y_7 + 8\,y_6 - 3\,y_4 + 8\,y_3 + 8\,y_2 - 11\,y_1, 3\,y_1]$$

$p = -s - s^3 + s^7 + s^9$ $p' = -s - s^3 + s^7 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_9, y_7, y_8]$$

400 . Coloring, {3, 5, 10, 12}

R: [7, 7, 8, 6, 3, A, B, C, B, 2, 1, 9]
B: [6, 8, 7, 7, A, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2 + y_7, y_2, 0, 0, y_2, y_3, y_5, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$ $p' = -s^6 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_1, y_2, y_4, y_3, y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

401 . Coloring, {3, 5, 11, 12}

R: [7, 7, 8, 6, 3, A, B, C, B, C, 4, 9]
B: [6, 8, 7, 7, A, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_1, 0, y_2 + y_1 + y_4 + y_3 + y_5 - y_7 - y_6, 2\,y_2, y_4, y_3, y_5, y_7, y_6]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_1, y_2, -y_1 + y_2 + y_4 + y_5 + y_3 - y_8 - y_9 + y_6 - y_7, 0, y_4, y_5, y_3, y_8, 0, y_9, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$

402 . Coloring, {3, 6, 7, 8}

R: [7, 7, 8, 6, A, 3, A, B, B, C, 1, 5]
B: [6, 8, 7, 7, 3, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_8, 0, y_9, 0, y_1, y_2, y_3, y_4, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 2\,y_8, 7\,y_8 - 9\,y_7 - 9\,y_6 + 7\,y_5 + 7\,y_4 + 7\,y_3 - 9\,y_2 + 7\,y_1, 2\,y_7, 0, 7\,y_8 - 9\,y_7 - 9\,y_6 + 7\,y_5 + 7\,y_4 + 7\,y_3 - 9\,y_2 + 7\,y_1, 2\,y_6, 2\,y_5, 2\,y_4, 2\,y_3, 2\,y_2, 2\,y_1]$$

$p' = s^5 + s^6 - s^8 - s^9 \quad p = s^5 - s^7 - s^8 + s^{10}$

403 . Coloring, {3, 6, 7, 9}

R: [7, 7, 8, 6, A, 3, A, C, C, C, 1, 5]
B: [6, 8, 7, 7, 3, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\,y_1, 0, y_3, 0, y_2, y_1, 2\,y_3, y_6, 0, y_5, 0, y_4]$$

$p' = -s^4 + s^7 \quad p = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_3, y_2, 0, y_3, y_7, y_4, 2\,y_3, y_5, y_6, 0]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

404 . Coloring, {3, 6, 7, 10}

R: [7, 7, 8, 6, A, 3, A, C, B, 2, 1, 5]
B: [6, 8, 7, 7, 3, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	4 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, y_2 - y_7, 0, y_3, y_7, y_4, y_5, 0, y_6, y_7, y_8]$$

$p' = -s^6 + s^9$ $p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 7\,y_4 - 3\,y_1 - 3\,y_2 - 3\,y_3, -4\,y_4 + 3\,y_1 + 3\,y_2 + 3\,y_3, 0, 7\,y_4 - 3\,y_1 - 3\,y_2 - 3\,y_3, -4\,y_4 + 3\,y_1 + 3\,y_2 + 3\,y_3, 7\,y_4 - 3\,y_1 - 3\,y_2 - 3\,y_3, 3\,y_1, 3\,y_2, 3\,y_4, 3\,y_3]$$

$p' = s^5 - s^7$ $p' = s^3 - s^7$ $p' = s^4 - s^8$ $p = s^3 - s^9$ $p' = s^6 - s^8$

405 . Coloring, {3, 6, 7, 11}

R: [7, 7, 8, 6, A, 3, A, C, B, C, 4, 5]
B: [6, 8, 7, 7, 3, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_8, y_7, y_6, y_5, 2\,y_2, y_4, 0, y_3, y_2, y_1]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[-3\,y_3 - 3\,y_4 + 5\,y_5 - 3\,y_7 + 8\,y_8, -3\,y_1 - 3\,y_2 + 8\,y_5 - 3\,y_6 + 5\,y_8, 3\,y_1, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_7, 3\,y_6, 3\,y_8]$$

$p = -s^3 + s^9$ $p' = -s^3 + s^9$

406 . Coloring, {3, 6, 7, 12}

R: [7, 7, 8, 6, A, 3, A, C, B, C, 1, 9]
B: [6, 8, 7, 7, 3, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_9, y_6, y_7, y_8, y_5, y_3, y_4]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1 + 2\,y_7 - y_5, y_1, y_2, y_7 + y_5, y_7, y_3, y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$ $p' = -s^6 + s^9$

407 . Coloring, {3, 6, 8, 9}

R: [7, 7, 8, 6, A, 3, B, B, C, C, 1, 5]

B: [6, 8, 7, 7, 3, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 6

See Matrix

$$[y_5, 0, y_4, 0, y_3, -6\,y_5 - 6\,y_4 + 5\,y_3 + 4\,y_2 + 4\,y_1 - y_6, y_2, y_1, 0, 5\,y_5 + 5\,y_4 - 4\,y_3 - 2\,y_2 - 2\,y_1, y_6, -8\,y_5 - 8\,y_4 + 6\,y_3 + 5\,y_2 + 5\,y_1]$$

$p' = -s^5 + s^8$ $p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_4, y_2, 0, y_4, y_3, y_5, y_6, y_7, y_8, y_9]$$

$p = -s^2 + s^{10}$

408 . Coloring, {3, 6, 8, 10}

R: [7, 7, 8, 6, A, 3, B, B, B, 2, 1, 5]
B: [6, 8, 7, 7, 3, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2 - y_5 + 2\,y_4, y_2, 0, 4\,y_2 - 2\,y_5, 2\,y_2 - y_5, y_3, y_4, 0, y_5, y_6, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_5, 2\,y_5, 0, y_5, y_4, y_5, y_2, y_3, 0, y_1]$$

$p = -s^4 + s^8$ $p' = -s^4 + s^6$ $p = -s^4 + s^6$

409 . Coloring, {3, 6, 8, 11}

R: [7, 7, 8, 6, A, 3, B, B, B, C, 4, 5]
B: [6, 8, 7, 7, 3, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -5\,y_6 + 11\,y_4 - 5\,y_5 - 5\,y_3 - 5\,y_2 + 11\,y_1 - 5\,y_7 + 11\,y_8, 5\,y_6, 5\,y_4, 5\,y_5, 5\,y_3, 5\,y_2, 0, 5\,y_1, 5\,y_7, 5\,y_8]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_1, y_7, y_1, 0, 0, -3\,y_1 + 2\,y_2, y_2, y_3, y_4, y_5, 0, y_6]$$

$p' = -s^6 + s^8$ $p = -s^6 + s^8$

410 . Coloring, {3, 6, 8, 12}

R: [7, 7, 8, 6, A, 3, B, B, B, C, 1, 9]
B: [6, 8, 7, 7, 3, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, -y_4 + y_5, 0, 0, y_4, y_2, y_3 + y_4 - y_5, y_3, y_4, y_6, y_5]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_8, y_7, 2\,y_5, y_6, y_5, y_4, y_3, 0, y_2, 0, y_1]$$

$p = s^2 - s^9$

411 . Coloring, {3, 6, 9, 10}

R: [7, 7, 8, 6, A, 3, B, C, C, 2, 1, 5]
B: [6, 8, 7, 7, 3, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_2, y_1, y_6, 0, y_5, y_4, y_8, y_3, 0, y_7, y_{10}, y_9]$$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_2, 0, y_3, y_1, y_3, y_7, y_5, y_6, y_4]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

412 . Coloring, {3, 6, 9, 11}

R: [7, 7, 8, 6, A, 3, B, C, C, C, 4, 5]
B: [6, 8, 7, 7, 3, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_2, y_1, y_8, y_3, y_4, y_5, 0, y_6, y_7, y_9]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, 2\, y_3, y_7, y_8, 0]$$

$p = -s^3 + s^9$

413 . Coloring, {3, 6, 9, 12}

R: [7, 7, 8, 6, A, 3, B, C, C, C, 1, 9]
B: [6, 8, 7, 7, 3, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[2\, y_3, 0, 5\, y_3 - 2\, y_4, 0, 0, 2\, y_2, 2\, y_3, 5\, y_3 - 4\, y_2 - 2\, y_1, 2\, y_1, 2\, y_2, 2\, y_3, 2\, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$ $p = -s^4 + s^7$ $p = -s^4 + s^8$ $p = -s^4 + s^9$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 2\, y_4, y_4, y_5, y_6, 0, y_7, y_8, 0]$$

$p = -s^3 + s^9$

414 . Coloring, {3, 6, 10, 11}

R: [7, 7, 8, 6, A, 3, B, C, B, 2, 4, 5]
B: [6, 8, 7, 7, 3, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{2, 3, 4, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[0, y_4, y_5, y_6, y_1, y_2, y_3, y_7, 0, y_8, y_9, y_{10}]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_4, y_2 + y_6, y_2, y_3, y_5, y_6, y_7]$$

$p = -s^6 + s^8$ $p' = -s^6 + s^8$

415 . Coloring, {3, 6, 10, 12}

R: [7, 7, 8, 6, A, 3, B, C, B, 2, 1, 9]
B: [6, 8, 7, 7, 3, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2 + y_6, y_2, 0, 0, y_6, y_4, y_3, y_8, y_6, y_5, y_7]$$

$p = s^6 - s^9$ $p' = -s^6 + s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_8, y_7, y_6, y_5, y_4, y_5, 0, y_3, y_2, y_1]$$

$p = s^4 - s^9$

416 . Coloring, {3, 6, 11, 12}

R: [7, 7, 8, 6, A, 3, B, C, B, C, 4, 9]
B: [6, 8, 7, 7, 3, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_8, y_7, 0, y_6, 2\,y_3, y_4, y_5, y_3, y_2, y_1]$$

$p = -s^2 + s^9$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 - y_2 + y_3 + y_4 + y_5 - y_6 - y_7 + y_8 - y_9, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

$p = -s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$

417 . Coloring, {3, 7, 8, 9}

R: [7, 7, 8, 6, A, A, A, B, C, C, 1, 5]
B: [6, 8, 7, 7, 3, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_7, y_6, y_7, 0, y_3, y_4, y_5]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_3, y_1, y_2, 0, y_3, y_4, 2\,y_1 - 3\,y_3, y_5, 0, y_6, y_7]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

418 . Coloring, {3, 7, 8, 10}

R: [7, 7, 8, 6, A, A, A, B, B, 2, 1, 5]
B: [6, 8, 7, 7, 3, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 2\,y_5, y_5, y_3, y_5, 0, y_4, y_6, 0]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 2\,y_6, 2\,y_5, 0, 7\,y_6 + 7\,y_5 + 7\,y_4 - 9\,y_3 + 7\,y_2 - 9\,y_1, 2\,y_4, 7\,y_6 + 7\,y_5 + 7\,y_4 - 9\,y_3 + 7\,y_2 - 9\,y_1, 2\,y_3, 0, 2\,y_2, 2\,y_1]$$

$p' = s^3 + s^4 - s^6 - s^7$ $p = s^3 - s^5 - s^6 + s^8$

419 . Coloring, {3, 7, 8, 11}

R: [7, 7, 8, 6, A, A, A, B, B, C, 4, 5]
B: [6, 8, 7, 7, 3, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, y_6, y_5, 2\,y_4, y_4, 0, y_3, y_2, y_1]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 7, 11}} order: 10

See Matrix

$$[9\,y_1 - 7\,y_2 - 7\,y_3 - 7\,y_4 + 9\,y_5 + 9\,y_6 - 7\,y_7 + 9\,y_8, 7\,y_1, 7\,y_2, 0, 0, 7\,y_3, 7\,y_4, 7\,y_5, 7\,y_6, 0, 7\,y_7, 7\,y_8]$$

$p = s^3 + s^4 - s^8 - s^9$

420 . Coloring, {3, 7, 8, 12}

R: [7, 7, 8, 6, A, A, A, B, B, C, 1, 9]
B: [6, 8, 7, 7, 3, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_1, y_4, y_3, y_2, y_1, y_5, y_6, 0, 0, y_8, y_7]$$

$p = -s^6 + s^9$

421 . Coloring, {3, 7, 9, 10}

R: [7, 7, 8, 6, A, A, A, C, C, 2, 1, 5]
B: [6, 8, 7, 7, 3, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2\,y_4,\ y_2,\ 0,\ 0,\ y_1,\ y_4,\ y_3,\ y_4,\ 0,\ y_5,\ 0,\ y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0,\ 0,\ y_1,\ y_2,\ 0,\ y_4,\ y_3,\ y_4,\ 2\,y_1 - 2\,y_4,\ 0,\ y_5,\ 2\,y_4]$$

$p' = -s^3 + s^6$ $p' = s^4 - s^7$ $p = -s^3 + s^6$

422 . Coloring, {3, 7, 9, 11}

R: [7, 7, 8, 6, A, A, A, C, C, C, 4, 5]
B: [6, 8, 7, 7, 3, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0,\ 0,\ 0,\ 2\,y_2,\ y_3,\ y_4,\ 2\,y_2,\ y_2,\ 0,\ y_1,\ 0,\ y_5]$$

$p = -s^3 + s^6$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_3, y_4, y_5, 0, 0, y_6, y_7, y_1, y_4, 0, y_2, 0]$$

$p = -s^3 + s^8$

423 . Coloring, {3, 7, 9, 12}

R: [7, 7, 8, 6, A, A, A, C, C, C, 1, 9]
B: [6, 8, 7, 7, 3, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	5 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_2, 0, 0, 0, 0, y_2, y_1, y_2, y_3, y_4, 0, y_5]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 4\,y_1 - 6\,y_4, y_1, y_2, 4\,y_1 - 6\,y_4, 2\,y_1 - 3\,y_4, y_3, y_4, 0, 0, y_5, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

424 . Coloring, {3, 7, 10, 11}

R: [7, 7, 8, 6, A, A, A, C, B, 2, 4, 5]
B: [6, 8, 7, 7, 3, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_5 + y_6, 2\,y_5 - y_6 + y_2, y_2, y_3, y_5, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 7, 11}} order: 10

See Matrix

$$[-5\,y_1 - 5\,y_4 - 5\,y_5 - 5\,y_6 + 11\,y_2 - 5\,y_3 + 11\,y_7, 0, 5\,y_1, 0, 0, 5\,y_4, 5\,y_5, 5\,y_6, 5\,y_2, 0, 5\,y_3, 5\,y_7]$$

$p = s^2 + s^3 - s^7 - s^8$

425 . Coloring, {3, 7, 10, 12}

R: [7, 7, 8, 6, A, A, A, C, B, 2, 1, 9]
B: [6, 8, 7, 7, 3, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_4, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_3, y_2, y_4, y_5, y_4, 0, 0, y_6, 3\,y_4]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$

426 . Coloring, {3, 7, 11, 12}

R: [7, 7, 8, 6, A, A, A, C, B, C, 4, 9]
B: [6, 8, 7, 7, 3, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, 0, y_4, 2\, y_1, y_1, y_2, y_7, y_5, y_6]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 2\, y_7, y_2, 0, y_3, y_4, y_5, 2\, y_3 - 3\, y_7, 0, 0, y_6, y_7]$$

$p' = -s^3 + s^8$ $p = -s^3 + s^8$

427 . Coloring, {3, 8, 9, 10}

R: [7, 7, 8, 6, A, A, B, B, C, 2, 1, 5]
B: [6, 8, 7, 7, 3, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_5, y_4, y_5, 0, y_6, y_7, y_5]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_8, y_7, 0, y_6, y_5, y_6, y_4, y_3, y_1, y_2]$$

$p = s^3 - s^9$

428 . Coloring, {3, 8, 9, 11}

R: [7, 7, 8, 6, A, A, B, B, C, C, 4, 5]
B: [6, 8, 7, 7, 3, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, 2\,y_4, y_4, 0, y_6, y_7, y_5]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 9, 10, 11, 12}} order: 10

See Matrix

$$[y_5, y_4, y_3, 0, 0, y_1, y_2, y_{10}, y_9, y_7, y_8, y_6]$$

429 . Coloring, {3, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s + s^2 + s^4 + 4s^5 - 8s^7 - 16s^8$

R: [7, 7, 8, 6, A, A, B, B, C, C, 1, 9]
B: [6, 8, 7, 7, 3, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-y_3 + y_2 + 2\,y_5 - y_4, 0, 0, 0, 0, y_2, y_3, y_2, y_2 - y_1 + y_5, y_1, y_4, y_5]$$

$p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$[0, y_3, y_1, y_2, y_6, y_7, y_5, y_4, 0, y_9, y_7, y_8]$

$p = -s^3 + s^{10}$

430 . Coloring, {3, 8, 10, 11}

R: [7, 7, 8, 6, A, A, B, B, B, 2, 4, 5]
B: [6, 8, 7, 7, 3, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$[0, y_1, 0, y_2, 2\,y_5, y_3, y_4, y_5, 0, y_6, y_7, 0]$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$[2\,y_6, 0, y_1, 0, 0, y_2, y_5, y_6, y_3, y_4, 0, y_7]$

$p = s^6 - s^8$

431 . Coloring, {3, 8, 10, 12}

R: [7, 7, 8, 6, A, A, B, B, B, 2, 1, 9]
B: [6, 8, 7, 7, 3, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_4, y_3, y_4, 2\,y_4, y_5, y_6, 0]$$

$p = s^4 - s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, 2\,y_4, y_2, y_4, y_3, y_4, 0, y_5, 0, y_6]$$

$p' = -s^2 + s^7$ $p = -s^2 + s^7$

432 . Coloring, {3, 8, 11, 12}

R: [7, 7, 8, 6, A, A, B, B, B, C, 4, 9]
B: [6, 8, 7, 7, 3, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, 2\,y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_1, y_7, y_2, 0, y_3, y_4, y_5, y_6, 0, y_8, 0, y_9]$$

433 . Coloring, {3, 9, 10, 11}

R: [7, 7, 8, 6, A, A, B, C, C, 2, 4, 5]
B: [6, 8, 7, 7, 3, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_3, -y_2 + y_3 - y_4 + y_1 - y_7 + y_5 - y_6 + y_8, y_4, y_1, y_7, 0, y_5, y_6, y_8]$$

$$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_5, 0, y_4, 0, 0, y_6, y_1, y_2, y_3, y_9, y_7, y_8]$$

434 . Coloring, {3, 9, 10, 12}

R: [7, 7, 8, 6, A, A, B, C, C, 2, 1, 9]
B: [6, 8, 7, 7, 3, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-5 y_1 + 6 y_3 - 5 y_2 + 11 y_4 - 5 y_5 - 5 y_6 + 11 y_7, 5 y_1, 0, 0, 0, 5 y_3, 5 y_2, 5 y_3, 5 y_4, 5 y_5, 5 y_6, 5 y_7]$$

$$p = -s^4 - s^5 + s^7 + s^8 \quad p = s^4 - s^6 - s^7 + s^9$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_3, y_1, y_2, y_5, y_4, y_5, 0, y_6, y_7, y_8]$$

$$p = -s^4 + s^9$$

435 . Coloring, {3, 9, 11, 12}

R: [7, 7, 8, 6, A, A, B, C, C, C, 4, 9]
B: [6, 8, 7, 7, 3, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, 0, y_3, 2\,y_2, y_2, y_1, y_5, y_6, y_7]$$

$$p = -s^6 + s^8$$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_9, y_8, 0]$$

436 . Coloring, {3, 10, 11, 12}

R: [7, 7, 8, 6, A, A, B, C, B, 2, 4, 9]
B: [6, 8, 7, 7, 3, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, y_6, y_7, y_3, y_4, y_5, y_8, y_9]$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_8, 0, y_6, 0, y_7, y_3, y_4, y_5, 0, y_1, y_2, y_9]$$

437 . Coloring, {4, 5, 6, 7}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, A, C, B, C, 1, 5]
B: [6, 8, 8, 6, A, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, 0, y_4, 0, 0, y_3, y_1, y_2]$$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, -3\,y_1 + 8\,y_3 - 3\,y_4 + 5\,y_6, 0, -3\,y_2 + 5\,y_3 - 3\,y_5 + 8\,y_6, 0, 3\,y_1, 0, 3\,y_2, 3\,y_3, 3\,y_5, 3\,y_4, 3\,y_6]$$

$p = s - s^7$ $p' = s - s^7$

438 . Coloring, {4, 5, 6, 8}

$\Omega p(\Delta)=0$: $p' = s^2 - 8s^5 - 16s^6$ $p' = s^3 - 8s^6 - 16s^7$ $p = s^2 - 8s^5 - 16s^6$

R: [7, 7, 7, 7, 3, 3, B, B, B, C, 1, 5]
B: [6, 8, 8, 6, A, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_6, 0, 0, 0, y_4, y_5]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_6, 0, y_1, 0, y_2, 0, y_3, y_4, y_5, 0, y_7]$$

439 . Coloring, {4, 5, 6, 9}

$\Omega p(\Delta)=0$: $p = s^2 + 2s^3 + 8s^5 + 32s^7$ $p' = s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, 3, B, C, C, C, 1, 5]
B: [6, 8, 8, 6, A, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_3, 0, y_1, 0, y_2, 0, y_4, 0, 0, 0, y_5, y_6]$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_7, 0, y_6, 0, y_5, 0, y_4, y_3, y_2, y_1, 0]$$

440 . Coloring, {4, 5, 6, 10}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, B, C, B, 2, 1, 5]
B: [6, 8, 8, 6, A, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_6, y_2, 0, y_3, 0, y_4, 0, 0, 0, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, y_7]$$

441 . Coloring, {4, 5, 6, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, B, C, B, C, 4, 5]
B: [6, 8, 8, 6, A, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, 0, 0, 0, y_5, y_6]$$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[2\,y_1,\ 11\,y_1 - 2\,y_2 + 11\,y_3 - 39\,y_4 + 11\,y_5 - 2\,y_6,\ 0, 0, 0, 2\,y_2, 0, 2\,y_3, 2\,y_4, 2\,y_5, 2\,y_6,\ 3\,y_1 + 3\,y_3 - 11\,y_4 + 3\,y_5\ ]$$

$p = -s + s^7$ $p' = -s + s^7$

442 . Coloring, {4, 5, 6, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, B, C, B, C, 1, 9]
B: [6, 8, 8, 6, A, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$[2\,y_1, 0, 2\,y_2, 0, 0, 0, 2\,y_3, 0, 2\,y_4, 0, 2\,y_5, 3\,y_2]$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$[0, y_1, 0, y_2, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$

443 . Coloring, {4, 5, 7, 8}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, A, B, B, C, 1, 5]
B: [6, 8, 8, 6, A, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$[y_1, 0, y_2, 0, y_3, 0, y_4, 0, 0, y_6, y_7, y_5]$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, y_3, 2\,y_1 - 2\,y_6, 0, y_2, 0, y_4, y_5, y_6, 2\,y_6, y_7]$$

$p' = -s^6 + s^8$ $p = -s^6 + s^8$

444 . Coloring, {4, 5, 7, 9}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, A, C, C, C, 1, 5]
B: [6, 8, 8, 6, A, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_3, 0, y_4, 0, y_5, 0, y_1, 0, 0, y_2, 0, y_6]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, 0, y_5, 2\,y_6, y_6, y_7, 0]$$

$p = -s^3 + s^8$

445 . Coloring, {4, 5, 7, 10}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 + 8s^5 + 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, A, C, B, 2, 1, 5]
B: [6, 8, 8, 6, A, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_4, y_5, y_6, 0, y_4, 0, y_3, 0, 0, y_1, y_2, y_2]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, 0, -3\,y_5 - 3\,y_1 - 3\,y_4 + 10\,y_3 - 3\,y_2, 3\,y_5, 0, 3\,y_1, 0, 3\,y_4, -3\,y_6 + 3\,y_3, 3\,y_6, 3\,y_2, 3\,y_3]$$

$p' = -s^2 + s^7$ $p = -s^2 + s^7$

446 . Coloring, {4, 5, 7, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, A, A, C, B, C, 4, 5]
B: [6, 8, 8, 6, A, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_2, y_3, y_1, 0, y_7, 0, 0, y_6, y_4, y_5]$$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[3\,y_2, 3\,y_1, -3\,y_2 - 3\,y_1 - 3\,y_3 - 3\,y_8 + 13\,y_6 - 3\,y_7 - 3\,y_5 + 13\,y_4, 0, 0, 3\,y_3, 0, 3\,y_8, 3\,y_6, 3\,y_7, 3\,y_5, 3\,y_4]$$

$p = -s^3 - s^4 + s^8 + s^9$

447 . Coloring, {4, 5, 7, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, A, C, B, C, 1, 9]
B: [6, 8, 8, 6, A, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, 0, 0, y_2 + y_1 + y_6 + y_5 - y_3 - y_4, 0, y_6, y_5, y_3, y_4]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, 0, y_6, 0, y_7, y_8, y_9]$$

448 . Coloring, {4, 5, 8, 9}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 + 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, A, B, B, C, C, 1, 5]
B: [6, 8, 8, 6, A, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, 0, y_7, y_8, y_9, y_5, y_6]$$

449 . Coloring, {4, 5, 8, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, B, B, B, 2, 1, 5]
B: [6, 8, 8, 6, A, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_3, y_1, 2\,y_1 - 3\,y_4, 0, 2\,y_4, 0, y_2, 0, 0, y_4, y_5, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 2\,y_2, 2\,y_1, 0, 2\,y_3, 0, 2\,y_4, 2\,y_5, 3\,y_1, 0, 2\,y_6]$$

$p = -s^5 + s^7$

450 . Coloring, {4, 5, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 8s^6 - 16s^7$ $p' = s^3 - 8s^6 - 16s^7$

R: [7, 7, 7, 7, 3, A, B, B, B, C, 4, 5]
B: [6, 8, 8, 6, A, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_4, y_3, 0, y_2, 0, 0, y_7, y_5, y_6]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[-4\,y_1 + 6\,y_3, 2\,y_1, 2\,y_2, 0, 0, 2\,y_3, 0, 2\,y_4, 2\,y_5, -6\,y_1 + 9\,y_3, 0, 2\,y_6]$$

$p = -s^5 + s^7$ $p' = s^5 - s^7$

451 . Coloring, {4, 5, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, B, B, B, C, 1, 9]
B: [6, 8, 8, 6, A, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, 0, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, 0, y_6, 0, y_7, 0, y_8]$$

452 . Coloring, {4, 5, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, B, C, C, 2, 1, 5]
B: [6, 8, 8, 6, A, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 2\,y_2 - 2\,y_5, 0, y_4, 0, 0, y_5, y_6, 2\,y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_3, y_2, 0, y_1, 0, y_8, y_7, y_6, y_5, y_4]$$

453 . Coloring, {4, 5, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, B, C, C, C, 4, 5]
B: [6, 8, 8, 6, A, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[2\,y_1, 2\,y_7, 2\,y_2, 0, 0, 2\,y_3, 0, 2\,y_4, 2\,y_5, 3\,y_5, 2\,y_6, 0]$$

$p = -s^3 + s^8$

454 . Coloring, {4, 5, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, B, C, C, C, 1, 9]
B: [6, 8, 8, 6, A, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[2 y_1, 0, 7 y_1 + 7 y_2 - 9 y_3 + 7 y_5 - 9 y_4, 0, 0, 0, 2 y_2, 0, 2 y_3, 7 y_1 + 7 y_2 - 9 y_3 + 7 y_5 - 9 y_4, 2 y_5, 2 y_4]$$

$p = -s^2 - s^3 + s^5 + s^6$ $p = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_5, y_4, 0, y_6, 0, y_7, y_8, 0]$$

455 . Coloring, {4, 5, 10, 11}

$\Omega p(\Delta)=0$: $p' = -3s^2 + 2s^3 - 8s^5 + 32s^7$ $p = 3s^2 - 2s^3 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, A, B, C, B, 2, 4, 5]
B: [6, 8, 8, 6, A, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, y_3, y_1, y_2, 0, y_4, 0, 0, y_6, y_5, y_6]$$

$p' = -s^4 + s^7 \quad p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[y_7, 0, -y_7 - y_1 - y_2 + y_3 + y_4 - y_5 + y_6, 0, 0, y_1, 0, y_2, y_3, y_4, y_5, y_6]$$

$p = -s^2 - s^3 + s^7 + s^8$

456 . Coloring, {4, 5, 10, 12}

$\Omega p(\Delta)=0: \quad p = 3s^2 + 10s^3 + 40s^5 + 32s^6 + 32s^7 + 128s^8 \quad p' = -3s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, A, B, C, B, 2, 1, 9]
B: [6, 8, 8, 6, A, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	8 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_5, y_4, y_3, 0, 0, 0, y_2, 0, y_4, y_3, y_1, y_3]$$

$p' = -s^4 + s^7 \quad p' = s^3 - s^6 \quad p = s^3 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -y_1 + y_2 - y_3 - y_4 + y_5 - y_6 + y_7, y_1, y_2, y_3, 0, y_4, 0, y_5, y_6, y_7]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

457 . Coloring, {4, 5, 11, 12}

$\Omega p(\Delta)=0: \quad p' = 3s^2 + 2s^3 + 8s^4 - 8s^5 - 32s^7 \quad p = 3s^2 - 10s^3 - 40s^5 + 32s^6 - 32s^7 + 128s^8$

R: [7, 7, 7, 7, 3, A, B, C, B, C, 4, 9]
B: [6, 8, 8, 6, A, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	8 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_3, y_1, 0, 0, y_6, 0, y_2, y_3, y_4, y_5]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_9, y_8, y_7, 0, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1]$$

458 . Coloring, {4, 6, 7, 8}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, B, B, C, 1, 5]
B: [6, 8, 8, 6, 3, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, y_2, 0, y_3, 0, 0, y_5, 2\,y_4, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_6, y_7, y_8, 0, y_2, 0, y_1, y_4, y_5, 2\,y_7, y_3]$$

$p = -s^7 + s^9$

459 . Coloring, {4, 6, 7, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, C, C, C, 1, 5]
B: [6, 8, 8, 6, 3, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$[2\,y_1, 0, y_1, 0, y_2, 0, y_3, 0, 0, y_4, 0, y_5]$

$p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$[0, y_1, y_3, y_2, 0, y_7, 0, y_6, 2\,y_3, y_4, y_5, 0]$

$p = -s^2 + s^8$

460 . Coloring, {4, 6, 7, 10}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 - 8s^5 + 32s^7$ $p = s^2 - 4s^4 - 8s^5 - 16s^6 + 32s^7 + 64s^8$

R: [7, 7, 7, 7, A, 3, A, C, B, 2, 1, 5]
B: [6, 8, 8, 6, 3, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_2, y_1, y_5, 0, y_2, 0, y_3, 0, 0, y_4, y_5, y_5]$$

$p' = -s^4 + s^7$ $p = s^3 - s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_2, y_3, 0, y_1, 0, y_4, y_5, y_6, y_7, y_8]$$

461 . Coloring, {4, 6, 7, 11}

$\Omega p(\Delta)=0:$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, 3, A, C, B, C, 4, 5]
B: [6, 8, 8, 6, 3, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_5, y_1, y_2, 0, y_3, 0, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[11\,y_2 + 11\,y_1 + 11\,y_7 - 2\,y_6 - 39\,y_5 - 2\,y_4 + 11\,y_3, 2\,y_2, 2\,y_1, 0, 0, 2\,y_7, 0, 2\,y_6, 2\,y_5, 2\,y_4, 2\,y_3, 3\,y_2 + 3\,y_1 + 3\,y_7 - 11\,y_5 + 3\,y_3]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

462 . Coloring, {4, 6, 7, 12}

$\Omega p(\Delta)=0:$ $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 7, 7, 7, A, 3, A, C, B, C, 1, 9]
B: [6, 8, 8, 6, 3, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, 0, 0, y_4, 0, y_1, y_2, y_6 + y_5 - y_4 + y_1 + y_2 - y_3, y_3]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_9, y_8, y_7, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1]$$

463 . Coloring, {4, 6, 8, 9}

Ωp(Δ)=0: $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, 3, B, B, C, C, 1, 5]
B: [6, 8, 8, 6, 3, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, 4y_1 + 4y_2 + 5y_3 - 6y_4, 0, 0, -2y_1 - 2y_2 - 4y_3 + 5y_4, y_4, 5y_1 + 5y_2 + 6y_3 - 8y_4]$$

$p' = s^2 - s^5$ $p = s^2 - s^5$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, 0, y_5, y_6, y_7, y_8, y_9]$$

464 . Coloring, {4, 6, 8, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, B, B, B, 2, 1, 5]
B: [6, 8, 8, 6, 3, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 2\,y_3, 0, y_4, 0, 0, y_6, y_5, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_5, 2\,y_5, 0, -2\,y_5 + 2\,y_4, 0, y_4, y_3, y_2, 0, y_1]$$

$p = -s^4 + s^6$ $p' = s^4 - s^6$

465 . Coloring, {4, 6, 8, 11}

$\Omega p(\Delta)=0$: $p' = s^3 + 4s^4 - 8s^6 - 16s^7$ $p = s^3 - 16s^5 - 8s^6 + 16s^7 + 64s^8$

R: [7, 7, 7, 7, A, 3, B, B, B, C, 4, 5]
B: [6, 8, 8, 6, 3, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 2\,y_1, -2\,y_1 + 9\,y_2 - 11\,y_3 - 2\,y_4, -2\,y_2 + 2\,y_3 + 2\,y_4, 0, 2\,y_2, 0, 0, 7\,y_2 - 9\,y_3 - 2\,y_4, 2\,y_4, 2\,y_3]$$

$p = -s^2 + s^5$ $p' = s^3 - s^6$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_2, y_1, y_2, 0, 0, y_3, 0, y_4, y_5, y_6, 0, y_7]$$

$p = s^6 - s^8$

466 . Coloring, {4, 6, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 8s^5 - 24s^6 - 16s^7 - 64s^8$ $p' = s^3 + 4s^4 + 8s^5 + 8s^6 + 16s^7$

R: [7, 7, 7, 7, A, 3, B, B, B, C, 1, 9]
B: [6, 8, 8, 6, 3, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, 0, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_2, y_1, y_4, y_5, y_3, 0, y_6, 0, y_7, 0, y_8]$$

467 . Coloring, {4, 6, 9, 10}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, B, C, C, 2, 1, 5]
B: [6, 8, 8, 6, 3, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_1, y_5, 0, y_4, 0, y_3, 0, 0, y_7, y_6, 2\, y_5]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_1, 0, y_3, 0, y_4, y_5, y_6, y_7, y_8]$$

468 . Coloring, {4, 6, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, B, C, C, C, 4, 5]
B: [6, 8, 8, 6, 3, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 16\, y_1, 16\, y_2, -35\, y_1 - 35\, y_2 + 28\, y_3 + 25\, y_4, 0, 16\, y_3, 0, 0, 16\, y_4, -25\, y_1 - 25\, y_2 + 20\, y_3 + 27\, y_4, 28\, y_1 + 28\, y_2 - 20\, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, 0, y_5, 2\, y_3, y_6, y_7, 0]$$

$p = -s^2 + s^8$

469 . Coloring, {4, 6, 9, 12}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, B, C, C, C, 1, 9]
B: [6, 8, 8, 6, 3, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$[2y_1, 0, 7y_1 + 7y_3 - 9y_2 + 7y_5 - 9y_4, 0, 0, 0, 2y_3, 0, 2y_2, 7y_1 + 7y_3 - 9y_2 + 7y_5 - 9y_4, 2y_5, 2y_4]$

$p = s^2 - s^4 - s^5 + s^7$ $p = -s^2 - s^3 + s^5 + s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$[0, y_3, y_4, y_5, y_1, y_2, 0, y_6, 0, y_7, y_8, 0]$

470 . Coloring, {4, 6, 10, 11}

Ωp(Δ)=0: $p = s^2 + 4s^4 + 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, B, C, B, 2, 4, 5]
B: [6, 8, 8, 6, 3, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_7, y_2, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, 0, y_4, y_5, y_6, y_7, y_8]$$

471 . Coloring, {4, 6, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, 3, B, C, B, 2, 1, 9]
B: [6, 8, 8, 6, 3, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, y_2, y_5, 0, 0, 0, y_4, 0, y_2, y_5, y_3, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

472 . Coloring, {4, 6, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 - 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, B, C, B, C, 4, 9]
B: [6, 8, 8, 6, 3, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_3, y_1, 0, 0, y_2, 0, y_4, y_3, y_6, y_5]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, 0, y_7, y_8, y_9]$$

473 . Coloring, {4, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, A, B, C, C, 1, 5]
B: [6, 8, 8, 6, 3, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, 0, y_3, 0, 0, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, 0, y_5, y_6, 0, y_7, y_8]$$

474 . Coloring, {4, 7, 8, 10}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 + 16s^6 - 32s^7 - 64s^8$

R: [7, 7, 7, 7, A, A, A, B, B, 2, 1, 5]
B: [6, 8, 8, 6, 3, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_2, y_1, 0, 0, y_5, 0, y_4, 0, 0, y_3, y_5, 0]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_3, 0, y_4, 0, y_5, y_2, 0, y_6 + y_3 - y_4 - y_5 - y_2 + y_1, y_1]$$

$p = -s^6 + s^7$

475 . Coloring, {4, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 + 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, A, B, B, C, 4, 5]
B: [6, 8, 8, 6, 3, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_6, y_5, 0, y_4, 0, 0, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, y_2, -y_1 + y_6 + y_5 + y_4 - y_3, 0, 0, y_6, 0, y_5, y_4, 0, y_2, y_3]$$

$p = s^6 - s^8$ $p' = s^6 - s^7$

476 . Coloring, {4, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 + 8s^5 + 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, A, A, B, B, C, 1, 9]
B: [6, 8, 8, 6, 3, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	4 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1 - y_2 - y_5 + y_4 + y_3, 0, 0, 0, 0, 0, y_1, 0, y_2, y_5, y_4, y_3]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, y_3, y_2, y_3 + y_2 - y_4, y_3 + y_2 - y_1, y_1, 0, y_2, 0, 0, y_3, y_4]$$

$p' = s^6 - s^7$ $p = s^4 - s^8$ $p' = s^4 - s^7$ $p' = s^5 - s^7$

477 . Coloring, {4, 7, 9, 10}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^5 - 32s^7$ $p = s^2 - 4s^4 - 8s^5 + 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, A, A, A, C, C, 2, 1, 5]
B: [6, 8, 8, 6, 3, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_5, y_1, 0, 0, y_4, 0, y_3, 0, 0, y_2, 0, y_5]$$

$p = s^3 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_2, y_1, 0, y_3, 0, y_6, y_5, 0, y_4, y_7]$$

478 . Coloring, {4, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, A, C, C, C, 4, 5]
B: [6, 8, 8, 6, 3, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 5	6 *vs* 7

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, y_5, y_4, 0, y_3, 0, 0, y_2, 0, y_1]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_5, y_2, 0, 0, y_3, 0, y_4, y_5, 0, y_6, 0]$$

$p = -s^2 + s^7$

479 . Coloring, {4, 7, 9, 12}

Ωp(Δ)=0: $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$

R: [7, 7, 7, 7, A, A, A, C, C, C, 1, 9]
B: [6, 8, 8, 6, 3, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 5	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[y_2 - y_1 - y_3 + y_4, 0, 0, 0, 0, 0, y_2, 0, y_1, y_3, 0, y_4]$$

$p = s^4 - s^5$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_3, y_1, y_2, y_3, y_4, 0, y_5, 0, 0, y_6, 0]$$

$p = -s^2 + s^7$

480 . Coloring, {4, 7, 10, 11}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, A, C, B, 2, 4, 5]
B: [6, 8, 8, 6, 3, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, 0, y_4, y_4, 0, y_2, 0, 0, y_3, y_5, y_5]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[5\,y_6,\ 0,\ 5\,y_5,\ 0,\ 0,\ 5\,y_4,\ 0,\ 5\,y_3,\ 5\,y_2,\ 0,\ -5\,y_6 - 5\,y_5 - 5\,y_4 - 5\,y_3 + 11\,y_2 + 11\,y_1,\ 5\,y_1]$$

$$p = -s - s^2 + s^6 + s^7$$

481 . Coloring, {4, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, A, C, B, 2, 1, 9]
B: [6, 8, 8, 6, 3, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2,\ y_1,\ 0,\ 0,\ 0,\ 0,\ y_7,\ 0,\ y_6,\ y_5,\ y_4,\ y_3]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0,\ 0,\ y_1,\ y_6,\ y_5,\ y_4,\ 0,\ y_3,\ 0,\ 0,\ y_2,\ y_7]$$

482 . Coloring, {4, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, A, C, B, C, 4, 9]
B: [6, 8, 8, 6, 3, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1 - y_2 - y_3 + y_4 + y_5, 0, 0, y_1, 0, y_2, y_3, y_4, y_5]$$

$$p = -s + s^2 - s^3 + s^4 - s^5 + s^6$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 2\,y_3, y_7, 0, y_5, y_6, 0, y_4, 0, 0, y_2, y_3]$$

$$p = -s^3 + s^8$$

483 . Coloring, {4, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, B, B, C, 2, 1, 5]
B: [6, 8, 8, 6, 3, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, 0, y_4, y_5, y_6, y_7, y_8]$$

484 . Coloring, {4, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, B, B, C, C, 4, 5]
B: [6, 8, 8, 6, 3, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 6	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_3, 10\,y_3 - 16\,y_1 + 4\,y_2, 0, 2\,y_2, 0, 0, 2\,y_1, 16\,y_3 - 27\,y_1 + 7\,y_2, 4\,y_3 + 3\,y_2 - 7\,y_1]$$

$p = -s + s^4$ $p' = -s + s^4$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, 0, y_5, y_6, y_7, y_8, y_9]$$

485 . Coloring, {4, 8, 9, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, B, B, C, C, 1, 9]
B: [6, 8, 8, 6, 3, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-7\,y_4 + 9\,y_5 + 9\,y_1 - 7\,y_2 + 9\,y_3, 0, 0, 0, 0, 0, 7\,y_4, 0, 7\,y_5, 7\,y_1, 7\,y_2, 7\,y_3]$$

$p = -s^2 - s^3 + s^5 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 2\,y_2 - 2\,y_6, y_1, y_2, y_3, y_4, 0, y_5, 0, 2\,y_6, y_6, y_7]$$

$p = -s^4 + s^8$ $p' = -s^4 + s^8$

486 . Coloring, {4, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, A, B, B, B, 2, 4, 5]
B: [6, 8, 8, 6, 3, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	5 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_3, 0, y_2, y_1, 0, y_6, 0, 0, y_5, y_4, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_4, 0, y_1 + y_2 + y_3 - y_5, 0, 0, y_1, 0, y_2, y_3, y_4, 0, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$

487 . Coloring, {4, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, B, B, B, 2, 1, 9]
B: [6, 8, 8, 6, 3, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, y_2, 0, 0, 0, 0, y_3, 0, y_4, y_4, y_5, 0]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_1 + y_2 + y_3 - y_5, y_4, y_1, y_2, 0, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^4 - s^5 + s^6$ $p = -s^3 + s^7$

488 . Coloring, {4, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 2s^3 - 8s^5 - 32s^7$ $p = -s^2 + 4s^4 + 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 7, 7, 7, A, A, B, B, B, C, 4, 9]
B: [6, 8, 8, 6, 3, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	5 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, 0, y_2, 0, y_3, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_4, y_1, y_2 + y_3 - y_5, 0, y_2, y_1, 0, y_3, 0, y_4, 0, y_5]$$

$p' = s^3 - s^7$ $p = s^3 - s^7$ $p' = s^4 - s^5 + s^6 - s^7$

489 . Coloring, {4, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = 3s^2 + 10s^3 + 40s^5 + 32s^6 + 32s^7 + 128s^8$ $p' = -3s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, A, B, C, C, 2, 4, 5]
B: [6, 8, 8, 6, 3, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_3, y_2, 0, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, 0, y_5, 0, y_1, y_2, y_3, y_4, y_8]$$

490 . Coloring, {4, 9, 10, 12}

Ωp(Δ)=0: $p = -9s^2 + 4s^4 - 24s^5 - 16s^6 + 96s^7 + 64s^8$ $p = -3s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, B, C, C, 2, 1, 9]
B: [6, 8, 8, 6, 3, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	3 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-y_1 + 2y_3, y_1, 0, 0, 0, 0, 2y_3, 0, y_3, 2y_3 - y_2, y_2, y_3]$$

$p = s^3 - s^5$ $p' = s^3 - s^4$ $p' = -s^4 + s^5$ $p' = -s^4 + s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_7, y_1, y_2, y_6, 0, y_3, 0, y_4, y_5, y_8]$$

491 . Coloring, {4, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^2 + 2s^3 - 8s^5 + 32s^7$ $p' = 3s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, B, C, C, C, 4, 9]
B: [6, 8, 8, 6, 3, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 0, -y_1 + 2y_4 - y_3, 0, 0, y_1, 0, -y_2 + y_4, y_2, y_3, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_6, y_4, 0, y_5, 0, y_6, y_7, 0]$$

$p = s^3 - s^8$

492 . Coloring, {4, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, B, C, B, 2, 4, 9]
B: [6, 8, 8, 6, 3, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 2y_4 - 2y_5, 0, y_1, 0, 0, y_2, 0, y_4, 2y_5, y_3, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

493 . Coloring, {5, 6, 7, 8}

$\Omega p(\Delta)=0$: $p = -9s^3 - 2s^4 + 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, A, B, B, C, 1, 5]
B: [6, 8, 8, 7, A, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, 2\,y_4, y_7]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 11\,y_3 - 5\,y_4 + 11\,y_5 - 5\,y_6 - 5\,y_7 - 5\,y_8 + 11\,y_1 - 5\,y_2, 0, 5\,y_3, 0, 5\,y_4, 5\,y_5, 5\,y_6, 5\,y_7, 5\,y_8, 5\,y_1, 5\,y_2]$$

$p = -s^5 - s^6 + s^8 + s^9$

494 . Coloring, {5, 6, 7, 9}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, A, C, C, C, 1, 5]
B: [6, 8, 8, 7, A, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[2\,y_3, 0, y_1, 0, y_2, y_3, y_4, 0, 0, y_5, 0, y_6]$$

$p = -s^2 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_3, 0, y_1, y_4, y_5, 2\,y_1, y_7, y_6, 0]$$

$p = -s^5 + s^8$

495 . Coloring, {5, 6, 7, 10}

R: [7, 7, 7, 6, 3, 3, A, C, B, 2, 1, 5]
B: [6, 8, 8, 7, A, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_1, y_2, 0, y_3, y_6, y_4, 0, 0, y_5, y_6, y_6]$$

$p = s^4 - s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 0, 2\,y_5 - y_1 - y_4, 0, y_2 + y_3 - y_5, y_1, 2\,y_2 + 2\,y_3 - 2\,y_5, y_2, y_3, y_4, y_5]$$

$p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = -s^3 + s^6$

496 . Coloring, {5, 6, 7, 11}

R: [7, 7, 7, 6, 3, 3, A, C, B, C, 4, 5]
B: [6, 8, 8, 7, A, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_5, y_3, y_4, 0, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[-3\,y_2 - 3\,y_6 + 8\,y_3 - 3\,y_4 + 5\,y_7, -3\,y_1 + 5\,y_3 - 3\,y_5 + 8\,y_7, 0, 0, 0, 3\,y_1, 3\,y_2, 3\,y_6, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

497 . Coloring, {5, 6, 7, 12}

R: [7, 7, 7, 6, 3, 3, A, C, B, C, 1, 9]
B: [6, 8, 8, 7, A, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[-y_1 + y_2 + y_3 - y_4 - y_7 + y_5 + y_6, 0, y_1, 0, 0, y_2, y_3, 0, y_4, y_7, y_5, y_6]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, y_8, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^6 + s^9$

498 . Coloring, {5, 6, 8, 9}

R: [7, 7, 7, 6, 3, 3, B, B, C, C, 1, 5]
B: [6, 8, 8, 7, A, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, y_3, y_4, y_2, 0, 0, 0, y_1, 3\, y_4]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_9, y_8]$$

499 . Coloring, {5, 6, 8, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, B, B, B, 2, 1, 5]
B: [6, 8, 8, 7, A, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_5, 2\,y_3, y_4, 0, 2\,y_3, y_3, y_2, 0, 0, 0, y_1, 0]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, 2\,y_1, 0, y_1, y_2, 2\,y_1, y_3, y_4, 0, y_5]$$

$p' = s^4 - s^6$ $p = s^4 - s^6$

» SYNC'D !RANK'D

500 . Coloring, {5, 6, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, B, B, B, C, 4, 5]
B: [6, 8, 8, 7, A, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, 0, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_3, y_1, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7]$$

$p = -s^6 + s^8$

501 . Coloring, {5, 6, 8, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 + 2s^4 - 16s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, B, B, B, C, 1, 9]
B: [6, 8, 8, 7, A, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, 0, y_3, 0, 0, y_2, y_4, 0, 2\,y_3 - 2\,y_2, 0, y_5, 2\,y_2]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, 2\,y_3, y_2, y_3, y_4, y_5, 0, y_6, 0, y_7]$$

$p = -s^3 + s^8$

502 . Coloring, {5, 6, 9, 10}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, B, C, C, 2, 1, 5]
B: [6, 8, 8, 7, A, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_4, 2\,y_1, y_3, 0, y_2, y_1, y_6, 0, 0, 0, y_5, 2\,y_1]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_3, 2\,y_2, y_4, y_5, y_6, y_7]$$

$$p = -s^2 + s^8$$

503 . Coloring, {5, 6, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, B, C, C, C, 4, 5]
B: [6, 8, 8, 7, A, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, 0, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, y_4, y_5, 2\,y_4, y_6, y_7, 0]$$

$$p = -s^2 + s^8$$

504 . Coloring, {5, 6, 9, 12}

$\Omega p(\Delta)=0$: $p = -2s^2 - 5s^3 + 2s^4 + 16s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, B, C, C, C, 1, 9]
B: [6, 8, 8, 7, A, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 + 5\,y_4 - 3\,y_5 + 5\,y_6,\ 0,\ 3\,y_1,\ 0,\ 0,\ 3\,y_2,\ 3\,y_3,\ 0,\ 3\,y_4,\ 0,\ 3\,y_5,\ 3\,y_6]$$

$p = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0,\ y_1,\ 0,\ y_1 + 3\,y_4 + y_5 - y_3 - y_2 + y_6,\ 2\,y_4,\ y_4,\ y_5,\ y_3,\ 0,\ y_2,\ y_6,\ 0]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$ $p = -s^2 + s^8$

» SYNC'D !RANK'D

505 . Coloring, {5, 6, 10, 11}

R: [7, 7, 7, 6, 3, 3, B, C, B, 2, 4, 5]
B: [6, 8, 8, 7, A, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0,\ 2\,y_7,\ y_1,\ y_2,\ y_3,\ y_5,\ y_4,\ 0,\ 0,\ 0,\ y_6,\ y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1,\ 0,\ 0,\ 0,\ 0,\ y_2,\ y_3,\ 2\,y_3,\ y_4,\ y_5,\ y_6,\ y_7]$$

$p = -s^6 + s^8$

506 . Coloring, {5, 6, 10, 12}

R: [7, 7, 7, 6, 3, 3, B, C, B, 2, 1, 9]
B: [6, 8, 8, 7, A, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, 2\,y_4, y_2, 0, 0, y_4, y_5, 0, y_2, 0, y_3, y_4]$$

$p' = -s^4 + s^7$ $p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_4, 2\,y_3, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

507 . Coloring, {5, 6, 11, 12}

R: [7, 7, 7, 6, 3, 3, B, C, B, C, 4, 9]
B: [6, 8, 8, 7, A, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, 0, y_6, y_7, 0, y_4, 0, y_5, y_3]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_4, y_8, y_5, 0, y_6, y_7, y_8]$$

$p = -s^3 + s^9$

508 . Coloring, {5, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = -2s^2 - 5s^3 + 2s^4 - 16s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, A, B, C, C, 1, 5]
B: [6, 8, 8, 7, A, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_2, 0, y_3, 0, y_1, y_6, y_4, 0, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_8, y_7, y_6, 0, y_8 - y_7, y_5, y_4, y_3, y_8 - y_7, y_2, y_1]$$

$p' = -s^6 + s^9$ $p = -s^6 + s^9$

» SYNC'D !RANK'D

509 . Coloring, {5, 7, 8, 10}

R: [7, 7, 7, 6, 3, A, A, B, B, 2, 1, 5]
B: [6, 8, 8, 7, A, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_2 + y_3, y_1, y_2, 0, 2\,y_3, y_3, y_4, 0, 0, y_5, 2\,y_3, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 11\,y_1 - 10\,y_5 + 11\,y_2 - 5\,y_3 - 5\,y_4 + 11\,y_6 - 5\,y_7, 5\,y_1, 0, 5\,y_5, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 5\,y_6, 5\,y_7]$$

$p = -s^4 - s^5 + s^7 + s^8$ $p = s^4 - s^6 - s^7 + s^9$

510 . Coloring, {5, 7, 8, 11}

R: [7, 7, 7, 6, 3, A, A, B, B, C, 4, 5]
B: [6, 8, 8, 7, A, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[-y_1 + y_2 + y_3 + y_4 - y_7, y_6, y_1, 0, 0, y_2, y_5, y_3, y_4, y_5, y_6, y_7]$$

$p' = s^8 - s^9$ $p' = s^7 - s^9$ $p = s^7 - s^{10}$

511 . Coloring, {5, 7, 8, 12}

R: [7, 7, 7, 6, 3, A, A, B, B, C, 1, 9]

B: [6, 8, 8, 7, A, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_2 - y_3 - y_4 + y_5 + y_6, 0, y_1, 0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}, {4, 7, 11}}

See Matrix

$$[0, -5\,y_1 + 11\,y_2 - 5\,y_9 - 5\,y_3 + 11\,y_4 - 5\,y_5 - 5\,y_6 + 11\,y_7 - 5\,y_8, 5\,y_1, 5\,y_2, 5\,y_9, 5\,y_3, 5\,y_4, 5\,y_5, 0, 5\,y_6, 5\,y_7, 5\,y_8]$$

$p = s^3 + s^4 + s^5 - s^8 - s^9 - s^{10}$

512 . Coloring, {5, 7, 9, 10}

R: [7, 7, 7, 6, 3, A, A, C, C, 2, 1, 5]
B: [6, 8, 8, 7, A, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2\,y_3, y_5, y_1, 0, y_2, y_3, y_4, 0, 0, y_6, 0, 2\,y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, -y_3 + y_5, y_1, 0, y_3, y_2, 2\,y_3 - y_5 + y_6, y_6, y_3, y_4, y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

513 . Coloring, {5, 7, 9, 11}

R: [7, 7, 7, 6, 3, A, A, C, C, C, 4, 5]
B: [6, 8, 8, 7, A, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, y_6, 0, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_3, y_2, 0, 0, y_4, y_6, y_5, 2\,y_6, y_6, y_7, 0]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

514 . Coloring, {5, 7, 9, 12}

R: [7, 7, 7, 6, 3, A, A, C, C, C, 1, 9]
B: [6, 8, 8, 7, A, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_4, 0, y_4, 0, 0, y_4, y_3, 0, y_2, y_1, 0, 2\,y_4 - y_3 + y_2 + y_1]$$

$p' = s^4 - s^5$ $p = s^4 - s^6$ $p' = -s^5 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_4, y_1, y_2, 4\,y_1 - 2\,y_6, 2\,y_1 - y_6, y_3, y_5, 0, y_6, y_7, 0]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

515 . Coloring, {5, 7, 10, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 + 2s^4 - 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, A, C, B, 2, 4, 5]
B: [6, 8, 8, 7, A, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_3, y_2, y_2, y_3, y_4, 0, 0, y_5, y_6, y_6]$$

$p' = -s^5 + s^8$ $p = s^4 - s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[3\,y_1, 0, -3\,y_1 - 3\,y_2 - 3\,y_4 - 3\,y_3 + 10\,y_6 - 3\,y_5, 0, 0, 3\,y_2, 3\,y_4, 3\,y_3, -3\,y_4 + 3\,y_6, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

516 . Coloring, {5, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, A, C, B, 2, 1, 9]
B: [6, 8, 8, 7, A, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_3, y_5, 0, 0, y_5, y_2, 0, y_6, y_7, y_4, y_5]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_3, y_2, -6\,y_4 - 6\,y_3 + 5\,y_2 + 4\,y_1 + 4\,y_6 - y_5, y_1, y_6, 0, 5\,y_4 + 5\,y_3 - 4\,y_2 - 2\,y_1 - 2\,y_6, y_5, -8\,y_4 - 8\,y_3 + 6\,y_2 + 5\,y_1 + 5\,y_6]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

517 . Coloring, {5, 7, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, A, C, B, C, 4, 9]
B: [6, 8, 8, 7, A, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7, y_1 + y_2 - y_3 - y_4 + y_5 + y_6 - y_7]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_9, y_8, y_6, y_7, 0, y_4, y_5, y_6]$$

$p = s^5 - s^{10}$

518 . Coloring, {5, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = 2s^2 + s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, B, C, 2, 1, 5]
B: [6, 8, 8, 7, A, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2 + 2y_6 - y_4, y_2, 0, y_6 + y_4, y_6, y_3, 0, 0, y_4, y_5, y_6]$$

$p' = -s^5 + s^8$ $p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

519 . Coloring, {5, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 - s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, B, C, C, 4, 5]
B: [6, 8, 8, 7, A, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1 + y_2 - y_3 + y_5 + y_4 - y_6 - y_7, y_1, y_2, y_3, y_5, 0, 0, y_4, y_6, y_7]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_9, y_6, y_{10}, y_7, y_8]$$

520 . Coloring, {5, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, B, B, C, C, 1, 9]
B: [6, 8, 8, 7, A, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	4 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-4 y_3 + 3 y_1 + 3 y_2 + 3 y_4, 0, 7 y_3 - 3 y_1 - 3 y_2 - 3 y_4, 0, 0, 7 y_3 - 3 y_1 - 3 y_2 - 3 y_4, 3 y_3, 0, 3 y_1, 3 y_2, 3 y_3, 3 y_4]$$

$p = -s^3 + s^7$ $p' = -s^3 + s^7$ $p = -s^3 + s^5$ $p' = -s^3 + s^5$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_5, y_4, y_4 + y_8, y_3, y_8, y_1, y_2, 0, y_7, y_8, y_6]$$

$p = -s^4 + s^9$ $p' = -s^4 + s^9$

» SYNC'D !RANK'D

521 . Coloring, {5, 8, 10, 11}

R: [7, 7, 7, 6, 3, A, B, B, B, 2, 4, 5]
B: [6, 8, 8, 7, A, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, -y_1 + y_2 + y_3 - y_4 + y_5 + y_6 - y_7, y_1, y_2, y_3, y_4, y_5, 0, 0, y_6, y_7, 0]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_4, 0, -8\,y_4 + y_5 + y_3 + 3\,y_2 - y_1, 0, 0, -5\,y_4 + 2\,y_2, y_4, y_5, y_3, y_2, 0, y_1]$$

$p' = -s^5 + s^7$ $p = s^5 - s^6$ $p' = -s^5 + s^6$

522 . Coloring, {5, 8, 10, 12}

R: [7, 7, 7, 6, 3, A, B, B, B, 2, 1, 9]
B: [6, 8, 8, 7, A, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_5, y_4, y_3, 0, 0, y_3, y_2, 0, 2\,y_3, y_1, y_6, 0]$$

$p' = -s^4 + s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, 4\,y_1 - 2\,y_3, y_2, 2\,y_1 - y_3, y_3, y_4, 0, y_5, 0, y_6]$$

$p = -s^4 + s^7 \quad p' = -s^4 + s^7$

523 . Coloring, {5, 8, 11, 12}

R: [7, 7, 7, 6, 3, A, B, B, B, C, 4, 9]
B: [6, 8, 8, 7, A, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1 - y_2 + y_7 + y_3 + y_4 - y_5 - y_6, y_1, 0, y_2, y_7, 0, y_3, y_4, y_5, y_6]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[2\, y_3, y_8, y_7, 0, y_6, y_5, y_3, y_4, 0, y_2, 0, y_1]$$

$p = -s^4 + s^9$

524 . Coloring, {5, 9, 10, 11}

R: [7, 7, 7, 6, 3, A, B, C, C, 2, 4, 5]
B: [6, 8, 8, 7, A, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, -y_1 + y_4 + y_5 - y_3 + y_2 + y_7 - y_8 - y_6, y_4, y_5, y_3, y_2, 0, 0, y_7, y_8, y_6]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_9, y_6, y_7, y_8]$

525 . Coloring, {5, 9, 10, 12}

R: [7, 7, 7, 6, 3, A, B, C, C, 2, 1, 9]
B: [6, 8, 8, 7, A, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$[-y_6 - 2\,y_1 - y_2 + 6\,y_5 - y_3 - y_4, y_6, y_1, 0, 0, y_1, y_2, 0, y_5, y_3, y_4, y_5]$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$[0, 0, y_4, y_5, y_1, y_2, y_3, y_6, 0, y_7, y_8, y_9]$

526 . Coloring, {5, 9, 11, 12}

R: [7, 7, 7, 6, 3, A, B, C, C, C, 4, 9]
B: [6, 8, 8, 7, A, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_7, y_6, 0, y_5, y_4, 0, y_3, y_2, y_1, -y_7 + y_6 - y_5 + y_4 + y_3 + y_2 - y_1]$$

$p = s^7 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_2, y_1, y_5, 0, 2\,y_3, y_4, y_3, y_7, 0, y_6, y_8, 0]$$

$p = -s^4 + s^9$

527 . Coloring, {5, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -9s^3 + 2s^4 - 16s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, C, B, 2, 4, 9]
B: [6, 8, 8, 7, A, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, -2\,y_7 + y_1 - y_2 + y_3 + y_4 + y_5 - y_6, y_7, y_1, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$p = -s^3 + s^9$ $p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 8, 11}}

See Matrix

$$[-3\,y_1 + 7\,y_6 - 3\,y_2 - 3\,y_4 - 3\,y_5, 0, 3\,y_1, 0, -3\,y_3 + 3\,y_6, 3\,y_2, 3\,y_3, 3\,y_4, 0, 3\,y_6, 3\,y_5, 3\,y_6]$$

$p' = -s^3 + s^8$ $p' = -s^2 + s^7$ $p = -s^2 + s^7$

528 . Coloring, {6, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = -6s^2 + s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, A, B, C, C, 1, 5]
B: [6, 8, 8, 7, 3, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_3, 0, y_3 - y_5, 0, y_2, y_5, y_1, 0, 0, y_6, y_5, y_4]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_1, y_8, y_9, 0, y_8, y_7, y_6, y_5, y_4, y_3, y_2]$$

$p = s^7 - s^{10}$

529 . Coloring, {6, 7, 8, 10}

R: [7, 7, 7, 6, A, 3, A, B, B, 2, 1, 5]
B: [6, 8, 8, 7, 3, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[2\,y_4, y_1, y_4, 0, 2\,y_3, y_3, y_2, 0, 0, y_5, 2\,y_3, 0]$$

$p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 5\,y_6, 5\,y_5, 0, 5\,y_6, 5\,y_4, 5\,y_3, 5\,y_2, -5\,y_6 + 5\,y_3, 5\,y_1, -5\,y_6 + 11\,y_5 + 11\,y_4 - 10\,y_3 - 5\,y_2 + 11\,y_1]$$

$p' = s^4 + s^5 - s^7 - s^8$ $p' = s^3 - s^5 - s^6 + s^8$ $p = s^3 - s^9$

530 . Coloring, {6, 7, 8, 11}

R: [7, 7, 7, 6, A, 3, A, B, B, C, 4, 5]
B: [6, 8, 8, 7, 3, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_3, y_1, y_7, y_8, 0, 0, y_6, y_4, y_5]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1 + y_2 - y_4 - y_5 - y_6 + y_7 + y_8, y_1, y_3, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^8 + s^9$ $p = -s^8 + s^{10}$

531 . Coloring, {6, 7, 8, 12}

R: [7, 7, 7, 6, A, 3, A, B, B, C, 1, 9]
B: [6, 8, 8, 7, 3, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[-y_4 + y_1 + y_2 - y_3 - y_5 + y_6 + y_7, 0, y_4, 0, 0, y_1, y_2, 0, y_3, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 5\,y_7, 5\,y_5, 5\,y_6, 5\,y_4, 5\,y_2, 5\,y_3, 5\,y_1, 0, -5\,y_7 - 5\,y_5 + 11\,y_6 - 5\,y_4 - 5\,y_2 + 11\,y_3 - 5\,y_1 + 11\,y_9 - 5\,y_8, 5\,y_9, 5\,y_8]$$

$p = -s^4 - s^5 - s^6 + s^8 + s^9 + s^{10}$

532 . Coloring, {6, 7, 9, 10}

R: [7, 7, 7, 6, A, 3, A, C, C, 2, 1, 5]
B: [6, 8, 8, 7, 3, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[2\,y_3, y_1, y_2, 0, 2\,y_2, y_3, y_4, 0, 0, y_5, 0, 2\,y_3]$$

$p = -s^3 + s^6$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_3 - y_5, y_1, 0, y_3 - y_5, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p' = s^5 - s^8$ $p = -s^5 + s^8$

533 . Coloring, {6, 7, 9, 11}

R: [7, 7, 7, 6, A, 3, A, C, C, C, 4, 5]
B: [6, 8, 8, 7, 3, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, y_6, 0, y_7]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 - 2\,y_3 + y_2 - y_4 - y_5 + y_6, y_1, y_3, 0, 0, y_2, y_3, y_4, 2\,y_3, y_5, y_6, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$ $p = -s^2 + s^8$ $p' = -s^2 + s^8$

534 . Coloring, {6, 7, 9, 12}

R: [7, 7, 7, 6, A, 3, A, C, C, C, 1, 9]
B: [6, 8, 8, 7, 3, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_1, 0, -y_1 + y_2 - y_3 - y_4 + y_5, 0, 0, y_1, y_2, 0, y_3, y_4, 0, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_3, y_4, y_2, -2\,y_4 + 4\,y_6, -y_4 + 2\,y_6, y_1, y_7, 0, y_6, y_5, 0]$$

$p' = -s^5 + s^8$ $p = s^5 - s^8$

535 . Coloring, {6, 7, 10, 11}

$\Omega p(\Delta)=0: \quad p = 2s^2 + 3s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, A, C, B, 2, 4, 5]
B: [6, 8, 8, 7, 3, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_7, y_7, y_3, y_4, 0, 0, y_5, y_6, y_6]$$

$p' = -s^5 + s^8 \quad p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_2, 0, 0, y_1, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^7 + s^8 \quad p = -s^7 + s^9$

» SYNC'D !RANK'D

536 . Coloring, {6, 7, 10, 12}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, A, C, B, 2, 1, 9]
B: [6, 8, 8, 7, 3, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, -y_6 + y_7, 0, 0, y_6, y_3, 0, y_7, y_4, y_5, y_6]$$

$p = s^5 - s^8$ $p' = s^5 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

537 . Coloring, {6, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, A, C, B, C, 4, 9]
B: [6, 8, 8, 7, 3, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, -y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7, y_1, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 + y_4 - y_5 - y_6 + y_7, y_1, y_2, 0, y_3, y_4, y_8, y_5, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^{10}$ $p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

538 . Coloring, {6, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = 2s^2 + s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, B, B, C, 2, 1, 5]
B: [6, 8, 8, 7, 3, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3 - y_7, 0, y_3, y_7, y_4, 0, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_1, 0, y_2, y_3, y_6, y_4, y_5, y_8, y_7]$$

$p = -s^3 + s^9$

539 . Coloring, {6, 8, 9, 11}

Ωp(Δ)=0: $p = -2s^2 + s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, B, B, C, C, 4, 5]
B: [6, 8, 8, 7, 3, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -3y_1 + 5y_2 - 3y_3 - 3y_4 + 5y_5 - 3y_6 + 5y_7, 3y_1, 3y_2, 3y_3, 3y_4, 0, 0, 3y_5, 3y_6, 3y_7]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, y_4, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

$p = -s^2 + s^{10}$

540 . Coloring, {6, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, B, B, C, C, 1, 9]
B: [6, 8, 8, 7, 3, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-3y_1 - 3y_3 - 3y_2 + 10y_5 - 3y_4, 0, 3y_1, 0, 0, 3y_3, 3y_2, 0, -3y_3 + 3y_5, 3y_3, 3y_4, 3y_5]$$

$p' = -s^4 + s^7$ $p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_8, y_5, y_6, 0, y_9, y_8, y_7]$$

$p = s^6 - s^{10}$

541 . Coloring, {6, 8, 10, 11}

R: [7, 7, 7, 6, A, 3, B, B, B, 2, 4, 5]
B: [6, 8, 8, 7, 3, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_8, y_7, y_5, y_6, y_4, y_3, 0, 0, y_1, y_2, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_1, 0, y_1, 0, 0, -3\,y_1 + 2\,y_5, y_1, y_5, y_4, y_3, 0, y_2]$$

$p' = -s^5 + s^7$ $p' = s^4 - s^6$ $p = s^4 - s^6$

542 . Coloring, {6, 8, 10, 12}

R: [7, 7, 7, 6, A, 3, B, B, B, 2, 1, 9]
B: [6, 8, 8, 7, 3, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, y_2 + y_4, y_2, 0, 0, y_4, y_3, 0, 2\,y_4, y_4, y_5, 0]$$

$p' = s^3 - s^6$ $p' = s^4 - s^7$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_2, 2\,y_3, y_1, y_3, y_4, y_7, 0, y_6, 0, y_5]$$

$p = -s^4 + s^8$

543 . Coloring, {6, 8, 11, 12}

R: [7, 7, 7, 6, A, 3, B, B, B, C, 4, 9]
B: [6, 8, 8, 7, 3, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, 0, y_4, y_5, 0, y_6, y_7, y_8, y_3]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[2\, y_2, y_1, y_5, 0, y_4, y_3, y_2, y_7, 0, y_6, 0, y_8]$$

$$p = -s^5 + s^9$$

544 . Coloring, {6, 9, 10, 11}

R: [7, 7, 7, 6, A, 3, B, C, C, 2, 4, 5]
B: [6, 8, 8, 7, 3, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, 0, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, y_2, y_3, y_4, y_7, y_5, y_6, y_8]$$

$$p = -s^3 + s^9$$

545 . Coloring, {6, 9, 10, 12}

R: [7, 7, 7, 6, A, 3, B, C, C, 2, 1, 9]
B: [6, 8, 8, 7, 3, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-2\,y_1 - 3\,y_3 - y_2 + 6\,y_5 - y_4,\ y_1 + y_3,\ y_1,\ 0,\ 0,\ y_3,\ y_2,\ 0,\ y_5,\ y_3,\ y_4,\ y_5]$$

$p' = -s^4 + s^7$ $p = -s^3 + s^9$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0,\ 0,\ y_9,\ y_8,\ y_7,\ y_6,\ y_5,\ y_4,\ 0,\ y_3,\ y_2,\ y_1]$$

546 . Coloring, {6, 9, 11, 12}

R: [7, 7, 7, 6, A, 3, B, C, C, C, 4, 9]
B: [6, 8, 8, 7, 3, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0,\ 0,\ 7\,y_7,\ 7\,y_6,\ 0,\ 7\,y_5,\ 7\,y_4,\ 0,\ 7\,y_3,\ 7\,y_2,\ -7\,y_7 - 7\,y_6 - 7\,y_5 - 7\,y_4 + 9\,y_3 + 9\,y_2 + 9\,y_1,\ 7\,y_1]$$

$p = s^2 + s^3 - s^7 - s^8$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1,\ y_2,\ y_3,\ 0,\ 2\,y_5,\ y_4,\ y_5,\ y_6,\ 0,\ y_7,\ y_8,\ 0]$$

$p = -s^3 + s^9$

547 . Coloring, {6, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, B, C, B, 2, 4, 9]
B: [6, 8, 8, 7, 3, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$[0, y_5, y_1, y_2, 0, y_3, y_4, 0, y_5, y_7, y_6, y_7]$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$

548 . Coloring, {7, 8, 9, 10}

R: [7, 7, 7, 6, A, A, A, B, C, 2, 1, 5]
B: [6, 8, 8, 7, 3, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$[y_2, y_1, 0, 0, y_2, y_5, y_3, 0, 0, y_4, y_5, y_5]$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_7, 0, y_6, y_8]$$

549 . Coloring, {7, 8, 9, 11}

R: [7, 7, 7, 6, A, A, A, B, C, C, 4, 5]
B: [6, 8, 8, 7, 3, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_5, y_1, y_2, 3\, y_4, 0, 0, y_3, y_4, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, 2\, y_3, y_2, 0, 0, y_4, y_3, y_7, y_8, 0, y_6, y_5]$$

$p = -s^2 + s^9$

550 . Coloring, {7, 8, 9, 12}

R: [7, 7, 7, 6, A, A, A, B, C, C, 1, 9]
B: [6, 8, 8, 7, 3, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	6 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_4 + y_1 - y_2 - y_3 + y_5, 0, 0, 0, 0, y_4, y_1, 0, y_2, y_3, y_4, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 10\,y_3, 5\,y_4, 5\,y_2, 5\,y_1, 5\,y_3, 6\,y_4 - 5\,y_2 + 12\,y_3 + 6\,y_6 - 5\,y_5, 5\,y_4 - 5\,y_1 + 5\,y_3 + 5\,y_6, 0, 0, 5\,y_5, 5\,y_6]$$

$p = -s^2 - s^4 + s^5 + s^7$ $p' = -s^2 - s^4 + s^5 + s^7$ $p = s^2 - s^5 - s^6 + s^9$

551 . Coloring, {7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, A, B, B, 2, 4, 5]
B: [6, 8, 8, 7, 3, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_5, 0, y_4, y_6, y_2, y_3, 0, 0, y_1, y_6, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8]$$

552 . Coloring, {7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 - 7s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, A, B, B, 2, 1, 9]

B: [6, 8, 8, 7, 3, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_5, 0, 0, 0, y_3, y_4, 0, 2\,y_3, y_2, y_6, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 0, 5\,y_2, 5\,y_1, -5\,y_2 + 11\,y_1 - 5\,y_3 + 11\,y_4 - 5\,y_5 + 11\,y_6 - 5\,y_7, 5\,y_3, 5\,y_4, 5\,y_5, 0, 0, 5\,y_6, 5\,y_7]$$

$p = s^2 + s^3 + s^4 - s^6 - s^7 - s^8$

» SYNC'D !RANK'D

553 . Coloring, {7, 8, 11, 12}

Ωp(Δ)=0: $p = 2s^2 + 7s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, A, B, B, C, 4, 9]
B: [6, 8, 8, 7, 3, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1 + y_5 - y_3 - y_4 + y_2 + y_6, 0, y_1, y_5, 0, y_3, y_4, y_2, y_6]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_2, 2\,y_3, y_1, 0, y_5, y_4, y_3, y_6, 0, 0, y_8, y_7]$$

$p = -s^5 + s^9$

554 . Coloring, {7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, A, C, C, 2, 4, 5]
B: [6, 8, 8, 7, 3, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, 0, 2\,y_2 - 2\,y_3, y_2, y_3, y_4, 0, 0, y_5, 0, 2\,y_2 - 2\,y_3]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_7, y_6, 0, y_5, 2\,y_4]$$

$p = s^3 - s^8$

555 . Coloring, {7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, A, C, C, 2, 1, 9]
B: [6, 8, 8, 7, 3, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	2 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[2\,y_1, -2\,y_1 + 2\,y_2, 0, 0, 0, y_1, -y_1 + 2\,y_2, 0, y_2, 2\,y_2, 0, y_2]$$

$p = -s^2 + s^4$ $p = -s^2 + s^7$ $p = -s^2 + s^5$ $p = -s^2 + s^6$ $p = -s^2 + s^3$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_6, y_5, y_3, y_4, y_2, y_1, 0, 0, y_7, 2\,y_4]$$

$p = -s^5 + s^8$

556 . Coloring, {7, 9, 11, 12}

Ωp(Δ)=0: $p = -2s^2 + s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, A, C, C, C, 4, 9]
B: [6, 8, 8, 7, 3, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	4 *vs* 6	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, -2\,y_1 + 2\,y_2 + 2\,y_3 - 2\,y_4, 0, y_1, -3\,y_1 + 3\,y_2 + 3\,y_3 - 3\,y_4, 0, y_2, y_3, 0, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_2, 2\,y_4, y_1, 0, 2\,y_4, y_6, y_4, y_5, 0, 0, y_3, 0]$$

$p = -s^2 + s^7 \quad p' = -s^2 + s^7$

» SYNC'D !RANK'D

557 . Coloring, {7, 10, 11, 12}

R: [7, 7, 7, 6, A, A, A, C, B, 2, 4, 9]
B: [6, 8, 8, 7, 3, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, y_3, y_5, 0, y_4, y_6, y_8, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, y_3, y_4, y_5, y_6, 0, 0, y_7, 3\, y_5]$$

$p = -s^3 + s^8$

558 . Coloring, {8, 9, 10, 11}

R: [7, 7, 7, 6, A, A, B, B, C, 2, 4, 5]
B: [6, 8, 8, 7, 3, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_7, 0, y_6, y_5, y_4, y_3, 0, 0, y_2, y_1, y_7 - y_6 + y_5 + y_4 - y_3 - y_2 + y_1]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_9, y_8]$$

559 . Coloring, {8, 9, 10, 12}

R: [7, 7, 7, 6, A, A, B, B, C, 2, 1, 9]
B: [6, 8, 8, 7, 3, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_7 - 3\,y_6 - 3\,y_5 + 13\,y_4 - 3\,y_3 - 3\,y_2 + 13\,y_1, 3\,y_7, 0, 0, 0, 3\,y_6, 3\,y_5, 0, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_1]$$

$p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_3, y_6, y_4, y_5, 0, y_8, y_6, y_7]$$

$p = s^5 - s^9$

560 . Coloring, {8, 9, 11, 12}

R: [7, 7, 7, 6, A, A, B, B, C, C, 4, 9]
B: [6, 8, 8, 7, 3, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	6 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_5, y_3 + y_6, y_2 + y_1 - y_6 - y_4, 0, y_2, y_3, y_6, y_1, 0, y_5, y_6, y_4]$$

$p = s^4 - s^5 - s^7 + s^{10}$ $p = s^4 - s^5 + s^6 - s^7$ $p = -s^4 + s^8$ $p' = -s^4 + s^8$

561 . Coloring, {8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, B, B, B, 2, 4, 9]
B: [6, 8, 8, 7, 3, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7, 0]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[2y_1, 0, y_2, 0, y_3, -3y_1 + 2y_5, y_1, y_4, 0, y_5, 0, y_6]$$

$p = s^3 - s^7$ $p' = s^3 - s^7$

562 . Coloring, {9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 + s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, A, B, C, C, 2, 4, 9]
B: [6, 8, 8, 7, 3, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, -y_1 + 2\,y_4, 0, y_1, 0, -y_2 + 2\,y_4, y_2, 0, y_4, 2\,y_4 - y_3, y_3, y_4]$$

$p' = -s^2 + s^4 - s^5 + s^7$ $p' = -s^2 + s^3 - s^5 + s^6$ $p' = s - s^2 + s^4 - s^5$ $p = s - s^3 + s^4 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

563 . Coloring, {2, 3, 4, 5, 6}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, B, C, B, C, 1, 5]
B: [6, 7, 7, 6, A, A, A, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[7\,y_1, 0, 9\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4 + 9\,y_5 - 7\,y_6, 0, 7\,y_2, 0, 7\,y_3, 7\,y_4, 0, 0, 7\,y_5, 7\,y_6]$$

$p = s + s^2 + s^3 - s^5 - s^6 - s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_3 + 13\,y_4 - 3\,y_5 - 3\,y_6 + 13\,y_7, 0, 3\,y_1, 0, 3\,y_2, 3\,y_3, 0, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^4 - s^5 + s^7 + s^8$

564 . Coloring, {2, 3, 4, 5, 7}

Ωp(Δ)=0: $p' = s^2 - 2s^3 - 8s^5 + 32s^7$ $p = s^2 - 4s^4 - 8s^5 - 16s^6 + 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, A, A, C, B, C, 1, 5]
B: [6, 7, 7, 6, A, 3, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$[0, -3\,y_4 - 3\,y_5 - 3\,y_2 - 3\,y_3 + 13\,y_1 - 3\,y_6 - 3\,y_7 + 13\,y_8, 3\,y_4, 3\,y_5, 0, 3\,y_2, 3\,y_3, 0, 3\,y_1, 3\,y_6, 3\,y_7, 3\,y_8]$

$p = -s^3 - s^4 + s^8 + s^9$

565 . Coloring, {2, 3, 4, 5, 8}

Ωp(Δ)=0: $p = -s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, B, B, B, C, 1, 5]
B: [6, 7, 7, 6, A, 3, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, y_8, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -y_1 - y_2 - y_3 - y_4 + 6\,y_6 - y_5, y_1, y_2, 0, y_3, y_4, 0, y_6, y_5, 0, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

566 . Coloring, {2, 3, 4, 5, 9}

$\Omega p(\Delta)=0$: $p = -s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, B, C, C, C, 1, 5]
B: [6, 7, 7, 6, A, 3, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[2\,y_3, 0, 5\,y_3 - 2\,y_4, 0, 5\,y_3 - 2\,y_1 - 2\,y_2, 0, 2\,y_3, 2\,y_1, 0, 2\,y_2, 2\,y_3, 2\,y_4]$$

$p = -s^2 + s^3 - s^4 + s^5$ $p = -s^2 + s^6$ $p' = -s^2 + s^6$ $p' = -s^3 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_8, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7, 0]$$

567 . Coloring, {2, 3, 4, 5, 10}

$\Omega p(\Delta)=0$: $p = -6s^2 + s^3 + 8s^6 - 16s^7 + 64s^8$ $p = 9s^2 + 2s^4 - 16s^6 + 16s^7 - 96s^8$ $p = -27s^2 + 8s^5 + 48s^6 - 64s^7 + 256s^8$

R: [7, 8, 8, 7, 3, A, B, C, B, 2, 1, 5]
B: [6, 7, 7, 6, A, 3, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
5 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[7\,y_1,\ 9\,y_1 - 7\,y_2 - 7\,y_3 + 9\,y_4 - 7\,y_5 - 7\,y_6 + 9\,y_7 - 7\,y_8,\ 7\,y_2,\ 0,\ 7\,y_3,\ 0,\ 7\,y_4,\ 7\,y_5,\ 0,\ 7\,y_6,\ 7\,y_7,\ 7\,y_8]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0,\ 0,\ y_2,\ -y_2 + y_1 + y_3 - y_4 - y_5 + y_6 + y_7,\ 0,\ y_1,\ y_3,\ 0,\ y_4,\ y_5,\ y_6,\ y_7]$$

$p = -s^7 + s^8$

568 . Coloring, {2, 3, 4, 5, 11}

$\Omega p(\Delta)=0$: $p = 3s^2 + 14s^3 - 24s^5 + 32s^6 - 32s^7 - 128s^8$ $p' = 3s^2 + 2s^3 - 8s^4 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, A, B, C, B, C, 4, 5]
B: [6, 7, 7, 6, A, 3, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0,\ 0,\ 7\,y_7,\ 7\,y_6,\ 7\,y_5,\ 0,\ 7\,y_4,\ 7\,y_3,\ 0,\ 7\,y_2,\ 7\,y_1,\ -7\,y_7 + 9\,y_6 - 7\,y_5 + 9\,y_4 - 7\,y_3 - 7\,y_2 + 9\,y_1]$$

$p = s^2 + s^3 + s^4 - s^6 - s^7 - s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_8 + 13\,y_4 - 3\,y_5 - 3\,y_6 + 13\,y_7,\ 3\,y_1,\ 3\,y_2,\ 0,\ 0,\ 3\,y_3,\ 3\,y_8,\ 0,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7]$$

$p = -s^5 - s^6 + s^8 + s^9$

569 . Coloring, {2, 3, 4, 5, 12}

$\Omega p(\Delta)=0$: $p = -9s^2 + 4s^4 - 24s^5 + 16s^6 - 96s^7 + 64s^8$ $p = 3s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 8, 8, 7, 3, A, B, C, B, C, 1, 9]
B: [6, 7, 7, 6, A, 3, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, 0, y_5, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$[0, y_1, y_2, y_3, y_3, y_4, y_5, 0, 0, y_6, y_7, y_7]$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

570 . Coloring, {2, 3, 4, 6, 7}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^4 - 8s^5 + 32s^7$ $p = s^2 - 12s^4 + 8s^5 + 16s^6 + 32s^7 - 64s^8$

R: [7, 8, 8, 7, A, 3, A, C, B, C, 1, 5]
B: [6, 7, 7, 6, 3, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_3, 0, y_4, 0, y_1, 0, y_2, y_3, 0, y_6, y_4, y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, -2y_1 + 11y_5 - 2y_4 + 11y_2 + 11y_3 - 2y_6 - 39y_7, 2y_1, 2y_5, 0, 2y_4, 2y_2, 0, 3y_5 + 3y_2 + 3y_3 - 11y_7, 2y_3, 2y_6, 2y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

571 . Coloring, {2, 3, 4, 6, 8}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, B, B, B, C, 1, 5]
B: [6, 7, 7, 6, 3, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[-2y_1 + 2y_3 + 2y_2 + 2y_5 - 2y_4, 0, 2y_1, 0, 5y_3 + 5y_2 - 2y_5 - 7y_4, 0, 2y_3, 2y_2, 0, 2y_5, 7y_3 + 7y_2 - 2y_5 - 9y_4, 2y_4]$$

$p = -s^3 + s^6$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, y_3, y_2, 2y_2, 0, y_1, -y_3 - 3y_2 - y_1 - y_4 + 6y_5, 0, y_5, y_4, 0, y_5]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

572 . Coloring, {2, 3, 4, 6, 9}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, 3, B, C, C, C, 1, 5]
B: [6, 7, 7, 6, 3, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_5, 0, y_4, 0, y_3, 0, y_5, y_2, 0, y_1, y_5, 5\,y_5 - y_4 - y_3 - y_2 - y_1]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, 0, 2\,y_2, y_7, y_6, 0]$$

$p = -s^5 + s^8$

573 . Coloring, {2, 3, 4, 6, 10}

$\Omega p(\Delta)=0$: $p = s^2 + 8s^5 + 16s^6$ $p' = s^3 + 8s^6 + 16s^7$ $p' = s^2 + 8s^5 + 16s^6$

R: [7, 8, 8, 7, A, 3, B, C, B, 2, 1, 5]
B: [6, 7, 7, 6, 3, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {2, 5, 8, 10, 12}}

See Matrix

$$[7\,y_1, 9\,y_1 - 7\,y_2 - 7\,y_3 + 9\,y_4 - 7\,y_5 - 7\,y_8 + 9\,y_6 - 7\,y_7, 7\,y_2, 0, 7\,y_3, 0, 7\,y_4, 7\,y_5, 0, 7\,y_8, 7\,y_6, 7\,y_7]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_5, y_4, 0, y_3, y_4, 0, y_2, y_1, y_5, -y_3 + y_2 + y_1]$$

$p' = -s^6 + s^7$ $p' = s^5 - s^6$ $p = s^5 - s^7$

574 . Coloring, {2, 3, 4, 6, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 + 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, 3, B, C, B, C, 4, 5]
B: [6, 7, 7, 6, 3, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 3y_1, 7y_5 - 3y_2 - 3y_4, -3y_1 + 3y_5, 0, 3y_2, 3y_5 - 3y_3, 0, 3y_3, 3y_4, 3y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-3y_1 - 6y_6 - 3y_2 - 3y_3 + 13y_4 - 3y_5 + 13y_7, 3y_1, 3y_6, 0, 0, 3y_2, 3y_3, 0, 3y_4, 3y_5, 3y_6, 3y_7]$$

$p = s^4 + s^5 - s^7 - s^8$ $p' = -s^4 - s^5 + s^7 + s^8$

575 . Coloring, {2, 3, 4, 6, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 + 8s^5 + 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, 3, B, C, B, C, 1, 9]
B: [6, 7, 7, 6, 3, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_6, y_5, y_4, y_4, y_3, y_2, 0, 0, y_1, -y_5 + y_3, -y_5 + y_3]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

576 . Coloring, {2, 3, 4, 7, 8}

Ωp(Δ)=0: $p = s^2 + 4s^4 - 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^4 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, A, A, B, B, C, 1, 5]
B: [6, 7, 7, 6, 3, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, 0, y_3, y_4, 0, y_6, y_5, y_7]$$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, y_2, y_3, y_4, 0, y_5, y_6, 0, y_1, 0, -y_2 - y_3 - y_4 - y_5 - y_6 + 6y_1, y_1]$$

$p' = s^2 - s^7$ $p = s^2 - s^7$

577 . Coloring, {2, 3, 4, 7, 9}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$ $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$

R: [7, 8, 8, 7, A, A, A, C, C, C, 1, 5]
B: [6, 7, 7, 6, 3, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$[y_5, 0, 0, 0, y_4, 0, y_3, y_5, 0, y_2, 0, y_1]$

$p = s^3 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$[0, y_6, y_1, y_2, 0, y_4, y_5, 0, y_6, 0, y_3, 0]$

$p = -s^2 + s^7$

578 . Coloring, {2, 3, 4, 7, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, A, C, B, 2, 1, 5]
B: [6, 7, 7, 6, 3, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_8, y_1, 0, 0, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, 0, 5\,y_1, -5\,y_1 - 5\,y_6 - 5\,y_5 + 11\,y_4 - 5\,y_3 + 11\,y_2, 0, 5\,y_6, 5\,y_5, 0, 5\,y_4, 0, 5\,y_3, 5\,y_2]$$

$$p = -s - s^2 + s^6 + s^7$$

579 . Coloring, {2, 3, 4, 7, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, A, C, B, C, 4, 5]
B: [6, 7, 7, 6, 3, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_6, y_5, 0, y_4, 2\,y_2, 0, y_3, y_2, y_1]$$

$$p = s^4 - s^7$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[3\,y_5, 3\,y_4, 3\,y_3, 0, 0, 3\,y_2, -3\,y_5 - 3\,y_4 - 3\,y_3 - 3\,y_2 + 13\,y_1 - 3\,y_7 + 13\,y_6, 0, 3\,y_1, 0, 3\,y_7, 3\,y_6]$$

$$p = -s^2 - s^3 + s^7 + s^8$$

580 . Coloring, {2, 3, 4, 7, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, A, C, B, C, 1, 9]
B: [6, 7, 7, 6, 3, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_3, 0, 0, 0, 0, 0, y_1, y_2, y_7, y_6, y_4, y_5]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 2\,y_1, y_7, y_6, y_5, y_4, y_3, 0, 0, 0, y_2, y_1]$$

$p = -s^3 + s^8$

581 . Coloring, {2, 3, 4, 8, 9}

Ωp(Δ)=0: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, B, B, C, C, 1, 5]
B: [6, 7, 7, 6, 3, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[2\,y_1, 0, 0, 0, 2\,y_2, 0, 7\,y_1 - 27\,y_2 - 2\,y_3 + 16\,y_4, 2\,y_3, 0, 3\,y_1 - 7\,y_2 + 4\,y_4, 2\,y_4, 4\,y_1 - 16\,y_2 + 10\,y_4]$$

$p' = -s^3 + s^6$ $p = -s^2 + s^5$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8, y_9]$$

582 . Coloring, {2, 3, 4, 8, 10}

$\Omega p(\Delta)=0$: $p = s^2 - 8s^5 - 16s^6$ $p' = s^2 - 8s^5 - 16s^6$ $p' = s^3 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, A, A, B, B, B, 2, 1, 5]
B: [6, 7, 7, 6, 3, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_2, y_1, 0, 0, y_5, 0, y_4, y_3, 0, y_7, y_6, 0]$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$[0, 0, -y_1 + y_2 + y_3 - y_5 - y_6 + y_4, y_1, 0, y_2, y_3, 0, y_5, y_6, 0, y_4]$

$p = s^6 - s^7$

583 . Coloring, {2, 3, 4, 8, 11}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 8, 8, 7, A, A, B, B, B, C, 4, 5]
B: [6, 7, 7, 6, 3, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	4 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$[0, 0, 0, -y_1 - y_2 - y_3 + 5\, y_4, y_4, 0, y_1, y_2, 0, y_4, y_3, y_4]$

$p' = -s^2 + s^5$ $p = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-y_2 + 2y_4, -y_1 + 2y_4, y_1, 0, 0, 2y_4 - y_3, y_2, 0, y_4, y_3, 0, y_4]$$

$p = s^4 - s^8$ $p' = s^6 - s^7$ $p' = s^5 - s^7$ $p' = s^4 - s^7$

584 . Coloring, {2, 3, 4, 8, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 8, 8, 7, A, A, B, B, B, C, 1, 9]
B: [6, 7, 7, 6, 3, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, y_4, y_3, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_6, y_3, y_3, y_4, 0, 0, y_5, 0, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

585 . Coloring, {2, 3, 4, 9, 10}

$\Omega p(\Delta)=0$: $p = s^2$ $p' = s^2$ $p' = s^3$ $p' = s^4$ $p' = s^5$ $p' = s^6$ $p' = s^7$

R: [7, 8, 8, 7, A, A, B, C, C, 2, 1, 5]
B: [6, 7, 7, 6, 3, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
1 *vs* 8	1 *vs* 8	1 *vs* 8	1 *vs* 8	1 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[y_1, y_1, 0, 0, y_1, 0, y_1, y_1, 0, y_1, y_1, y_1]$$

$$p = -s + s^5 \quad p = -s + s^4 \quad p = -s + s^7 \quad p = -s + s^6 \quad p = -s + s^8 \quad p = -s + s^3 \quad p = -s + s^2$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_1, 0, y_1, y_1, 0, y_1, y_1, y_1, y_1]$$

$$p = s - s^2 \quad p' = -s + s^3 \quad p' = -s + s^2 \quad p' = -s + s^4 \quad p' = -s + s^5 \quad p' = -s + s^7 \quad p' = -s + s^6$$

` See 8-level graph

`

M \; N

$ [[0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 1] , [1, 0, 0, 0, 1, 0, 1, 1, 0, 1, 1, 1] , [0, 0, 0, 1, 0, 1, 1, 0, 1, 1, 1, 1] , [0, 0, 1, 0, 0, 1, 1, 0, 1, 1, 1, 1] , [1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 1, 1] , [0, 0, 1, 1, 0, 0, 1, 0, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 0, 1, 1, 2, 2, 2] , [1, 1, 0, 0, 1, 0, 1, 0, 0, 1, 1, 1] , [0, 0, 1, 1, 0, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 0, 2, 2] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 0, 2] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 2, 0]] $ $ [[0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] , [0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0]] $

τ= 20 , r'= 7/8

R: [7, 8, 8, 7, A, A, B, C, C, 2, 1, 5]
B: [6, 7, 7, 6, 3, 3, A, B, B, C, 4, 9]

Ranges

Action of R on ranges, [[1], [1]]
Action of B on ranges, [[2], [2]]

Cycles: R , {{2, 5, 8, 10, 12}, {1, 7, 11}}, B , {{3, 4, 6, 7, 9, 10, 11, 12}}

β({1, 2, 5, 7, 8, 10, 11, 12}) = 1/2
β({3, 4, 6, 7, 9, 10, 11, 12}) = 1/2

Partitions
α([{7}, {10}, {11}, {2, 3}, {12}, {8, 9}, {5, 6}, {1, 4}]) = 1/1

b1 = {7} ` , ` b2 = {10} ` , ` b3 = {11} ` , ` b4 = {2, 3} ` , ` b5 = {12} ` , ` b6 = {8, 9} ` , ` b7 = {5, 6} ` , ` b8 = {1, 4}

Action of R and B on the blocks of the partitions: = [8, 7, 1, 2, 6, 4, 5, 3] [4, 1, 6, 7, 2, 5, 8, 3]
with invariant measure [1, 1, 1, 1, 1, 1, 1, 1]

N by blocks, check: true . ` See partition graph.

` ` See level-8 partition graph.

`

Right Group	
Coloring	{2, 3, 4, 9, 10}
Rank	8
R,B	[7, 8, 8, 7, A, A, B, C, C, 2, 1, 5], [6, 7, 7, 6, 3, 3, A, B, B, C, 4, 9]
π_2	[1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 2, 2, 2, 0, 1, 1, 1, 1, 1, 1, 2, 2, 2]
u_2	[1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1] (dim 1)
wpp	[2, 2, 2, 2, 2, 2, 1, 2, 2, 1, 1, 1]
π_8	[0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
u_8	[0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]

586 . Coloring, {2, 3, 4, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^2 + 2s^3 + 8s^5 + 32s^7$ $p = -9s^2 + 4s^4 - 24s^5 + 16s^6 - 96s^7 + 64s^8$

R: [7, 8, 8, 7, A, A, B, C, C, C, 4, 5]

B: [6, 7, 7, 6, 3, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_3, -y_1 - y_2 + 5\, y_3 - y_4, 0, y_3, y_1, 0, y_2, y_3, y_4]$$

$p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, 0, y_6, y_7, y_8, 0]$$

587 . Coloring, {2, 3, 4, 9, 12}

$\Omega p(\Delta)=0$: $p' = 3s^2 + 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = 9s^2 - 28s^4 + 40s^5 - 16s^6 - 96s^7 + 64s^8$

R: [7, 8, 8, 7, A, A, B, C, C, C, 1, 9]
B: [6, 7, 7, 6, 3, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	3 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[y_2, 0, 0, 0, 0, 0, y_2, y_1, 5\, y_2 - 2\, y_1 - y_3, y_1, y_2, y_3]$$

$p' = -s^2 + s^4$ $p = -s^2 + s^6$ $p' = -s^2 + s^6$ $p = -s^2 + s^4$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_5, y_3, y_7, y_4, y_2, 0, 0, y_6, y_7, 0]$$

$p = -s^5 + s^8$

588 . Coloring, {2, 3, 4, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 8s^6 + 16s^7$ $p' = s^3 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, A, A, B, C, B, 2, 4, 5]
B: [6, 7, 7, 6, 3, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {2, 5, 8, 10, 12}}

See Matrix

$$[0, 9y_1 - 7y_2 + 9y_3 - 7y_4 - 7y_5 + 9y_6 - 7y_7, 0, 7y_1, 7y_2, 0, 7y_3, 7y_4, 0, 7y_5, 7y_6, 7y_7]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[-y_2 + y_1 + y_5 - y_3 - y_4 + y_7 + y_6, 0, y_2, 0, 0, y_1, y_5, 0, y_3, y_4, y_7, y_6]$$

$p = -s^7 + s^8$

589 . Coloring, {2, 3, 4, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 8s^5 - 8s^6 - 16s^7$ $p' = s^3 - 8s^5 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, A, A, B, C, B, 2, 1, 9]
B: [6, 7, 7, 6, 3, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_8, 0, 0, 0, 0, y_7, y_6, y_5, y_4, y_3, y_2]$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_8, y_7, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

590 . Coloring, {2, 3, 4, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, B, C, B, C, 4, 9]
B: [6, 7, 7, 6, 3, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_4, 0, 0, y_1, y_3, y_2, y_3, y_5, y_6]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_2, y_1, 0, y_3, y_7, y_6, 0, 0, y_5, y_4, y_4]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

591 . Coloring, {2, 3, 5, 6, 7}

R: [7, 8, 8, 6, 3, 3, A, C, B, C, 1, 5]
B: [6, 7, 7, 7, A, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_3, 0, y_2, 0, y_1, y_6, y_7, y_8, 0, y_5, y_6, y_4]$$

$p = s^5 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_5 + 13\,y_3 - 3\,y_4 - 3\,y_6 + 13\,y_7, 0, 3\,y_1, 0, 3\,y_2, 3\,y_5, 0, 3\,y_3, 3\,y_4, 3\,y_6, 3\,y_7]$$

$p = s^4 + s^5 - s^7 - s^8$

592 . Coloring, {2, 3, 5, 6, 8}

Ωp(Δ)=0: $p = 2s^2 - s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, B, B, B, C, 1, 5]
B: [6, 7, 7, 7, A, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	2 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, y_4, y_6, y_2, y_3, 0, 0, y_7, 2\,y_6]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 2\,y_2 - 2\,y_1, 0, -2\,y_2 + 4\,y_1, 0, -y_2 + 2\,y_1, y_2, 0, y_1, 2\,y_1, 0, y_1]$$

$p' = s^4 - s^6$ $p' = s^3 - s^6$ $p' = s^2 - s^6$ $p = s^2 - s^7$ $p' = s^5 - s^6$

593 . Coloring, {2, 3, 5, 6, 9}

$\Omega p(\Delta)=0$: $p = 2s^2 + 7s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, B, C, C, C, 1, 5]
B: [6, 7, 7, 7, A, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[5\,y_1, 0, 11\,y_1 - 5\,y_2 - 5\,y_3 + 11\,y_7 - 5\,y_6 + 11\,y_4 - 5\,y_5, 0, 5\,y_2, 5\,y_3, 5\,y_7, 5\,y_6, 0, 0, 5\,y_4, 5\,y_5]$$

$p = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_3, 0, y_4, 0, y_5, y_6, 0, 2\,y_5, y_1, y_2, 0]$$

$p = -s^4 + s^7$

» SYNC'D !RANK'D

594 . Coloring, {2, 3, 5, 6, 10}

R: [7, 8, 8, 6, 3, 3, B, C, B, 2, 1, 5]
B: [6, 7, 7, 7, A, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	5 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[5\,y_3,\ 10\,y_6,\ 5\,y_2,\ 0,\ 5\,y_1,\ 5\,y_6,\ -5\,y_3 + 12\,y_6 + 6\,y_2 + 6\,y_5 - 5\,y_4,\ 5\,y_2 - 5\,y_1 + 5\,y_6 + 5\,y_5,\ 0,\ 0,\ 5\,y_4,\ 5\,y_5]$$

$p = -s^2 - s^4 + s^5 + s^7$ $p' = -s^2 - s^4 + s^5 + s^7$ $p = s^2 - s^5 - s^6 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0,\ 0,\ 0,\ y_5,\ 0,\ y_4,\ y_3,\ 0,\ y_2,\ y_1,\ y_4,\ y_5 - y_3 + y_2 + y_1 - 2\,y_4]$$

$p' = s^5 - s^6$ $p = s^5 - s^7$

595 . Coloring, {2, 3, 5, 6, 11}

R: [7, 8, 8, 6, 3, 3, B, C, B, C, 4, 5]
B: [6, 7, 7, 7, A, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0,\ 0,\ y_2,\ y_1,\ y_2 + y_1 - y_5 + y_4 - y_3 - y_7 + y_6,\ y_5,\ y_4,\ y_3,\ 0,\ 0,\ y_7,\ y_6]$$

$p = s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[3\,y_1,\ -3\,y_1 - 3\,y_2 - 3\,y_3 + 13\,y_4 - 3\,y_5 - 3\,y_6 + 13\,y_7,\ 0,\ 0,\ 0,\ 3\,y_2,\ 3\,y_3,\ 0,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7]$$

$p = -s^4 - s^5 + s^7 + s^8$

596 . Coloring, {2, 3, 5, 6, 12}

R: [7, 8, 8, 6, 3, 3, B, C, B, C, 1, 9]
B: [6, 7, 7, 7, A, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, 0, y_4, y_2, y_3, y_1, 0, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_3, 0, y_2, y_2, y_5, y_1, 0, 0, y_4, y_5, y_5]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

597 . Coloring, {2, 3, 5, 7, 8}

R: [7, 8, 8, 6, 3, A, A, B, B, C, 1, 5]
B: [6, 7, 7, 7, A, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, y_1 + y_3, y_1, y_2, 0, y_3, -2\,y_1 - 3\,y_3 - y_2 - y_4 + 6\,y_5, 0, y_5, y_3, y_4, y_5]$$

$p' = -s^5 + s^8$ $p' = -s^4 + s^7$ $p = s^3 - s^6$ $p' = s^3 - s^6$

598 . Coloring, {2, 3, 5, 7, 9}

R: [7, 8, 8, 6, 3, A, A, C, C, C, 1, 5]
B: [6, 7, 7, 7, A, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[2\,y_3,\ 0,\ y_1,\ 0,\ y_2,\ y_3,\ y_4,\ y_5,\ 0,\ y_6,\ 0,\ y_7]$$

$p = -s^4 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0,\ y_1 + y_5,\ y_1,\ y_2,\ 0,\ y_5,\ y_3,\ 0,\ 2\,y_5,\ y_5,\ y_4,\ 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

599 . Coloring, {2, 3, 5, 7, 10}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, A, C, B, 2, 1, 5]
B: [6, 7, 7, 7, A, 3, B, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	5 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1,\ y_2,\ y_3,\ 0,\ y_4,\ y_8,\ y_5,\ y_6,\ 0,\ y_7,\ y_8,\ y_9]$$

$p = s^6 - s^{10}$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 3\,y_1, -3\,y_1 + 7\,y_5 - 3\,y_4 + 10\,y_3 - 3\,y_2, 0, 3\,y_5, 3\,y_4, 0, 3\,y_3, 3\,y_5, 3\,y_2, 3\,y_5 + 3\,y_3]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

600 . Coloring, {2, 3, 5, 7, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, A, C, B, C, 4, 5]
B: [6, 7, 7, 7, A, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_7, y_5, 0, y_6, y_7, y_8]$$

$p = -s^5 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_8 + 13\,y_7, 3\,y_1, 3\,y_2, 0, 0, 3\,y_3, 3\,y_4, 0, 3\,y_5, 3\,y_6, 3\,y_8, 3\,y_7]$$

$p = -s^3 - s^4 + s^8 + s^9$

601 . Coloring, {2, 3, 5, 7, 12}

$\Omega p(\Delta)=0$: $p = -2s^2 + s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, A, C, B, C, 1, 9]
B: [6, 7, 7, 7, A, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_8, 0, y_7, 0, 0, y_7, y_6, y_5, y_3, y_4, y_2, y_1]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_7 - y_5, y_6, y_7, y_5, y_4, 0, 0, y_2, y_3, y_5]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

602 . Coloring, {2, 3, 5, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, B, B, C, C, 1, 5]
B: [6, 7, 7, 7, A, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_4, 0, y_3, 0, y_2, y_1, y_9, y_8, 0, y_7, y_6, y_5]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, -y_4 + y_5, y_3, 0, y_4, y_2, 0, y_5, y_6, y_7, y_4]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

603 . Coloring, {2, 3, 5, 8, 10}

R: [7, 8, 8, 6, 3, A, B, B, B, 2, 1, 5]
B: [6, 7, 7, 7, A, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_6, y_7, 0, -2\,y_7 + 4\,y_3, -y_7 + 2\,y_3, y_5, y_4, 0, y_3, y_2, 0]$$

$p = s^5 - s^8$ $p' = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_2 - y_3 - y_4 + y_5, 2\,y_1, 0, y_1, y_2, 0, y_3, y_4, 0, y_5]$$

$p = -s^5 + s^7$ $p = -s^5 + s^6$

604 . Coloring, {2, 3, 5, 8, 11}

R: [7, 8, 8, 6, 3, A, B, B, B, C, 4, 5]
B: [6, 7, 7, 7, A, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_1 - y_8 + y_7 - y_6 - y_5 - y_4 + y_3 + y_2, y_8, y_7, y_6, y_5, 0, y_4, y_3, y_2]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[y_5, y_4, y_3, 0, 0, y_2, y_1, 0, y_6, -y_5 - y_4 - y_3 - y_2 - y_1 + 6\, y_6, 0, y_6]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

605 . Coloring, {2, 3, 5, 8, 12}

R: [7, 8, 8, 6, 3, A, B, B, B, C, 1, 9]
B: [6, 7, 7, 7, A, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_5 - y_7, 0, 0, y_5 - y_7, y_4, y_5, y_6, y_7, y_2, y_3]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_5, y_4, 2\, y_3, 2\, y_4, y_3, y_2, 0, 0, y_1, 0, 2\, y_3]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

606 . Coloring, {2, 3, 5, 9, 10}

R: [7, 8, 8, 6, 3, A, B, C, C, 2, 1, 5]
B: [6, 7, 7, 7, A, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[5\,y_3, 5\,y_2, 5\,y_1, 0, 11\,y_3 - 5\,y_2 - 5\,y_1 - 5\,y_9 + 11\,y_8 - 5\,y_7 - 5\,y_6 + 11\,y_5 - 5\,y_4, 5\,y_9, 5\,y_8, 5\,y_7, 0, 5\,y_6, 5\,y_5, 5\,y_4]$$

$$p = -s^4 - s^5 - s^6 + s^8 + s^9 + s^{10}$$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7, y_1, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$$

607 . Coloring, {2, 3, 5, 9, 11}

R: [7, 8, 8, 6, 3, A, B, C, C, C, 4, 5]
B: [6, 7, 7, 7, A, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_1 - y_8 + y_7 - y_6 - y_5 - y_4 + y_3 + y_2, y_8, y_7, y_6, y_5, 0, y_4, y_3, y_2]$$

$$p = s^6 - s^7 + s^8 - s^9$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_6, y_4, 0, y_5, y_7, y_8, 0]$$

608 . Coloring, {2, 3, 5, 9, 12}

R: [7, 8, 8, 6, 3, A, B, C, C, C, 1, 9]
B: [6, 7, 7, 7, A, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[5\,y_1,\ 0,\ 5\,y_4 - 5\,y_6,\ 0,\ 0,\ 5\,y_4 - 5\,y_6,\ 5\,y_3,\ 5\,y_4,\ 5\,y_5,\ 5\,y_6,\ 5\,y_2,\ 11\,y_1 - 15\,y_4 + 5\,y_6 + 11\,y_3 - 5\,y_5 + 11\,y_2]$$

$p = -s^3 + s^9$ $p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0,\ y_1,\ y_2,\ 2\,y_2,\ 2\,y_3,\ y_3,\ y_4,\ 0,\ 0,\ y_5,\ 2\,y_3,\ 0]$$

$p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p = s^3 - s^6$

609 . Coloring, {2, 3, 5, 10, 11}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, B, C, B, 2, 4, 5]
B: [6, 7, 7, 7, A, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0,\ -y_1 + y_2 + y_3 - y_4 + y_6 + y_5 + y_7 - y_8 - y_9,\ y_1,\ y_2,\ y_3,\ y_4,\ y_6,\ y_5,\ 0,\ y_7,\ y_8,\ y_9]$$

$p = -s^7 + s^8 - s^9 + s^{10}$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1,\ 0,\ -y_1 + y_3 + y_2 - y_7 - y_6 + y_5 + y_4,\ 0,\ 0,\ y_3,\ y_2,\ 0,\ y_7,\ y_6,\ y_5,\ y_4]$$

$p = s^7 - s^8$

610 . Coloring, {2, 3, 5, 10, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 + s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, B, C, B, 2, 1, 9]
B: [6, 7, 7, 7, A, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$[y_1, y_2, y_3, 0, 0, y_3, y_4, y_5, y_6, y_9, y_7, y_8]$

$p = -s^7 + s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, y_6, y_5, y_4, -y_6 + y_5, y_3, 0, 0, y_2, -y_6 + y_5, y_1]$

$p = s^4 - s^7$ $p' = s^4 - s^7$

611 . Coloring, {2, 3, 5, 11, 12}

$\Omega p(\Delta)=0$: $p = -6s^2 + s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, B, C, B, C, 4, 9]
B: [6, 7, 7, 7, A, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_3, 0, y_3 + y_1 + y_7 + y_4 - y_5 - y_6, y_2, y_1, y_7, y_4, y_5, y_6]$$

$p = -s^3 + s^9$ $p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_1, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

612 . Coloring, {2, 3, 6, 7, 8}

R: [7, 8, 8, 6, A, 3, A, B, B, C, 1, 5]
B: [6, 7, 7, 7, 3, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, y_9, y_7, y_8]$$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, y_6, y_5, y_4, 0, y_5, y_3, 0, y_2, y_1, -y_6 - y_4 - 2\,y_5 - y_3 - y_1 + 6\,y_2, y_2]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$ $p' = s^5 - s^8$

613 . Coloring, {2, 3, 6, 7, 9}

R: [7, 8, 8, 6, A, 3, A, C, C, C, 1, 5]
B: [6, 7, 7, 7, 3, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\,y_5,\ 0,\ y_2,\ 0,\ y_1,\ y_5,\ 2\,y_2 - y_5,\ y_4,\ 0,\ y_3,\ 0,\ y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_1,\ y_3,\ y_2,\ 0,\ y_3,\ y_4,\ 0,\ 2\,y_3,\ y_5,\ y_6,\ 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

614 . Coloring, {2, 3, 6, 7, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 - 2s^4 - 16s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, C, B, 2, 1, 5]
B: [6, 7, 7, 7, 3, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 10	4 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_2 + y_8,\ y_1,\ y_2,\ 0,\ y_3,\ y_8,\ y_4,\ y_5,\ 0,\ y_6,\ y_8,\ y_7]$$

$p' = s^4 - s^9$ $p = s^4 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0,\ 0,\ 3\,y_1,\ -3\,y_1 + 3\,y_2,\ 0,\ 3\,y_1,\ 3\,y_2,\ 0,\ 3\,y_3,\ 3\,y_4,\ 3\,y_2,\ -3\,y_1 + 7\,y_2 - 3\,y_3 - 3\,y_4]$$

$p = -s^3 + s^5$ $p' = -s^3 + s^5$ $p' = -s^3 + s^7$ $p = -s^3 + s^7$

» SYNC'D !RANK'D

615 . Coloring, {2, 3, 6, 7, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 16s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, A, C, B, C, 4, 5]
B: [6, 7, 7, 7, 3, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, y_1, y_2, y_3, y_4, y_7, y_5, 0, y_6, y_7, y_8]$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$[3\,y_2, 3\,y_3, 3\,y_1, 0, 0, -3\,y_3 - 3\,y_1 + 8\,y_7 - 3\,y_5 + 5\,y_4, -3\,y_2 + 5\,y_7 - 3\,y_6 + 8\,y_4, 0, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4]$

$p = s^2 - s^8$ $p' = s^2 - s^8$

» SYNC'D !RANK'D

616 . Coloring, {2, 3, 6, 7, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 - s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, C, B, C, 1, 9]
B: [6, 7, 7, 7, 3, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_3, 0, y_2, 0, 0, y_1, y_9, y_8, y_7, y_6, y_5, y_4]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_3, y_3 - 2\,y_4 + y_6, y_2, y_4 + y_6, y_4, y_1, 0, 0, y_6, y_5, y_4]$$

$p' = -s^5 + s^8$ $p' = -s^4 + s^7$ $p = -s^4 + s^7$

617 . Coloring, {2, 3, 6, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, B, B, C, C, 1, 5]
B: [6, 7, 7, 7, 3, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 6

See Matrix

$$[y_2, 0, y_3, 0, -2\,y_2 - 2\,y_3 + 5\,y_1 + 5\,y_5 - 4\,y_6, y_1, 4\,y_2 + 4\,y_3 - 6\,y_1 - y_4 - 6\,y_5 + 5\,y_6, y_4, 0, 5\,y_2 + 5\,y_3 - 8\,y_1 - 8\,y_5 + 6\,y_6, y_5, y_6]$$

$p' = -s^4 + s^7$ $p' = -s^5 + s^8$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_7, y_2, 0, y_7, y_6, 0, y_3, y_4, y_5, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

618 . Coloring, {2, 3, 6, 8, 10}

R: [7, 8, 8, 6, A, 3, B, B, B, 2, 1, 5]
B: [6, 7, 7, 7, 3, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	4 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_3, y_2, y_1, 0, 4\,y_1 - 2\,y_7, 2\,y_1 - y_7, y_4, y_6, 0, y_7, y_5, 0]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_1, 0, y_1, 2\,y_1 + y_2 + y_3 - y_4, 0, y_2, y_3, 0, y_4]$$

$p = -s^4 + s^7$ $p = -s^4 + s^5$ $p = -s^4 + s^6$

619 . Coloring, {2, 3, 6, 8, 11}

R: [7, 8, 8, 6, A, 3, B, B, B, C, 4, 5]
B: [6, 7, 7, 7, 3, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, 5\,y_8, 5\,y_5, 5\,y_6, 5\,y_7, 5\,y_3, 5\,y_4, 0, 5\,y_1, -5\,y_8 - 5\,y_5 + 11\,y_6 - 5\,y_7 - 5\,y_3 - 5\,y_4 + 11\,y_1 + 11\,y_2, 5\,y_2]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[2\,y_1, -3\,y_1 - y_2 - y_3 - y_4 + 6\,y_5, y_1, 0, 0, y_2, y_3, 0, y_5, y_4, 0, y_5]$$

$p' = s^4 - s^7$ $p = s^3 - s^6$ $p' = s^3 - s^6$

620 . Coloring, {2, 3, 6, 8, 12}

R: [7, 8, 8, 6, A, 3, B, B, B, C, 1, 9]
B: [6, 7, 7, 7, 3, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_6 - y_3 + y_4, 0, 0, y_6, y_5, y_3, y_4, y_6, y_2, 2\,y_6 - y_3 + y_4]$$

$p' = -s^5 + s^8$ $p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_5, y_4, 2\,y_2, y_3, y_2, y_1, 0, 0, y_6, 0, 2\,y_2]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

621 . Coloring, {2, 3, 6, 9, 10}

R: [7, 8, 8, 6, A, 3, B, C, C, 2, 1, 5]
B: [6, 7, 7, 7, 3, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	6 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[5\,y_8, 5\,y_7, 5\,y_6, 0, 5\,y_5, 5\,y_4, 5\,y_3, 5\,y_2, 0, 11\,y_8 - 5\,y_7 - 5\,y_6 - 5\,y_5 - 5\,y_4 + 11\,y_3 - 5\,y_2 + 11\,y_1 - 5\,y_9, 5\,y_1, 5\,y_9]$$

$$p = -s^3 - s^4 - s^5 + s^8 + s^9 + s^{10}$$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_3, 0, y_1, y_3 + y_2 + y_4 - y_5 - y_6, 0, y_2, y_4, y_5, y_6]$$

$$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 \quad p' = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$$

622 . Coloring, {2, 3, 6, 9, 11}

R: [7, 8, 8, 6, A, 3, B, C, C, C, 4, 5]
B: [6, 7, 7, 7, 3, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, 0, 2\,y_3, y_6, y_7, 0]$$

$$p = -s^5 + s^8$$

623 . Coloring, {2, 3, 6, 9, 12}

R: [7, 8, 8, 6, A, 3, B, C, C, C, 1, 9]
B: [6, 7, 7, 7, 3, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[5\,y_4,\ 0,\ 5\,y_3,\ 0,\ 0,\ 5\,y_7,\ 5\,y_2,\ 5\,y_1,\ 11\,y_4 - 5\,y_3 - 10\,y_7 + 11\,y_2 - 5\,y_1 + 11\,y_6 - 5\,y_5,\ 5\,y_7,\ 5\,y_6,\ 5\,y_5]$$

$p = s^4 - s^6 - s^7 + s^9$ $p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0,\ y_1,\ y_2 - y_3,\ y_2,\ 2\,y_3,\ y_3,\ y_4,\ 0,\ 0,\ y_5,\ 2\,y_3,\ 0]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$ $p' = s^4 - s^7$

624 . Coloring, {2, 3, 6, 10, 11}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, B, C, B, 2, 4, 5]
B: [6, 7, 7, 7, 3, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	5 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 10

See Matrix

$$[0,\ y_1,\ y_2,\ y_3,\ y_4,\ y_5,\ y_6,\ y_7,\ 0,\ y_8,\ y_{10},\ y_9]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_5,\ 0,\ y_4,\ 0,\ 0,\ y_3,\ y_5 + y_4,\ 0,\ y_2,\ y_1,\ y_4,\ -y_4 - y_3 + y_2 + y_1]$$

$p' = s^6 - s^7$ $p' = s^5 - s^7$ $p = s^5 - s^8$

625 . Coloring, {2, 3, 6, 10, 12}

$\Omega p(\Delta)=0$: $p = -2s^2 + 5s^3 + 2s^4 + 16s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, B, C, B, 2, 1, 9]
B: [6, 7, 7, 7, 3, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2 + y_6, y_2, 0, 0, y_6, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p' = -s^6 + s^9$ $p = -s^6 + s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_4, y_2, y_3, y_6, y_1, 0, 0, y_5, y_6, y_7]$$

$p = s^3 - s^8$

» SYNC'D !RANK'D

626 . Coloring, {2, 3, 6, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 5s^3 - 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, B, C, B, C, 4, 9]
B: [6, 7, 7, 7, 3, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_7, y_8, 0, y_5, y_6, y_4, y_3, y_6, y_1, y_2]$$

$p = -s^2 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, y_3, 0, y_2, y_3, y_4, 0, 0, y_5, y_6, y_6]$$

$p' = s^4 - s^7$ $p' = s^5 - s^8$ $p = -s^4 + s^7$

» SYNC'D !RANK'D

627 . Coloring, {2, 3, 7, 8, 9}

R: [7, 8, 8, 6, A, A, A, B, C, C, 1, 5]
B: [6, 7, 7, 7, 3, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_4, y_5, y_6, 2\,y_5, 0, y_7, y_2, y_3]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 2\,y_5, y_3, y_1, 0, y_5, y_2, 0, y_3, 0, y_4, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

628 . Coloring, {2, 3, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = -2s^2 + 5s^3 + 2s^4 - 16s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, A, B, B, 2, 1, 5]
B: [6, 7, 7, 7, 3, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_1 - 3\,y_2 - y_5 + y_6 + y_4 - y_3, 0, 0, 2\,y_2, y_2, y_5, y_6, 0, y_4, y_3, 0]$$

$p = -s^2 + s^8$ $p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, -3\,y_2 - 3\,y_1 - 3\,y_3 + 5\,y_4 - 3\,y_6 + 5\,y_5, 3\,y_2, 0, 3\,y_1, 3\,y_3, 0, 3\,y_4, 0, 3\,y_6, 3\,y_5]$$

$p = s^3 + s^4 - s^6 - s^7$

» SYNC'D !RANK'D

629 . Coloring, {2, 3, 7, 8, 11}

Ωp(Δ)=0: $p = 2s^2 + 5s^3 - 2s^4 - 16s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, A, B, B, C, 4, 5]
B: [6, 7, 7, 7, 3, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_4, 2\,y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 7, 11}} order: 10

See Matrix

$$[-y_1 - y_2 - y_3 - y_4 + 6\,y_5 - y_6, y_1, y_2, 0, 0, y_3, y_4, 0, y_5, 0, y_6, y_5]$$

$p' = -s^2 + s^7$ $p = -s^2 + s^7$

630 . Coloring, {2, 3, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, A, B, B, C, 1, 9]
B: [6, 7, 7, 7, 3, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, y_7, 2\,y_2, y_6, y_5, y_4, y_3]$$

$p = s^2 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_3, y_1, y_4, y_5, y_3, y_2, 0, 0, 0, y_6, 2\,y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

631 . Coloring, {2, 3, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 + 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, A, C, C, 2, 1, 5]
B: [6, 7, 7, 7, 3, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[2\ y_6,\ y_1,\ 0,\ 0,\ y_5,\ y_6,\ y_4,\ y_2,\ 0,\ y_3,\ 0,\ y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0,\ 0,\ y_1,\ y_2,\ 0,\ y_3,\ y_5,\ 0,\ 2\ y_1 - 2\ y_3,\ 0,\ y_4,\ 2\ y_3]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$

632 . Coloring, {2, 3, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 + 2s^4 - 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, A, C, C, C, 4, 5]
B: [6, 7, 7, 7, 3, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0,\ 0,\ 0,\ 2\ y_4,\ y_1,\ y_2,\ y_4,\ 2\ y_4,\ 0,\ y_3,\ 0,\ y_5]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1,\ y_5,\ y_2,\ 0,\ 0,\ y_3,\ y_4,\ 0,\ y_5,\ 0,\ y_6,\ 0]$$

$p = -s^2 + s^7$

» SYNC'D !RANK'D

633 . Coloring, {2, 3, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, A, C, C, C, 1, 9]
B: [6, 7, 7, 7, 3, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$[2\,y_4, 0, 0, 0, 0, y_4, y_3, 2\,y_4, y_1, y_2, 0, y_5]$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 3

See Matrix

$[0, 2\,y_1, y_3, y_4, 2\,y_1, y_1, y_2, 0, 0, 0, y_5, 0]$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

» SYNC'D !RANK'D

634 . Coloring, {2, 3, 7, 10, 11}

R: [7, 8, 8, 6, A, A, A, C, B, 2, 4, 5]
B: [6, 7, 7, 7, 3, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_2, y_3, y_4, y_8, y_5, 0, y_6, y_8, y_7]$$

$$p = s^4 - s^9$$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 7, 11}} order: 10

See Matrix

$$[-5\,y_3 - 5\,y_1 - 5\,y_2 + 11\,y_4 - 5\,y_5 + 11\,y_6, 0, 5\,y_3, 0, 0, 5\,y_1, 5\,y_2, 0, 5\,y_4, 0, 5\,y_5, 5\,y_6]$$

$$p = -s - s^2 + s^6 + s^7$$

635 . Coloring, {2, 3, 7, 10, 12}

R: [7, 8, 8, 6, A, A, A, C, B, 2, 1, 9]
B: [6, 7, 7, 7, 3, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, 0, 0, 0, y_7, y_3, y_4, y_5, y_6, y_8, y_9]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_6, 0, 0, 0, y_5, 3\,y_4]$$

$$p = -s^4 + s^7$$

636 . Coloring, {2, 3, 7, 11, 12}

R: [7, 8, 8, 6, A, A, A, C, B, C, 4, 9]
B: [6, 7, 7, 7, 3, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_3, 2\, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 2\, y_6, y_2, 0, y_3, y_4, y_5, 0, 0, 0, y_7, y_6]$$

$p = -s^3 + s^8$

637 . Coloring, {2, 3, 8, 9, 10}

R: [7, 8, 8, 6, A, A, B, B, C, 2, 1, 5]
B: [6, 7, 7, 7, 3, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_3, 0, 0, y_2, y_8, y_4, y_5, 0, y_7, y_6, y_8]$$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7, y_1, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

638 . Coloring, {2, 3, 8, 9, 11}

R: [7, 8, 8, 6, A, A, B, B, C, C, 4, 5]
B: [6, 7, 7, 7, 3, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_4, 2\,y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, 0, y_6, y_7, y_8, y_9]$$

639 . Coloring, {2, 3, 8, 9, 12}

R: [7, 8, 8, 6, A, A, B, B, C, C, 1, 9]
B: [6, 7, 7, 7, 3, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-y_1 - y_4 + 2\,y_5, 0, 0, 0, 0, y_2 + y_3 - y_5, y_1, 2\,y_2 + 2\,y_3 - 2\,y_5, y_2, y_3, y_4, y_5]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_4, y_4, y_6, y_3, 0, 0, y_5, y_6, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

640 . Coloring, {2, 3, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 + s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, B, B, B, 2, 4, 5]
B: [6, 7, 7, 7, 3, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 2\,y_4, y_3, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[-y_1 + y_4 + y_5 - y_6 - y_2 + y_3, 0, y_1, 0, 0, y_4, y_5, 0, y_6, y_2, 0, y_3]$$

$p = -s^6 + s^7$

641 . Coloring, {2, 3, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, B, B, B, 2, 1, 9]
B: [6, 7, 7, 7, 3, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_5, y_6, y_7, 2\,y_5, y_3, y_4, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, 2\,y_3, y_2, y_3, y_4, 0, 0, y_5, 0, y_6]$$

$p = -s^2 + s^7$

642 . Coloring, {2, 3, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, B, B, B, C, 4, 9]
B: [6, 7, 7, 7, 3, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, 0, y_6, y_5, 2\,y_5, y_4, y_3, y_2, y_1]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2\,y_3 - 2\,y_6, y_2, y_1, 0, y_3, y_6, y_5, 0, 0, y_4, 0, 2\,y_3 - 2\,y_6]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

» SYNC'D !RANK'D

643 . Coloring, {2, 3, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = -6s^2 + 5s^3 - 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, B, C, C, 2, 4, 5]
B: [6, 7, 7, 7, 3, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_9, y_8, y_6, y_7, y_5, 0, y_4, y_3, y_2]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[-y_1 + y_2 + y_3 - y_6 - y_7 + y_4 + y_5, 0, y_1, 0, 0, y_2, y_3, 0, y_6, y_7, y_4, y_5]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

644 . Coloring, {2, 3, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = -9s^3 + 2s^4 + 16s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, B, C, C, 2, 1, 9]
B: [6, 7, 7, 7, 3, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[5\,y_8, 5\,y_7, 0, 0, 0, 5\,y_6, 5\,y_5, 5\,y_4, 5\,y_3, 5\,y_2, 5\,y_1, 11\,y_8 - 5\,y_7 - 5\,y_6 + 11\,y_5 - 5\,y_4 - 5\,y_3 - 5\,y_2 + 11\,y_1]$$

$p = -s^5 - s^6 + s^8 + s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_6, y_7, y_3, y_4, y_5, 0, 0, y_2, 2\,y_4, y_1]$$

$p = -s^3 + s^8$

645 . Coloring, {2, 3, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 9s^3 + 2s^4 - 16s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, B, C, C, C, 4, 9]
B: [6, 7, 7, 7, 3, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, 0, y_1, y_7, 2\,y_7, y_6, y_5, y_4, y_3]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_7, y_4, y_5, 0, 0, y_6, y_7, 0]$$

$p = -s^5 + s^8$

646 . Coloring, {2, 3, 10, 11, 12}

R: [7, 8, 8, 6, A, A, B, C, B, 2, 4, 9]
B: [6, 7, 7, 7, 3, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_9, 0, y_8, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_8, 0, y_7, 0, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

647 . Coloring, {2, 4, 5, 6, 7}

R: [7, 8, 7, 7, 3, 3, A, C, B, C, 1, 5]
B: [6, 7, 8, 6, A, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, 0, y_3, y_4, 0, y_2, y_4, y_1]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, -3\,y_1 + 8\,y_4 - 3\,y_6 + 5\,y_7, 0, -3\,y_2 - 3\,y_3 + 5\,y_4 - 3\,y_5 + 8\,y_7, 0, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

648 . Coloring, {2, 4, 5, 6, 8}

$\Omega p(\Delta)=0: \quad p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, B, B, B, C, 1, 5]
B: [6, 7, 8, 6, A, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, 0, y_6, 2\, y_5]$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$[0, y_6, 0, 10\, y_6 + 10\, y_5 + 10\, y_4 - 22\, y_3 + 10\, y_2 - 22\, y_1, 0, y_5, y_4, 5\, y_6 + 5\, y_5 + 5\, y_4 - 11\, y_3 + 5\, y_2 - 11\, y_1, y_3, y_2, 0, y_1]$

$p = s^3 - s^5 - s^6 + s^8 \quad p = -s^3 - s^4 + s^6 + s^7$

649 . Coloring, {2, 4, 5, 6, 9}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, B, C, C, C, 1, 5]
B: [6, 7, 8, 6, A, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, 0, y_6, y_7]$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_5, 0, y_6, 0, y_1, y_2, y_3, 2\,y_3, y_4, y_7, 0]$$

$$p = -s^5 + s^8$$

650 . Coloring, {2, 4, 5, 6, 10}

R: [7, 8, 7, 7, 3, 3, B, C, B, 2, 1, 5]
B: [6, 7, 8, 6, A, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_8, y_7, y_6, 0, y_5, 0, y_4, y_3, 0, 0, y_2, y_1]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_4, y_5, y_5, y_2, y_3, y_7, y_6]$$

$$p = s^6 - s^8$$

651 . Coloring, {2, 4, 5, 6, 11}

R: [7, 8, 7, 7, 3, 3, B, C, B, C, 4, 5]
B: [6, 7, 8, 6, A, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_3, y_1, y_2, 0, y_5, y_6, 0, 0, y_7, y_4]$$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8, 3\,y_1, 0, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8]$$

$p = s^5 + s^6 - s^8 - s^9$

652 . Coloring, {2, 4, 5, 6, 12}

R: [7, 8, 7, 7, 3, 3, B, C, B, C, 1, 9]
B: [6, 7, 8, 6, A, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, 2\,y_3, 0, 0, 0, y_2, y_3, y_6, 0, y_5, y_4]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_7 + y_6, y_3, y_4, y_7, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = s^5 - s^8$

653 . Coloring, {2, 4, 5, 7, 8}

R: [7, 8, 7, 7, 3, A, A, B, B, C, 1, 5]
B: [6, 7, 8, 6, A, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}} order: 10

See Matrix

$$[0, y_7, y_8, y_6, 0, y_5, y_4, y_2, y_3, y_1, y_9, y_{10}]$$

654 . Coloring, {2, 4, 5, 7, 9}

R: [7, 8, 7, 7, 3, A, A, C, C, C, 1, 5]
B: [6, 7, 8, 6, A, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[2\,y_4, 0, y_2, 0, y_1, 0, y_3, y_4, 0, y_5, 0, y_6]$$

$p = -s^2 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, 2\,y_7, y_7, y_8, 0]$$

$p = s^4 - s^9$

655 . Coloring, {2, 4, 5, 7, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, A, C, B, 2, 1, 5]
B: [6, 7, 8, 6, A, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_7, y_6, y_5, 0, y_4, 0, y_3, y_2, 0, y_1, y_8, y_9]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, -3\,y_1 - 3\,y_6 - 3\,y_3 - 3\,y_2 + 10\,y_5 - 3\,y_4, 3\,y_1, 0, 3\,y_6, 3\,y_3, 3\,y_2, -3\,y_3 + 3\,y_5, 3\,y_3, 3\,y_4, 3\,y_5]$$

$p' = s^3 - s^8$ $p = -s^2 + s^7$ $p' = -s^2 + s^7$

656 . Coloring, {2, 4, 5, 7, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, A, C, B, C, 4, 5]
B: [6, 7, 8, 6, A, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_2, y_1, y_5, 0, y_3, y_4, 0, y_6, y_4, y_7]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[3\,y_2, -3\,y_2 - 3\,y_1 - 3\,y_3 - 3\,y_4 - 3\,y_5 + 13\,y_6 - 3\,y_7 - 3\,y_8 + 13\,y_9, 3\,y_1, 0, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8, 3\,y_9]$$

$$p = s^4 + s^5 - s^9 - s^{10}$$

657 . Coloring, {2, 4, 5, 7, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, A, C, B, C, 1, 9]
B: [6, 7, 8, 6, A, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$$p = -s^2 + s^8$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, y_6, y_7, y_8, y_1, y_2, y_{10}, y_3, 0, y_4, y_5, y_9]$$

658 . Coloring, {2, 4, 5, 8, 9}

$\Omega p(\Delta)=0$: $p = 3s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, B, B, C, C, 1, 5]
B: [6, 7, 8, 6, A, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}, {2, 7, 10}}

See Matrix

$$[0, 3y_1, 3y_8, 5y_1 - 3y_8 - 3y_2 + 5y_3 - 3y_4 - 3y_5 + 5y_6 - 3y_7 - 3y_9, 0, 3y_2, 3y_3, 3y_4, 3y_5, 3y_6, 3y_7, 3y_9]$$

$p = -s - s^2 - s^3 + s^8 + s^9 + s^{10}$

659 . Coloring, {2, 4, 5, 8, 10}

R: [7, 8, 7, 7, 3, A, B, B, B, 2, 1, 5]
B: [6, 7, 8, 6, A, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 2y_2 - 3y_6, 0, 2y_6, 0, y_3, y_4, 0, y_6, y_5, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_5, 2y_2, 0, -4y_2 + 2y_1, y_2, y_4, y_3, y_1, 0, -y_5 - 7y_2 + y_4 + y_3 + 3y_1]$$

$p' = s^6 - s^7$ $p' = s^5 - s^7$ $p = s^5 - s^8$

660 . Coloring, {2, 4, 5, 8, 11}

R: [7, 8, 7, 7, 3, A, B, B, B, C, 4, 5]
B: [6, 7, 8, 6, A, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_4, y_2, y_3, 0, y_1, y_6, 0, y_6, y_7, y_5]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[-5\,y_1 + 5\,y_2 + 5\,y_7 + 5\,y_6 - 5\,y_5,\ 6\,y_2 - 5\,y_3 + 6\,y_7 + 6\,y_6 - 5\,y_4,\ 5\,y_1,\ 0,\ 0,\ 5\,y_2,\ 5\,y_3,\ 5\,y_7,\ 5\,y_6,\ 5\,y_4,\ 0,\ 5\,y_5]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

661 . Coloring, {2, 4, 5, 8, 12}

R: [7, 8, 7, 7, 3, A, B, B, B, C, 1, 9]
B: [6, 7, 8, 6, A, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_6, 0, 0, 0, y_2, y_6, y_5, y_6, y_3, y_4]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_8, y_9, 0, y_6, 0, y_7]$$

662 . Coloring, {2, 4, 5, 9, 10}

R: [7, 8, 7, 7, 3, A, B, C, C, 2, 1, 5]
B: [6, 7, 8, 6, A, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_2, y_7, y_1, 0, y_6, 0, y_5, y_4, 0, y_3, y_8, y_9]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_6, y_4, 0, y_5, y_3, y_2, y_9, y_1, y_7, y_8]$$

663 . Coloring, {2, 4, 5, 9, 11}

R: [7, 8, 7, 7, 3, A, B, C, C, C, 4, 5]
B: [6, 7, 8, 6, A, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_5, 0, y_4, y_3, 0, y_3, y_6, y_7]$$

$$p = -s^5 + s^8$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[5\,y_1 - 3\,y_2 - 3\,y_3 + 5\,y_4 - 3\,y_5 - 3\,y_6 + 5\,y_7 - 3\,y_8,\ 3\,y_1,\ 3\,y_2,\ 0,\ 0,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8,\ 0]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

664 . Coloring, {2, 4, 5, 9, 12}

R: [7, 8, 7, 7, 3, A, B, C, C, C, 1, 9]
B: [6, 7, 8, 6, A, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-y_2 - y_1 + 2\,y_4 - y_3,\ 0,\ y_2,\ 0,\ 0,\ 0,\ y_1,\ y_2,\ -2\,y_2 + y_4,\ y_2,\ y_3,\ y_4]$$

$$p = -s^2 + s^5 \quad p' = -s^2 + s^5 \quad p' = -s^3 + s^6 \quad p = -s^2 + s^8$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[0,\ y_1 + y_2 - y_3 + y_4 - y_7 + y_8 - y_5 + y_6,\ y_1,\ y_2,\ y_3,\ y_4,\ y_7,\ y_8,\ 0,\ y_5,\ y_6,\ 0]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

665 . Coloring, {2, 4, 5, 10, 11}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, B, C, B, 2, 4, 5]
B: [6, 7, 8, 6, A, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_8, y_9, y_7, y_6, 0, y_5, y_4, 0, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[7\,y_2, 0, 7\,y_1, 0, 0, 7\,y_8, 7\,y_7, 7\,y_6, 7\,y_5, 7\,y_4, 7\,y_3, 9\,y_2 + 9\,y_1 + 9\,y_8 - 7\,y_7 + 9\,y_6 - 7\,y_5 - 7\,y_4 + 9\,y_3]$$

$p = s^3 + s^4 - s^8 - s^9$

666 . Coloring, {2, 4, 5, 10, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, B, C, B, 2, 1, 9]
B: [6, 7, 8, 6, A, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_1, y_5, 0, 0, 0, y_8, y_6, y_7, y_5, y_3, y_4]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_1, -3\,y_2 + 3\,y_5, -3\,y_4 - 3\,y_3 - 3\,y_1 + 7\,y_5 - 3\,y_6, 0, 3\,y_5, 3\,y_6, 3\,y_5]$$

$p' = -s^2 + s^7$ $p' = -s^3 + s^8$ $p = -s^2 + s^7$

667 . Coloring, {2, 4, 5, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, B, C, B, C, 4, 9]
B: [6, 7, 8, 6, A, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_6, y_5, 0, 0, y_4, y_6, y_3, y_6, y_2, y_1]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[-3\,y_4 - 3\,y_2 - 3\,y_1 + 7\,y_5 - 3\,y_7,\ 3\,y_5 - 3\,y_6,\ 3\,y_4,\ 0,\ 3\,y_3,\ 3\,y_2,\ -3\,y_3 + 3\,y_5,\ 3\,y_1,\ 0,\ 3\,y_5,\ 3\,y_7,\ 3\,y_6]$$

$p' = s^3 - s^8$ $p = s^3 - s^8$ $p' = s^4 - s^9$

668 . Coloring, {2, 4, 6, 7, 8}

R: [7, 8, 7, 7, A, 3, A, B, B, C, 1, 5]
B: [6, 7, 8, 6, 3, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_7, y_2, 0, y_4, y_5, y_6]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$[0, 3\,y_2, 3\,y_7 + 3\,y_6 - 3\,y_3, 3\,y_1, 0, -3\,y_2 + 10\,y_7 + 10\,y_6 - 3\,y_1 - 3\,y_8 - 3\,y_5 - 3\,y_4, 3\,y_8, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3]$

$p = s^3 - s^9$ $p' = -s^3 + s^9$

669 . Coloring, {2, 4, 6, 7, 9}

R: [7, 8, 7, 7, A, 3, A, C, C, C, 1, 5]
B: [6, 7, 8, 6, 3, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$[2\,y_3, 0, y_3, 0, y_1, 0, y_2, y_3, 0, y_4, 0, y_5]$

$p' = -s^3 + s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$[0, y_7, y_8, y_6, 0, y_5, y_4, y_3, 2\,y_8, y_2, y_1, 0]$

$p = -s^3 + s^9$

670 . Coloring, {2, 4, 6, 7, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, 3, A, C, B, 2, 1, 5]
B: [6, 7, 8, 6, 3, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_6, y_7, y_5, 0, y_4, 0, y_2, y_3, 0, y_1, y_5, y_8]$$

$p = s^4 - s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_8, y_7, 0, y_6, y_8, y_5, y_4, y_3, y_2, y_1]$$

$p = s^7 - s^9$

671 . Coloring, {2, 4, 6, 7, 11}

Ωp(Δ)=0: $p = 3s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, A, C, B, C, 4, 5]
B: [6, 7, 8, 6, 3, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_5, y_4, 0, y_3, y_6, 0, y_2, y_6, y_1]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[11\,y_1 + 11\,y_2 + 11\,y_3 - 2\,y_4 - 2\,y_5 - 39\,y_6 - 2\,y_8 + 11\,y_7, 2\,y_1, 2\,y_2, 0, 0, 2\,y_3, 2\,y_4, 2\,y_5, 2\,y_6, 2\,y_8, 2\,y_7, 3\,y_1 + 3\,y_2 + 3\,y_3 - 11\,y_6 + 3\,y_7]$$

$p' = -s^3 + s^9 \quad p = -s^3 + s^9$

672 . Coloring, {2, 4, 6, 7, 12}

$\Omega p(\Delta)=0: \quad p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, A, C, B, C, 1, 9]
B: [6, 7, 8, 6, 3, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$[y_1, 0, y_6, 0, 0, 0, y_5, y_6, y_3, y_2, y_4, y_7]$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$[0, y_8, y_9, y_{10}, y_1, y_2, y_3, y_4, 0, y_5, y_6, y_7]$

673 . Coloring, {2, 4, 6, 8, 9}

$\Omega p(\Delta)=0: \quad p = -s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, B, C, C, 1, 5]
B: [6, 7, 8, 6, 3, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[-7\,y_4 - 6\,y_3 + 4\,y_2 + 5\,y_1, 0, y_4, 0, 5\,y_4 + 5\,y_3 - 2\,y_2 - 4\,y_1, 0, y_3, y_4, 0, -8\,y_4 - 8\,y_3 + 5\,y_2 + 6\,y_1, y_2, y_1]$$

$p' = -s^4 + s^7$ $p' = s^3 - s^6$ $p' = s^2 - s^5$ $p = s^2 - s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_8, y_9, 0, y_{10}, y_4, y_5, y_6, y_7, y_3, y_2]$$

674 . Coloring, {2, 4, 6, 8, 10}

R: [7, 8, 7, 7, A, 3, B, B, B, 2, 1, 5]
B: [6, 7, 8, 6, 3, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	4 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 2\,y_3, 0, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_1, 0, 2\,y_2 + 2\,y_3 - 2\,y_4, y_1, y_2 + y_3 - y_4, y_2, y_3, 0, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$ $p = -s^4 + s^7$ $p = -s^4 + s^8$

675 . Coloring, {2, 4, 6, 8, 11}

R: [7, 8, 7, 7, A, 3, B, B, B, C, 4, 5]
B: [6, 7, 8, 6, 3, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	5 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 2\,y_2, 7\,y_2 - 2\,y_3 + 9\,y_1 - 11\,y_4, -2\,y_2 + 2\,y_3 - 2\,y_1 + 2\,y_4, 0, 2\,y_1, 2\,y_2, 0, 7\,y_2 - 2\,y_3 + 7\,y_1 - 9\,y_4, 2\,y_3, 2\,y_4]$$

$p = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[6\,y_5, 3\,y_4, 3\,y_5, 0, 0, 6\,y_3, 3\,y_2, 3\,y_3, 3\,y_5 - 3\,y_3 + 3\,y_1, -3\,y_4 + 4\,y_5 - 3\,y_2 - 6\,y_3 + 10\,y_1, 0, 3\,y_1]$$

$p' = s^4 - s^7$ $p = -s^3 + s^6$ $p = -s^3 + s^9$ $p' = -s^3 + s^6$

676 . Coloring, {2, 4, 6, 8, 12}

R: [7, 8, 7, 7, A, 3, B, B, B, C, 1, 9]
B: [6, 7, 8, 6, 3, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, 0, y_4, y_2, y_5, y_2, y_3, y_6]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[0, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_1, 3\,y_2, 3\,y_5 - 3\,y_3 + 3\,y_7, 0, -3\,y_6 + 10\,y_5 - 3\,y_4 - 3\,y_1 - 3\,y_2 + 10\,y_7, 0, 3\,y_7]$$

$p = s^3 + s^5 - s^6 - s^8$ $p' = s^3 + s^5 - s^6 - s^8$

677 . Coloring, {2, 4, 6, 9, 10}

$\Omega p(\Delta)=0$: $p = s^4 - 16s^8$ $p' = s^4 - 8s^7$ $p' = s^5 - 4s^7$ $p' = s^6 - 2s^7$

R: [7, 8, 7, 7, A, 3, B, C, C, 2, 1, 5]
B: [6, 7, 8, 6, 3, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[y_1, y_2, -y_1 + y_2 + y_3 - y_4 + y_5 + y_6 - y_7 + y_8, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = - s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_1 + 2 y_4 - y_3 - y_2 - y_5 + y_7 + y_6, 0, y_1, y_4, y_3, y_2, y_5, y_7, y_6]$$

$p = - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = - s^3 + s^9$

678 . Coloring, {2, 4, 6, 9, 11}

R: [7, 8, 7, 7, A, 3, B, C, C, C, 4, 5]
B: [6, 7, 8, 6, 3, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, -y_2 - 2 y_1 + 2 y_3 + y_4, y_2 + y_1 - y_3, 2 y_1 - y_4, 0, y_1, -y_2 - 2 y_1 + 2 y_3 + y_4, 0, y_2, y_3, y_4]$$

$p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p' = -s^2 + s^5$ $p = s^2 - s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_5, y_4, y_3, 0, 0, y_2, y_1, y_8, 2\,y_3, y_7, y_6, 0]$$

$p = s^6 - s^9$

679 . Coloring, {2, 4, 6, 9, 12}

R: [7, 8, 7, 7, A, 3, B, C, C, C, 1, 9]
B: [6, 7, 8, 6, 3, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, 0, y_2, y_4, y_3, y_4, -y_1 - y_2 + 3\,y_4 + 2\,y_3, 2\,y_4 + y_3]$$

$p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_9, y_8, 0]$$

680 . Coloring, {2, 4, 6, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, C, B, 2, 4, 5]
B: [6, 7, 8, 6, 3, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {2, 5, 8, 10, 12}}

See Matrix

$$[0, -3\,y_2 + 7\,y_5 - 3\,y_1 - 3\,y_4 - 3\,y_6, -3\,y_3 + 3\,y_5, 3\,y_3, 3\,y_2, 0, 3\,y_5, 3\,y_1, 0, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p' = s^2 - s^7$ $p' = s^3 - s^8$ $p = s^2 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1 + 2\,y_2 - y_3 - y_7 - y_4 + y_5 + y_6, 0, y_2, 0, 0, y_1, y_2, y_3, y_7, y_4, y_5, y_6]$$

$p = -s^7 + s^8$ $p = -s^7 + s^9$

681 . Coloring, {2, 4, 6, 10, 12}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, C, B, 2, 1, 9]
B: [6, 7, 8, 6, 3, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_4, y_5, y_7, 0, 0, 0, y_2, y_3, y_1, y_7, y_8, y_6]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_3, y_2, -y_2 + y_5 + y_4, y_1, -y_3 + y_5 + y_4 - y_1, y_5 + y_4 - y_6, 0, y_6, y_5, y_4]$$

$p' = -s^2 + s^4 - s^6 + s^8$ $p' = -s^2 + s^3 - s^6 + s^7$ $p = s^2 - s^3 + s^6 - s^7$

682 . Coloring, {2, 4, 6, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, C, B, C, 4, 9]
B: [6, 7, 8, 6, 3, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, 0, y_5, y_1, 0, 0, y_6, y_5, y_4, y_5, y_3, y_2]$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$[y_{10}, y_9, y_8, 0, y_7, y_6, y_5, y_4, 0, y_3, y_2, y_1]$

683 . Coloring, {2, 4, 7, 8, 9}

R: [7, 8, 7, 7, A, A, A, B, C, C, 1, 5]
B: [6, 7, 8, 6, 3, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$[y_4, 0, 0, 0, y_2, 0, y_3, y_1, 0, y_5, y_6, y_7]$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_1, y_2, y_5, 0, y_6, y_7, y_8, y_9, 0, y_3, y_4]$$

684 . Coloring, {2, 4, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, A, B, B, 2, 1, 5]
B: [6, 7, 8, 6, 3, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_4, y_5, 0, 0, y_3, 0, y_1, y_2, 0, y_6, y_7, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8]$$

685 . Coloring, {2, 4, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, A, B, B, C, 4, 5]
B: [6, 7, 8, 6, 3, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, y_1, 0, y_2, y_3, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_4, y_3, y_2, 0, 0, y_1, y_9, y_8, y_7, 0, y_6, y_5]$$

686 . Coloring, {2, 4, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, A, B, B, C, 1, 9]
B: [6, 7, 8, 6, 3, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_8, y_9, y_7, y_5, y_6, y_4, y_3, 0, 0, y_1, y_2]$$

687 . Coloring, {2, 4, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, A, C, C, 2, 1, 5]
B: [6, 7, 8, 6, 3, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	8 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, 0, 0, y_3, 0, y_4, y_5, 0, y_6, 0, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_7, y_1, 0, y_2, y_3, y_4, y_5, 0, y_6, 2\, y_3]$$

$p = -s^3 + s^8$

688 . Coloring, {2, 4, 7, 9, 11}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, A, C, C, C, 4, 5]
B: [6, 7, 8, 6, 3, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\, y_2, y_1, 0, y_4, y_2, 0, y_3, 0, y_5]$$

$p = s^3 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_5, y_6, 0, 0, y_2, y_3, y_4, y_5, 0, y_7, 0]$$

$p = -s^3 + s^8$

689 . Coloring, {2, 4, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, A, C, C, C, 1, 9]
B: [6, 7, 8, 6, 3, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$[2\ y_2, 0, 0, 0, 0, 0, y_1, y_2, y_5, y_4, 0, y_3]$

$p = s^4 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$[0, y_7, y_5, y_6, y_7, y_4, y_2, y_3, 0, 0, y_1, 0]$

$p = s^3 - s^8$

690 . Coloring, {2, 4, 7, 10, 11}

R: [7, 8, 7, 7, A, A, A, C, B, 2, 4, 5]
B: [6, 7, 8, 6, 3, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$[0, y_1, 0, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[-5\,y_1 - 5\,y_2 - 5\,y_3 - 5\,y_7 + 11\,y_6 - 5\,y_4 + 11\,y_5, 0, 5\,y_1, 0, 0, 5\,y_2, 5\,y_3, 5\,y_7, 5\,y_6, 0, 5\,y_4, 5\,y_5]$$

$$p = -s^2 - s^3 + s^7 + s^8$$

691 . Coloring, {2, 4, 7, 10, 12}

R: [7, 8, 7, 7, A, A, A, C, B, 2, 1, 9]
B: [6, 7, 8, 6, 3, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, 0, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_7, y_5, 0, 0, y_6, 3\,y_7]$$

$$p = -s^3 + s^8$$

692 . Coloring, {2, 4, 7, 11, 12}

R: [7, 8, 7, 7, A, A, A, C, B, C, 4, 9]
B: [6, 7, 8, 6, 3, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, 0, 0, y_1, y_2, y_6, y_4, y_5, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 2\,y_7, y_2, 0, y_3, y_4, 2\,y_3 - 3\,y_7, y_5, 0, 0, y_6, y_7]$$

$p' = -s^3 + s^8$ $p = -s^3 + s^8$

693 . Coloring, {2, 4, 8, 9, 10}

R: [7, 8, 7, 7, A, A, B, B, C, 2, 1, 5]
B: [6, 7, 8, 6, 3, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_8, 0, y_6, y_7, 0, y_3, y_4, y_5]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

694 . Coloring, {2, 4, 8, 9, 11}

R: [7, 8, 7, 7, A, A, B, B, C, C, 4, 5]
B: [6, 7, 8, 6, 3, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_1, 2\,y_2, 0, 7\,y_1 - 27\,y_2 - 2\,y_3 + 16\,y_4, 2\,y_3, 0, 3\,y_1 - 7\,y_2 + 4\,y_4, 2\,y_4, 4\,y_1 - 16\,y_2 + 10\,y_4]$$

$p' = -s^2 + s^5$ $p = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}, {2, 7, 10}}

See Matrix

$$[11\,y_9 - 5\,y_8 - 5\,y_6 + 11\,y_7 - 5\,y_5 - 5\,y_4 + 11\,y_3 - 5\,y_2 - 5\,y_1, 5\,y_9, 5\,y_8, 0, 0, 5\,y_6, 5\,y_7, 5\,y_5, 5\,y_4, 5\,y_3, 5\,y_2, 5\,y_1]$$

$p = -s - s^2 - s^3 + s^8 + s^9 + s^{10}$

695 . Coloring, {2, 4, 8, 9, 12}

R: [7, 8, 7, 7, A, A, B, B, C, C, 1, 9]
B: [6, 7, 8, 6, 3, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[7\,y_5, 0, 0, 0, 0, 0, 7\,y_4, 7\,y_3, 7\,y_2, 14\,y_3, -7\,y_5 - 7\,y_4 + 11\,y_3 + 9\,y_2 + 9\,y_1, 7\,y_1]$$

$p = s^2 + s^3 - s^5 - s^6$ $p = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[0, 5\,y_1, 11\,y_1 - 5\,y_9 - 5\,y_5 - 5\,y_6 + 11\,y_7 - 5\,y_8 + 11\,y_2 - 5\,y_3 - 5\,y_4, 5\,y_9, 5\,y_5, 5\,y_6, 5\,y_7, 5\,y_8, 0, 5\,y_2, 5\,y_3, 5\,y_4]$$

$p = -s^4 - s^5 - s^6 + s^8 + s^9 + s^{10}$

696 . Coloring, {2, 4, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, B, B, B, 2, 4, 5]
B: [6, 7, 8, 6, 3, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, y_1, 0, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, 0]$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$[2\,y_5, 0, y_6, 0, 0, -2\,y_5 + 2\,y_2, y_5, y_4, y_3, y_2, 0, y_1]$

$p' = s^5 - s^7$ $p = s^5 - s^7$

697 . Coloring, {2, 4, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, B, B, B, 2, 1, 9]
B: [6, 7, 8, 6, 3, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, y_2, 0, 0, 0, 0, y_5, y_6, y_4, y_4, y_3, 0]$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_6, 2\,y_4, y_5, -2\,y_4 + 2\,y_2, y_4, y_3, 0, y_2, 0, y_1]$$

$p' = -s^3 + s^7 \quad p = -s^3 + s^7$

698 . Coloring, {2, 4, 8, 11, 12}

$\Omega p(\Delta)=0: \quad p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, B, B, B, C, 4, 9]
B: [6, 7, 8, 6, 3, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, 0, y_6, y_4, y_5, 2\,y_4, y_2, y_3]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[5\,y_2, 5\,y_1, -5\,y_2 + 11\,y_1 - 5\,y_5 - 5\,y_6 + 11\,y_7 - 5\,y_8 + 11\,y_3 - 5\,y_4, 0, 5\,y_5, 5\,y_6, 5\,y_7, 5\,y_8, 0, 5\,y_3, 0, 5\,y_4]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

699 . Coloring, {2, 4, 9, 10, 11}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, B, C, C, 2, 4, 5]
B: [6, 7, 8, 6, 3, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {4, 7, 11}}

See Matrix

$$[0, 9\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4 - 7\,y_5 + 9\,y_6 - 7\,y_7, 0, 7\,y_1, 7\,y_2, 0, 7\,y_3, 7\,y_4, 0, 7\,y_5, 7\,y_6, 7\,y_7]$$

$$p = s + s^2 + s^3 - s^6 - s^7 - s^8$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_5, y_6, y_4, y_3, y_7, y_8, y_9]$$

700 . Coloring, {2, 4, 9, 10, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, B, C, C, 2, 1, 9]
B: [6, 7, 8, 6, 3, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[7\,y_7, 7\,y_6, 0, 0, 0, 0, 7\,y_5, 7\,y_4, 7\,y_2, 7\,y_3, 7\,y_1, 9\,y_7 - 7\,y_6 + 9\,y_5 - 7\,y_4 - 7\,y_2 - 7\,y_3 + 9\,y_1]$$

$$p = -s^4 - s^5 + s^7 + s^8$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

701 . Coloring, {2, 4, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, B, C, C, C, 4, 9]
B: [6, 7, 8, 6, 3, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, 7\,y_5, 0, 0, 7\,y_4, 7\,y_3, 7\,y_2, 14\,y_3, 7\,y_1, 9\,y_5 + 9\,y_4 - 21\,y_3 - 7\,y_2 + 9\,y_1]$$

$p = s^2 - s^4 - s^5 + s^7$ $p = -s^2 - s^3 + s^5 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[5\,y_8, 5\,y_7, 5\,y_6, 0, 5\,y_5, 5\,y_4, 5\,y_3, 5\,y_2, 0, 5\,y_1, -5\,y_8 + 11\,y_7 - 5\,y_6 - 5\,y_5 - 5\,y_4 + 11\,y_3 - 5\,y_2 + 11\,y_1, 0\,]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

702 . Coloring, {2, 4, 10, 11, 12}

R: [7, 8, 7, 7, A, A, B, C, B, 2, 4, 9]
B: [6, 7, 8, 6, 3, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_1, 0, 0, y_8, y_7, y_6, y_5, y_4, y_3]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

703 . Coloring, {2, 5, 6, 7, 8}

R: [7, 8, 7, 6, 3, 3, A, B, B, C, 1, 5]
B: [6, 7, 8, 7, A, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_3, 0, y_2, 0, y_1, y_8, y_7, y_8, 0, y_6, y_5, y_4]$$

$p = s^4 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, -5\,y_1 + 6\,y_6 - 5\,y_7 + 11\,y_5 - 5\,y_2 - 5\,y_3 + 11\,y_4, 0, 5\,y_1, 0, 5\,y_6, 5\,y_7, 5\,y_6, 5\,y_5, 5\,y_2, 5\,y_3, 5\,y_4]$$

$p = s^4 - s^6 - s^7 + s^9$ $p = -s^4 - s^5 + s^7 + s^8$

704 . Coloring, {2, 5, 6, 7, 9}

R: [7, 8, 7, 6, 3, 3, A, C, C, C, 1, 5]
B: [6, 7, 8, 7, A, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[2\,y_3, 0, y_4, 0, y_5, y_3, y_2, y_3, 0, y_1, 0, y_6]$$

$p = s^2 - s^7$ $p' = s^2 - s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_6, 0, y_5, 0, y_4, y_3, y_4, 2\,y_4, y_2, y_1, 0]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

705 . Coloring, {2, 5, 6, 7, 10}

$\Omega p(\Delta)=0$: $p = -s + s^2 + s^4 - 4s^5 + 8s^7 - 16s^8$

R: [7, 8, 7, 6, 3, 3, A, C, B, 2, 1, 5]
B: [6, 7, 8, 7, A, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	5 *vs* 8

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_4, y_1, y_2, 0, y_3, y_8, y_5, y_6, 0, y_7, y_8, y_9]$$

$p = -s^3 + s^{10}$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_4, -y_1 - y_4 + 2\,y_5 + 2\,y_3 - y_2, y_4, y_5, y_3, y_2, -y_4 + y_5 + y_3]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$ $p' = -s^4 + s^7$

706 . Coloring, {2, 5, 6, 7, 11}

R: [7, 8, 7, 6, 3, 3, A, C, B, C, 4, 5]
B: [6, 7, 8, 7, A, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_3, y_2, y_4, y_5, y_7, 0, y_8, y_7, y_6]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[-3\,y_2 - 3\,y_3 + 8\,y_4 - 3\,y_5 + 5\,y_7, -3\,y_1 + 5\,y_4 - 3\,y_6 + 8\,y_7, 0, 0, 0, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = s^2 - s^8$

707 . Coloring, {2, 5, 6, 7, 12}

R: [7, 8, 7, 6, 3, 3, A, C, B, C, 1, 9]
B: [6, 7, 8, 7, A, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_3, 0, y_4, 0, 0, y_6, y_5, y_6, y_7, y_8, y_1, y_2]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_6, 0, y_5, y_4, y_7, y_3, y_7, 0, y_2, y_1, y_7]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

708 . Coloring, {2, 5, 6, 8, 9}

R: [7, 8, 7, 6, 3, 3, B, B, C, C, 1, 5]
B: [6, 7, 8, 7, A, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_3, 0, y_1, 0, y_2, y_5, y_4, y_5, 0, 0, y_6, 3\, y_5]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_6, 0, y_5, 0, y_3, y_4, y_3, y_1, y_2, y_8, y_7]$$

$p = -s^6 + s^9$

709 . Coloring, {2, 5, 6, 8, 10}

R: [7, 8, 7, 6, 3, 3, B, B, B, 2, 1, 5]
B: [6, 7, 8, 7, A, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_5, 4\, y_4 - 6\, y_2, y_4, 0, 4\, y_4 - 6\, y_2, 2\, y_4 - 3\, y_2, y_3, y_2, 0, 0, y_1, 0]$$

$p' = s^4 - s^7$ $p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, 2\,y_2, 0, y_2, y_1, y_2, y_5, y_4, 0, y_3]$$

$p' = s^4 - s^6$ $p = s^4 - s^6$

710 . Coloring, {2, 5, 6, 8, 11}

R: [7, 8, 7, 6, 3, 3, B, B, B, C, 4, 5]
B: [6, 7, 8, 7, A, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_5, y_4, y_1, y_2, y_3, y_6, 0, 0, y_7, 2\,y_6]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[10\,y_1 + 10\,y_3 + 10\,y_4 - 22\,y_5 + 10\,y_2 - 22\,y_6, y_1, 0, 0, 0, y_3, y_4, 5\,y_1 + 5\,y_3 + 5\,y_4 - 11\,y_5 + 5\,y_2 - 11\,y_6, y_5, y_2, 0, y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

711 . Coloring, {2, 5, 6, 8, 12}

R: [7, 8, 7, 6, 3, 3, B, B, B, C, 1, 9]
B: [6, 7, 8, 7, A, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_2, 0, y_1, 0, 0, y_4, y_3, y_4, 2\,y_1 - 2\,y_4, 0, y_5, 2\,y_4]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_6, 0, 2\,y_3, y_5, y_3, y_4, y_3, 0, y_2, 0, y_1]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

712 . Coloring, {2, 5, 6, 9, 10}

R: [7, 8, 7, 6, 3, 3, B, C, C, 2, 1, 5]
B: [6, 7, 8, 7, A, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_5, y_7, 0, y_6, y_5, y_4, y_3, 0, 0, y_2, y_8]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, 0, y_5, y_1, y_5, y_3, y_4, y_7, y_6]$$

$p = -s^2 + s^8$

713 . Coloring, {2, 5, 6, 9, 11}

R: [7, 8, 7, 6, 3, 3, B, C, C, C, 4, 5]
B: [6, 7, 8, 7, A, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, 0, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6, y_5, 0, 0, 0, y_4, y_3, y_2, 2\, y_2, y_1, y_7, 0]$$

$p = s^5 - s^8$

714 . Coloring, {2, 5, 6, 9, 12}

R: [7, 8, 7, 6, 3, 3, B, C, C, C, 1, 9]
B: [6, 7, 8, 7, A, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[2\, y_2, 0, 2\, y_1, 0, 0, 7\, y_2 + 7\, y_1 + 7\, y_3 - 9\, y_4 + 7\, y_5 - 9\, y_6, 2\, y_3, 7\, y_2 + 7\, y_1 + 7\, y_3 - 9\, y_4 + 7\, y_5 - 9\, y_6, 2\, y_4, 0, 2\, y_5, 2\, y_6]$$

$p = -s^3 - s^4 + s^6 + s^7 \quad p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 2\,y_4, y_4, y_3, y_4, 0, y_6, y_5, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

715 . Coloring, {2, 5, 6, 10, 11}

R: [7, 8, 7, 6, 3, 3, B, C, B, 2, 4, 5]
B: [6, 7, 8, 7, A, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_9, y_8, y_7, y_6, y_5, y_4, y_3, 0, 0, y_2, y_1]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, 0, y_6, 2\,y_5, y_5, y_4, y_3, y_2, y_1]$$

$p = s^6 - s^8$

716 . Coloring, {2, 5, 6, 10, 12}

R: [7, 8, 7, 6, 3, 3, B, C, B, 2, 1, 9]
B: [6, 7, 8, 7, A, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_3, y_2, 0, 0, y_3, y_4, 2\,y_2 - 3\,y_3, y_5, 0, y_7, y_6]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, y_1, y_3, y_4, y_3, 0, y_7, y_6, y_5]$$

$p = -s^5 + s^8$

717 . Coloring, {2, 5, 6, 11, 12}

R: [7, 8, 7, 6, 3, 3, B, C, B, C, 4, 9]
B: [6, 7, 8, 7, A, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_4, y_5, 0, y_3, y_6, y_1, y_2, 0, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_7 + y_6, y_3, y_4, y_7, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

718 . Coloring, {2, 5, 7, 8, 9}

R: [7, 8, 7, 6, 3, A, A, B, C, C, 1, 5]
B: [6, 7, 8, 7, A, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, y_3, y_5, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_6, y_5, y_4, 0, y_6 - y_5, y_3, y_2, y_1, y_6 - y_5, y_8, y_7]$$

$p' = s^6 - s^9$ $p = s^6 - s^9$

719 . Coloring, {2, 5, 7, 8, 10}

R: [7, 8, 7, 6, 3, A, A, B, B, 2, 1, 5]
B: [6, 7, 8, 7, A, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	4 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_8, y_7, y_6, 0, 2\,y_5, y_5, y_4, y_3, 0, y_2, y_1, 0]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 5\,y_3 - 2\,y_4, 2\,y_3, 0, 2\,y_2, 2\,y_3, 5\,y_3 - 2\,y_1 - 4\,y_2, 2\,y_1, 2\,y_2, 2\,y_3, 2\,y_4]$$

$p = -s^4 + s^7$ $p = -s^4 + s^9$ $p = -s^4 + s^8$ $p = -s^4 + s^5$ $p = -s^4 + s^6$

720 . Coloring, {2, 5, 7, 8, 11}

R: [7, 8, 7, 6, 3, A, A, B, B, C, 4, 5]
B: [6, 7, 8, 7, A, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_9, y_8, y_7, y_6, y_5, y_4, 0, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{9, 12}} order: 10

See Matrix

$$[y_2 - y_1 + y_3 - y_4 + y_5 + y_6 - y_7 + y_8 - y_9, y_2, y_1, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

$p = - s^9 + s^{10}$

721 . Coloring, {2, 5, 7, 8, 12}

R: [7, 8, 7, 6, 3, A, A, B, B, C, 1, 9]
B: [6, 7, 8, 7, A, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, y_3, y_2, y_3, y_4, y_5, y_7, y_6]$$

$p' = - s^2 + s^8$ $p = - s^2 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, y_{10}, y_9, y_7, y_8, 0, y_6, y_5, y_4]$$

722 . Coloring, {2, 5, 7, 9, 10}

R: [7, 8, 7, 6, 3, A, A, C, C, 2, 1, 5]
B: [6, 7, 8, 7, A, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[2\ y_7, y_2, y_1, 0, y_8, y_7, y_6, y_5, 0, y_4, 0, y_3]$$

$p = -s^2 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_6, y_4, 0, y_5, y_2, -y_6 + y_3, y_3, y_5, y_1, y_6 + y_5]$$

$p' = -s^5 + s^8$ $p = -s^4 + s^7$ $p' = -s^4 + s^7$

723 . Coloring, {2, 5, 7, 9, 11}

R: [7, 8, 7, 6, 3, A, A, C, C, C, 4, 5]
B: [6, 7, 8, 7, A, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_3, 2\ y_5, y_1, y_2, y_6, y_5, 0, y_4, 0, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, 2\,y_7, y_7, y_8, 0]$$

$p = -s^4 + s^9$

724 . Coloring, {2, 5, 7, 9, 12}

R: [7, 8, 7, 6, 3, A, A, C, C, C, 1, 9]
B: [6, 7, 8, 7, A, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_4, 0, y_4, 0, 0, y_4, y_3, y_4, y_2, y_1, 0, y_5]$$

$p = s^4 - s^8$ $p' = s^5 - s^7$ $p' = s^4 - s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1 - y_5 + 2\,y_4, y_1, y_2, 4\,y_1 - 2\,y_5, 2\,y_1 - y_5, y_3, y_4, 0, y_5, y_6, 0]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

725 . Coloring, {2, 5, 7, 10, 11}

R: [7, 8, 7, 6, 3, A, A, C, B, 2, 4, 5]
B: [6, 7, 8, 7, A, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_6, y_7, y_5, 0, y_8, y_9, y_{10}]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[3\,y_2, 0, 3\,y_1, 0, 0, -3\,y_2 - 3\,y_1 - 3\,y_6 + 10\,y_5 - 3\,y_3 + 4\,y_4, 6\,y_4, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_5 + 3\,y_4]$$

$p = -s^2 + s^7$ $p' = s^3 - s^8$ $p' = s^2 - s^7$

726 . Coloring, {2, 5, 7, 10, 12}

R: [7, 8, 7, 6, 3, A, A, C, B, 2, 1, 9]
B: [6, 7, 8, 7, A, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, y_7, 0, 0, y_7, y_3, y_4, y_5, y_6, y_8, y_9]$$

$p = -s^2 + s^{10}$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_5, -2\,y_6 - 2\,y_5 + 5\,y_4 + 5\,y_2 - 4\,y_1, y_4, y_3, 4\,y_6 + 4\,y_5 - 6\,y_4 - 6\,y_2 + 5\,y_1 - y_3, 0, 5\,y_6 + 5\,y_5 - 8\,y_4 - 8\,y_2 + 6\,y_1, y_2, y_1]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

727 . Coloring, {2, 5, 7, 11, 12}

R: [7, 8, 7, 6, 3, A, A, C, B, C, 4, 9]
B: [6, 7, 8, 7, A, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_1, 0, y_2, y_3, y_4, y_7, y_5, y_6, y_8]$$

$p = s^3 - s^9$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 10

See Matrix

$$[y_9, y_{10}, y_8, 0, y_7, y_6, y_4, y_5, 0, y_2, y_3, y_1]$$

728 . Coloring, {2, 5, 8, 9, 10}

R: [7, 8, 7, 6, 3, A, B, B, C, 2, 1, 5]
B: [6, 7, 8, 7, A, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, y_6, y_5, 0, -y_6 + y_5 + 3\,y_4, y_4, y_3, y_2, 0, -y_6 + y_5 + 2\,y_4, y_1, y_4]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$ $p' = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_9, y_8, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

729 . Coloring, {2, 5, 8, 9, 11}

R: [7, 8, 7, 6, 3, A, B, B, C, C, 4, 5]
B: [6, 7, 8, 7, A, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1 + y_2 - y_3 + y_4 + y_5 + y_6 - y_7 - y_8, y_1, y_2, y_3, y_4, y_5, 0, y_6, y_7, y_8]$$

$$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}, {2, 7, 10}}

See Matrix

$$[9 y_1 - 7 y_2 - 7 y_3 + 9 y_4 - 7 y_5 - 7 y_6 + 9 y_7 - 7 y_8 - 7 y_9, 7 y_1, 7 y_2, 0, 0, 7 y_3, 7 y_4, 7 y_5, 7 y_6, 7 y_7, 7 y_8, 7 y_9]$$

$$p = -s - s^2 - s^3 + s^8 + s^9 + s^{10}$$

730 . Coloring, {2, 5, 8, 9, 12}

R: [7, 8, 7, 6, 3, A, B, B, C, C, 1, 9]
B: [6, 7, 8, 7, A, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3 y_4 + 3 y_1, 0, 3 y_4, 0, 0, 3 y_4, -3 y_4 + 3 y_1, 3 y_4, 3 y_2, 3 y_3, 3 y_1, -3 y_4 + 7 y_1 - 3 y_2 - 3 y_3]$$

$$p = s^3 - s^7 \quad p' = s^3 - s^5 \quad p' = s^4 - s^6 \quad p' = -s^5 + s^7 \quad p' = -s^6 + s^8$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_5, y_6 - y_7, y_6, y_1, y_7, y_2, y_3, 0, y_4, y_7, y_8]$$

$p = -s^6 + s^9$ $p' = -s^6 + s^9$

731 . Coloring, {2, 5, 8, 10, 11}

R: [7, 8, 7, 6, 3, A, B, B, B, 2, 4, 5]
B: [6, 7, 8, 7, A, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, -y_3 + y_1 + y_2 - y_4 + y_5 + y_6 + y_7 - y_8, y_1, y_2, y_4, y_5, y_6, 0, y_7, y_8, 0]$$

$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, 0, -y_2 + y_5, y_2, y_3, y_4, y_5, 0, y_6]$$

$p = s^5 - s^7$ $p' = s^5 - s^7$

732 . Coloring, {2, 5, 8, 10, 12}

R: [7, 8, 7, 6, 3, A, B, B, B, 2, 1, 9]
B: [6, 7, 8, 7, A, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, y_7, y_5, 0, 0, y_5, y_3, y_4, 2\,y_5, y_1, y_2, 0]$$

$p' = -s^5 + s^8$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_6, y_2, y_6, 2\,y_1, y_3, 0, y_4, 0, y_5]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

733 . Coloring, {2, 5, 8, 11, 12}

R: [7, 8, 7, 6, 3, A, B, B, B, C, 4, 9]
B: [6, 7, 8, 7, A, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_1 - y_2 - y_4 - y_7 + y_5 + y_6, 0, y_1, y_2, y_3, y_4, y_7, y_5, y_6]$$

$p' = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = s^3 - s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_8, 0, y_7, 0, y_9]$$

734 . Coloring, {2, 5, 9, 10, 11}

R: [7, 8, 7, 6, 3, A, B, C, C, 2, 4, 5]
B: [6, 7, 8, 7, A, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{2, 3, 4, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[0, -y_1 + y_2 + y_3 - y_4 + y_5 + y_6 + y_7 - y_8 - y_9, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

$$p = - s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_4, y_5, y_6, y_7, y_8, y_3, y_9]$$

735 . Coloring, {2, 5, 9, 10, 12}

R: [7, 8, 7, 6, 3, A, B, C, C, 2, 1, 9]
B: [6, 7, 8, 7, A, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[2 y_4, 2 y_3, -9 y_4 + 7 y_3 - 9 y_2 + 7 y_1 + 7 y_8 + 7 y_7 - 9 y_6 + 7 y_5, 0, 0, -9 y_4 + 7 y_3 - 9 y_2 + 7 y_1 + 7 y_8 + 7 y_7 - 9 y_6 + 7 y_5, 2 y_2, 2 y_1, 2 y_8, 2 y_7, 2 y_6, 2 y_5]$$

$$p = s^5 - s^7 - s^8 + s^{10} \quad p = - s^5 - s^6 + s^8 + s^9$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_1, y_6, y_7, y_8, y_5, y_4, 0, y_2, y_3, y_9]$$

736 . Coloring, {2, 5, 9, 11, 12}

R: [7, 8, 7, 6, 3, A, B, C, C, C, 4, 9]
B: [6, 7, 8, 7, A, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_7, y_6, 0, y_5, y_4, y_7, y_3, y_2, y_1, y_6 - y_5 + y_4 + y_3 + y_2 - y_1]$$

$p' = s^7 - s^8$ $p = s^7 - s^9$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[7\,y_8, 7\,y_6, 7\,y_7, 0, 7\,y_3, 7\,y_4, 7\,y_5, 7\,y_2, 0, 9\,y_8 - 7\,y_6 + 9\,y_7 - 7\,y_3 + 9\,y_4 - 7\,y_5 + 9\,y_2 + 9\,y_1, 7\,y_1, 0]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

737 . Coloring, {2, 5, 10, 11, 12}

R: [7, 8, 7, 6, 3, A, B, C, B, 2, 4, 9]
B: [6, 7, 8, 7, A, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_6, y_5, y_4, 0, y_3, y_2, y_1, y_6 + y_5 - y_4 + y_3 - y_2 - y_1 - y_9 + y_8 + y_7, y_9, y_8, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 8, 11}}

See Matrix

$$[3\,y_1,\ 0,\ 3\,y_2,\ 0,\ 5\,y_1 + 5\,y_2 + 5\,y_3 - 3\,y_4 + 5\,y_5 - 3\,y_6 + 5\,y_7 - 3\,y_8,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 0,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

738 . Coloring, {2, 6, 7, 8, 9}

R: [7, 8, 7, 6, A, 3, A, B, C, C, 1, 5]
B: [6, 7, 8, 7, 3, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1,\ 0,\ y_6,\ 0,\ y_4,\ y_3,\ y_2,\ y_3,\ 0,\ y_5,\ y_6,\ y_7]$$

$$p = -s^5 + s^8 \quad p' = -s^5 + s^8$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_2 + y_7,\ y_2,\ y_1,\ 0,\ y_2,\ y_3,\ y_5,\ y_4,\ y_5,\ y_6,\ y_7]$$

$$p = -s^5 + s^8 \quad p' = -s^5 + s^8 \quad p' = -s^6 + s^9$$

739 . Coloring, {2, 6, 7, 8, 10}

R: [7, 8, 7, 6, A, 3, A, B, B, 2, 1, 5]
B: [6, 7, 8, 7, 3, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	4 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_8, 0, 2\,y_6, y_6, y_5, y_7, 0, y_3, y_4, 0]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_2, 0, y_3, y_2, y_1, -2\,y_3 + 5\,y_2 - 2\,y_1 - y_4, y_1, y_2, y_4]$$

$p' = s^5 - s^7$ $p' = s^4 - s^8$ $p' = s^3 - s^7$ $p = s^3 - s^9$ $p' = s^6 - s^8$

740 . Coloring, {2, 6, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = s + s^2 - 2s^3 + 3s^4 + 8s^5 - 8s^7 - 16s^8$

R: [7, 8, 7, 6, A, 3, A, B, B, C, 4, 5]
B: [6, 7, 8, 7, 3, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_9, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_7, 3\,y_6, 3\,y_5, 0, 0, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_1, -3\,y_7 - 3\,y_3 + 5\,y_2 + 5\,y_1, -3\,y_6 - 3\,y_4 + 5\,y_2 + 5\,y_1, -3\,y_5 + 3\,y_2 + 3\,y_1]$$

$p' = -s^3 + s^9$ $p = -s^3 + s^9$ $p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

741 . Coloring, {2, 6, 7, 8, 12}

R: [7, 8, 7, 6, A, 3, A, B, B, C, 1, 9]
B: [6, 7, 8, 7, 3, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_7, 0, 0, y_8, y_6, y_8, y_3, y_2, y_4, y_5]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, -3\,y_2 + 10\,y_1 - 3\,y_7 - 3\,y_3 + 10\,y_4 - 3\,y_5 - 3\,y_6, 3\,y_1 + 3\,y_4 - 3\,y_8, 3\,y_2, 3\,y_1, 3\,y_7, 3\,y_3, 3\,y_4, 0, 3\,y_5, 3\,y_6, 3\,y_8]$$

$p = s^4 + s^6 - s^7 - s^9$ $p' = -s^4 - s^6 + s^7 + s^9$

742 . Coloring, {2, 6, 7, 9, 10}

R: [7, 8, 7, 6, A, 3, A, C, C, 2, 1, 5]
B: [6, 7, 8, 7, 3, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[2\,y_4, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, 0, y_8]$$

$p = s^4 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_2, y_1, 0, y_2, y_3, y_5, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8 \quad p' = s^5 - s^8$

743 . Coloring, {2, 6, 7, 9, 11}

$\Omega p(\Delta)=0: \quad p = s + s^2 - 2s^3 - 3s^4 - 4s^5 + 8s^6 + 8s^7 + 16s^8$

R: [7, 8, 7, 6, A, 3, A, C, C, C, 4, 5]
B: [6, 7, 8, 7, 3, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, y_7, 2\,y_3, y_6, y_4, y_5, y_3, 0, y_2, 0, y_1]$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$[y_1 - y_2 + y_3 - y_4 - y_5 - y_6 + y_7, y_1, y_2, 0, 0, y_3, y_4, y_5, 2\,y_2, y_6, y_7, 0]$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8 \quad p = -s^3 + s^9$

744 . Coloring, {2, 6, 7, 9, 12}

R: [7, 8, 7, 6, A, 3, A, C, C, C, 1, 9]
B: [6, 7, 8, 7, 3, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_4, 0, y_2, 0, 0, y_4, y_3, y_4, y_5, y_6, 0, y_1]$$

$p = -s^5 + s^7$ $p' = -s^5 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, -y_3 + 2\,y_5, y_2, 2\,y_3, y_3, y_4, 2\,y_1 - 2\,y_3 - y_5, 0, y_5, y_6, 0]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

745 . Coloring, {2, 6, 7, 10, 11}

R: [7, 8, 7, 6, A, 3, A, C, B, 2, 4, 5]
B: [6, 7, 8, 7, 3, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 10

See Matrix

$$[0, y_7, y_6, y_5, y_4, y_3, y_2, y_1, 0, y_{10}, y_9, y_8]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[-y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, 0, y_2, 2\,y_1, y_3, y_4, y_5, y_6, y_7]$$

$p = s^7 - s^8$ $p' = -s^7 + s^8$

746 . Coloring, {2, 6, 7, 10, 12}

R: [7, 8, 7, 6, A, 3, A, C, B, 2, 1, 9]
B: [6, 7, 8, 7, 3, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_7, y_6, y_5, 0, 0, y_4, y_3, y_2, y_1, y_{10}, y_9, y_8]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, 0, y_7, y_8, y_9, y_4, y_5, y_6, 0, y_2, y_3, y_1]$$

747 . Coloring, {2, 6, 7, 11, 12}

R: [7, 8, 7, 6, A, 3, A, C, B, C, 4, 9]
B: [6, 7, 8, 7, 3, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_6 + y_5 - y_7 + y_1 - y_2 - y_3 - y_4 + y_9 + y_8, y_6, y_5, 0, y_7, y_1, y_2, y_3, 0, y_4, y_9, y_8]$$

$$p = -s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$$

748 . Coloring, {2, 6, 8, 9, 10}

R: [7, 8, 7, 6, A, 3, B, B, C, 2, 1, 5]
B: [6, 7, 8, 7, 3, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3 - y_8, 0, y_3, y_8, y_4, y_5, 0, y_6, y_7, y_8]$$

$p' = -s^6 + s^9$ $p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_1 + y_5 - y_6 - y_7 - y_4 + y_3 + y_2, 0, y_1, y_5, y_6, y_7, y_4, y_3, y_2]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = -s^3 + s^9$

749 . Coloring, {2, 6, 8, 9, 11}

R: [7, 8, 7, 6, A, 3, B, B, C, C, 4, 5]
B: [6, 7, 8, 7, 3, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -3\,y_6 + 5\,y_5 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 5\,y_1 - 3\,y_7 + 5\,y_8, 3\,y_6, 3\,y_5, 3\,y_2, 3\,y_3, 3\,y_4, 0, 3\,y_1, 3\,y_7, 3\,y_8]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_2, y_1, y_4, 0, 0, y_3, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

750 . Coloring, {2, 6, 8, 9, 12}

R: [7, 8, 7, 6, A, 3, B, B, C, C, 1, 9]
B: [6, 7, 8, 7, 3, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 - 6\,y_3 - 3\,y_2 - 3\,y_4 + 10\,y_5,\ 0,\ 3\,y_1,\ 0,\ 0,\ 3\,y_3,\ 3\,y_2,\ 3\,y_3,\ -3\,y_3 + 3\,y_5,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0,\ 11\,y_1 - 5\,y_2 + 11\,y_3 - 10\,y_5 - 5\,y_7 + 11\,y_8 - 5\,y_4 + 11\,y_6,\ 5\,y_1,\ 5\,y_2,\ 5\,y_3,\ 5\,y_5,\ 5\,y_7,\ 5\,y_8,\ 0,\ 5\,y_4,\ 5\,y_5,\ 5\,y_6]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$ $p = s^3 - s^6 - s^7 + s^{10}$

751 . Coloring, {2, 6, 8, 10, 11}

R: [7, 8, 7, 6, A, 3, B, B, B, 2, 4, 5]
B: [6, 7, 8, 7, 3, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0,\ y_9,\ y_8,\ y_7,\ y_6,\ y_5,\ y_4,\ y_3,\ 0,\ y_2,\ y_1,\ 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[-2\,y_1 + 4\,y_2 + 4\,y_4 - 4\,y_3,\ 0,\ -y_1 + 2\,y_2 + 2\,y_4 - 2\,y_3,\ 0,\ 0,\ y_1,\ -2\,y_1 + 4\,y_2 + 4\,y_4 - 4\,y_3,\ y_2 + y_4 - y_3,\ y_2,\ y_4,\ 0,\ y_3]$$

$p' = -s^4 + s^7$ $p' = -s^4 + s^6$ $p' = -s^4 + s^5$ $p = s^4 - s^5$

752 . Coloring, {2, 6, 8, 10, 12}

R: [7, 8, 7, 6, A, 3, B, B, B, 2, 1, 9]
B: [6, 7, 8, 7, 3, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6,\ y_5,\ y_4,\ 0,\ 0,\ y_5 - y_4,\ y_3,\ y_2,\ 2\,y_5 - 2\,y_4,\ y_5 - y_4,\ y_1,\ 0]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0,\ 0,\ y_2,\ 2\,y_4,\ y_3,\ y_4,\ -y_2 + y_3 + y_4,\ y_3 + 2\,y_4 - y_1,\ 0,\ y_1,\ 0,\ y_3 + 2\,y_4]$$

$p = -s^4 + s^7$ $p = -s^4 + s^8$ $p = -s^4 + s^5$ $p = -s^4 + s^6$

753 . Coloring, {2, 6, 8, 11, 12}

R: [7, 8, 7, 6, A, 3, B, B, B, C, 4, 9]
B: [6, 7, 8, 7, 3, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_7, y_5, y_7, y_6, y_8]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[3\,y_7, 3\,y_6, 3\,y_5, 0, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_1, 0, -3\,y_7 - 3\,y_6 + 10\,y_4 - 3\,y_3 - 3\,y_2 + 10\,y_1, 0, -3\,y_5 + 3\,y_4 + 3\,y_1]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$ $p = -s^3 - s^5 + s^6 + s^8$

754 . Coloring, {2, 6, 9, 10, 11}

R: [7, 8, 7, 6, A, 3, B, C, C, 2, 4, 5]
B: [6, 7, 8, 7, 3, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_2 - y_4 + y_3, -y_5 + y_1 + y_3, y_2 - y_1 + y_5, y_2 + y_5 - y_4, y_2, y_1 - y_4 + y_3, y_1, 0, y_4, y_5, y_3]$$

$p' = -s^2 + s^7$ $p' = -s^4 + s^9$ $p = -s + s^6$ $p' = -s + s^6$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[3\,y_1 + y_7 - y_6 - y_5 - y_4 + y_3 + y_2, 0, y_1, 0, 0, y_7, 2\,y_1, y_6, y_5, y_4, y_3, y_2]$$

$p = -s^3 + s^9$ $p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

755 . Coloring, {2, 6, 9, 10, 12}

R: [7, 8, 7, 6, A, 3, B, C, C, 2, 1, 9]
B: [6, 7, 8, 7, 3, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[y_4 + y_2 + y_3 + y_6 - y_1 - y_5, y_4 + y_2 + y_3 - y_6, y_2 + y_3 - y_6, 0, 0, y_4, y_1, y_2, y_3, y_4, y_5, y_6]$$

$p' = -s^4 + s^7$ $p' = -s^5 + s^8$ $p = -s^4 + s^{10}$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, -y_2 - y_3 + y_5 + y_6, -y_1 + y_5 + y_6, y_1, y_2, y_3, -y_4 + y_5 + y_6, 0, y_4, y_5, y_6]$$

$p = -s^2 + s^3 - s^6 + s^7$ $p = -s^2 + s^4 - s^6 + s^8$ $p = -s^2 + s^5 - s^6 + s^9$

756 . Coloring, {2, 6, 9, 11, 12}

R: [7, 8, 7, 6, A, 3, B, C, C, C, 4, 9]
B: [6, 7, 8, 7, 3, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, 0, -y_1 - y_2 - y_3 + 2y_6 - y_5, y_1, 0, y_2, y_3, y_4, -2y_4 + y_6, y_4, y_5, y_6]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_3, y_1, y_2, 0, y_8, y_9, y_7, y_6, 0, y_5, y_4, 0]$$

757 . Coloring, {2, 6, 10, 11, 12}

R: [7, 8, 7, 6, A, 3, B, C, B, 2, 4, 9]
B: [6, 7, 8, 7, 3, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, y_3, y_1, y_2, 0, y_{10}, y_9, y_6, y_7, y_8, y_5, y_4]$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_4, 0, y_5, 0, y_6, y_4 - y_5 + y_6 - y_1, y_1, y_4 + y_6 - y_2, 0, y_2, y_4 + y_6 - y_3, y_3]$$

$p' = -s^2 + s^3 - s^6 + s^7$ $p = s^2 - s^3 + s^6 - s^7$ $p' = -s^2 + s^4 - s^6 + s^8$

758 . Coloring, {2, 7, 8, 9, 10}

R: [7, 8, 7, 6, A, A, A, B, C, 2, 1, 5]
B: [6, 7, 8, 7, 3, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_6, y_7, 0, 0, y_5, y_4, y_2, y_3, 0, -y_6 + y_7 + y_5 + y_2 - y_3 + y_1, y_1, y_4]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_2, y_1, 0, y_5, y_6, y_4, y_3, 0, y_7, y_8]$$

759 . Coloring, {2, 7, 8, 9, 11}

R: [7, 8, 7, 6, A, A, A, B, C, C, 4, 5]
B: [6, 7, 8, 7, 3, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_3, y_4, 2\,y_5, y_5, 0, y_6, y_7, y_2]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_3, y_2, y_1, 0, 0, y_8, y_9, y_7, y_6, 0, y_5, y_4]$$

760 . Coloring, {2, 7, 8, 9, 12}

R: [7, 8, 7, 6, A, A, A, B, C, C, 1, 9]
B: [6, 7, 8, 7, 3, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 18\,y_1 - 14\,y_2 + 18\,y_3 - 14\,y_7 + 18\,y_4 - 14\,y_5 + 18\,y_6, 5\,y_1, 5\,y_2, 5\,y_3, 9\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_7 + 9\,y_4 - 7\,y_5 + 9\,y_6, 5\,y_7, 5\,y_4, 0, 0, 5\,y_5, 5\,y_6]$$

$p = s^2 + s^3 + s^4 - s^6 - s^7 - s^8$ $p = -s^2 + s^5 + s^6 - s^9$

761 . Coloring, {2, 7, 8, 10, 11}

R: [7, 8, 7, 6, A, A, A, B, B, 2, 4, 5]
B: [6, 7, 8, 7, 3, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_1, y_4, y_5, y_4, y_3, 0, y_7, y_6, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_7, 0, 0, y_6, y_2, y_3, y_4, 0, y_5, y_8]$$

762 . Coloring, {2, 7, 8, 10, 12}

R: [7, 8, 7, 6, A, A, A, B, B, 2, 1, 9]
B: [6, 7, 8, 7, 3, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_5, y_4, 0, 0, 0, y_3, y_2, y_1, 2\,y_3, y_7, y_6, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 0, y_3, y_5, y_2, y_1, y_5, -y_3 - y_2 - y_1 + 5\,y_5 - y_4, 0, 0, y_5, y_4]$$

$p' = -s^3 + s^7$ $p' = -s^2 + s^6$ $p = -s^2 + s^6$

763 . Coloring, {2, 7, 8, 11, 12}

R: [7, 8, 7, 6, A, A, A, B, B, C, 4, 9]
B: [6, 7, 8, 7, 3, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, 0, y_1, 2\,y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_2, y_1, -y_2 + y_1 + y_8 + y_7 - y_6 + y_5 + y_4 - y_3, 0, y_8, y_7, y_6, y_5, 0, 0, y_4, y_3]$$

$p = s^6 - s^7 + s^8 - s^9$

764 . Coloring, {2, 7, 9, 10, 11}

R: [7, 8, 7, 6, A, A, A, C, C, 2, 4, 5]
B: [6, 7, 8, 7, 3, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_5, y_6, y_4, y_5, y_3, 0, y_2, 0, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_7, y_4, y_5, 0, y_6, y_7]$$

$p = -s^3 + s^8$

765 . Coloring, {2, 7, 9, 10, 12}

R: [7, 8, 7, 6, A, A, A, C, C, 2, 1, 9]
B: [6, 7, 8, 7, 3, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_6, y_7, 0, 0, 0, y_6, y_4, y_5, y_3, y_2, 0, y_1]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_3, y_4, y_2, y_5, y_7, 0, 0, y_6, 2\, y_2]$$

$p = -s^5 + s^8$

766 . Coloring, {2, 7, 9, 11, 12}

R: [7, 8, 7, 6, A, A, A, C, C, C, 4, 9]
B: [6, 7, 8, 7, 3, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, 2\, y_2, 0, y_1, 2\, y_2, y_2, y_3, y_4, 0, y_5]$$

$p = s^4 - s^6$ $p' = s^4 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_7, y_5, y_6, 0, y_5, y_4, y_2, y_3, 0, 0, y_1, 0]$$

$p = -s^3 + s^8$

767 . Coloring, {2, 7, 10, 11, 12}

R: [7, 8, 7, 6, A, A, A, C, B, 2, 4, 9]
B: [6, 7, 8, 7, 3, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, 0, y_4, 0, y_3, y_2, y_8, y_9, y_6, y_7, y_5]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[2\,y_7, 0, 2\,y_6, 0, 2\,y_4, 2\,y_5, 2\,y_3, 2\,y_2, 0, 0, 2\,y_1, 3\,y_3]$$

$p = -s^3 + s^8$

768 . Coloring, {2, 8, 9, 10, 11}

R: [7, 8, 7, 6, A, A, B, B, C, 2, 4, 5]
B: [6, 7, 8, 7, 3, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_1 + y_7 + y_6 - y_5 - y_4 + y_3 - 3\,y_2, y_7, y_6, 2\,y_2, y_5, 0, y_4, y_3, y_2]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, 0, y_2, 0, 0, y_6, y_7, y_4, y_5, y_3, y_9, y_8]$$

769 . Coloring, {2, 8, 9, 10, 12}

R: [7, 8, 7, 6, A, A, B, B, C, 2, 1, 9]
B: [6, 7, 8, 7, 3, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8, 3\,y_1, 0, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_1 + y_2 - y_3 + y_4 + y_5 - y_6, y_1, y_2, y_7, y_3, y_4, 0, y_5, y_7, y_6]$$

$p = s^5 - s^6 + s^7 - s^8$ $p = -s^5 + s^9$

770 . Coloring, {2, 8, 9, 11, 12}

R: [7, 8, 7, 6, A, A, B, B, C, C, 4, 9]
B: [6, 7, 8, 7, 3, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, 0, y_2, 2\,y_1, y_1, y_7, y_6, y_5, y_4]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[-2\,y_1 + 5\,y_6 - 2\,y_2, 2\,y_6, 2\,y_1, 0, 2\,y_4, 2\,y_5, 2\,y_6, 2\,y_3, 0, 2\,y_6, -2\,y_4 - 2\,y_5 - 2\,y_3 + 5\,y_6, 2\,y_2]$$

$p = s^4 - s^8$ $p' = s^4 - s^8$ $p' = s^6 - s^7 + s^8 - s^9$ $p' = s^5 - s^9$

771 . Coloring, {2, 8, 10, 11, 12}

R: [7, 8, 7, 6, A, A, B, B, B, 2, 4, 9]
B: [6, 7, 8, 7, 3, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_1, 0, y_3, y_6, y_7, y_6, y_5, y_4, 0]$$

$p = s^2 - s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[-2\,y_4 + 2\,y_2, 0, y_6, 0, y_5, y_4, -2\,y_4 + 2\,y_2, y_3, 0, y_2, 0, y_1]$$

$p' = -s^3 + s^7$ $p = -s^3 + s^7$

772 . Coloring, {2, 9, 10, 11, 12}

R: [7, 8, 7, 6, A, A, B, C, C, 2, 4, 9]
B: [6, 7, 8, 7, 3, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_1, 0, y_4, 0, y_3, y_2, y_8, y_6, y_7, y_5, y_9]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, y_9, y_8, y_7, y_6, 0, y_5, y_4, y_3]$$

773 . Coloring, {3, 4, 5, 6, 7}

R: [7, 7, 8, 7, 3, 3, A, C, B, C, 1, 5]
B: [6, 8, 7, 6, A, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_5, 0, y_4, 0, y_3, 0, y_2, y_1, 0, y_8, y_7, y_6]$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_7, 0, 3\,y_6, 0, 3\,y_5, 3\,y_3, 3\,y_4, 3\,y_2, -3\,y_6 - 3\,y_3 - 3\,y_4 + 5\,y_2 + 8\,y_1, -3\,y_7 - 3\,y_5 + 8\,y_2 + 5\,y_1, 3\,y_1]$$

$p' = s^2 - s^8$ $p = s^2 - s^8$

774 . Coloring, {3, 4, 5, 6, 8}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, B, B, B, C, 1, 5]
B: [6, 8, 7, 6, A, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, 0, y_6, 0, y_5, 0, y_4, y_3, 0, 0, y_2, y_1]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_5, 0, 2\,y_3, 0, y_4, y_3, y_2, y_7, y_1, 0, y_6]$$

$p = s^6 - s^8$

775 . Coloring, {3, 4, 5, 6, 9}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, B, C, C, C, 1, 5]
B: [6, 8, 7, 6, A, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[7\,y_6, 0, 7\,y_5, 0, 7\,y_4, 0, 7\,y_2, 7\,y_3, 0, 0, 7\,y_1, 9\,y_6 - 7\,y_5 - 7\,y_4 + 9\,y_2 - 7\,y_3 + 9\,y_1]$$

$p = s + s^2 + s^3 - s^5 - s^6 - s^7$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, y_3, y_4, y_5, 2\,y_4, y_6, y_7, 0]$$

$p = -s^2 + s^8$

776 . Coloring, {3, 4, 5, 6, 10}

R: [7, 7, 8, 7, 3, 3, B, C, B, 2, 1, 5]
B: [6, 8, 7, 6, A, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[3\,y_6, 3\,y_5, 3\,y_4, 0, 3\,y_3, 0, 3\,y_2, 3\,y_1, 0, 0, -3\,y_6 - 3\,y_5 - 3\,y_2 + 10\,y_3 + 10\,y_1, -3\,y_4 + 3\,y_3 + 3\,y_1]$$

$p' = s^2 + s^4 - s^5 - s^7 \quad p = s^2 + s^3 + s^4 - s^6 - s^7 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_7, y_6, y_6, y_5, y_4, y_3, y_2]$$

$p = s^6 - s^8$

777 . Coloring, {3, 4, 5, 6, 11}

R: [7, 7, 8, 7, 3, 3, B, C, B, C, 4, 5]
B: [6, 8, 7, 6, A, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 0, y_1 - y_2 + y_4 - y_3 + y_6 - y_5, y_1, y_2, 0, y_4, y_3, 0, 0, y_6, y_5]$$

$p = s + s^2 + s^3 - s^5 - s^6 - s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[3\,y_7, 3\,y_6, 0, 0, 0, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, -3\,y_7 - 3\,y_3 + 8\,y_2 + 5\,y_1, -3\,y_6 - 3\,y_5 - 3\,y_4 + 5\,y_2 + 8\,y_1, 3\,y_1]$$

$p' = -s^2 + s^8 \quad p = -s^2 + s^8$

778 . Coloring, {3, 4, 5, 6, 12}

R: [7, 7, 8, 7, 3, 3, B, C, B, C, 1, 9]
B: [6, 8, 7, 6, A, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, 0, 0, y_7, y_6, y_5, 0, y_4, y_3]$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, 0, y_2, y_1, -y_3 + y_2 - y_1 + y_6 + y_5 - y_4, y_7, y_6, 0, y_5, y_4, y_7]$$

$p' = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8 \quad p = s^3 - s^9$

779 . Coloring, {3, 4, 5, 7, 8}

R: [7, 7, 8, 7, 3, A, A, B, B, C, 1, 5]
B: [6, 8, 7, 6, A, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, -y_1 + y_4 + y_5, 0, -y_2 + y_4 + y_5, -y_3 + y_4 + y_5, 0, y_3, y_4, y_5]$$

$p = s - s^2 + s^5 - s^6 \quad p' = -s + s^3 - s^5 + s^7 \quad p' = -s + s^2 - s^5 + s^6$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, y_8, y_7, y_6, 0, y_5, y_4, y_2, y_3, y_1, -y_7 - y_6 - y_5 - y_4 + 2\,y_2 + 2\,y_3 + 2\,y_1, -y_8 + y_2 + y_3 + y_1]$$

$p = -s^4 + s^9$ $p' = -s^4 + s^9$

780 . Coloring, {3, 4, 5, 7, 9}

R: [7, 7, 8, 7, 3, A, A, C, C, C, 1, 5]
B: [6, 8, 7, 6, A, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_4, 0, y_3, 0, y_2, 0, -y_3 + y_4 + y_2, y_1, 0, y_4 + y_2 - y_1, 0, y_4 + y_2]$$

$p' = -s^5 + s^6$ $p' = s^4 - s^5$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, 2\,y_7, y_7, y_8, 0]$$

$p = -s^4 + s^9$

781 . Coloring, {3, 4, 5, 7, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, A, C, B, 2, 1, 5]
B: [6, 8, 7, 6, A, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[-5\,y_1 + 11\,y_2 + 11\,y_3 - 5\,y_4 + 11\,y_5 - 5\,y_6 - 5\,y_7 + 11\,y_8,\ 5\,y_1,\ 5\,y_2,\ 0,\ 5\,y_3,\ 0,\ 5\,y_4,\ 5\,y_5,\ 0,\ 5\,y_6,\ 5\,y_7,\ 5\,y_8]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0,\ 0,\ 3\,y_6,\ 3\,y_5,\ 0,\ 3\,y_4,\ 3\,y_3,\ 3\,y_2,\ 3\,y_1,\ 3\,y_2,\ -3\,y_6 - 3\,y_5 - 3\,y_4 - 3\,y_3 + 7\,y_2 + 10\,y_1,\ 3\,y_2 + 3\,y_1]$$

$p' = s^3 - s^8$ $p' = s^2 - s^7$ $p = s^2 - s^7$

782 . Coloring, {3, 4, 5, 7, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, A, C, B, C, 4, 5]
B: [6, 8, 7, 6, A, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0,\ 0,\ -y_4 + y_3 + y_2,\ y_3 + y_2 - y_5,\ y_5,\ 0,\ y_4,\ y_3,\ 0,\ y_2,\ y_1,\ y_3 + y_2 - y_1]$$

$p' = s^6 - s^7$ $p' = s^5 - s^7$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 7, 11}} order: 10

See Matrix

$$[3\,y_9,\ 3\,y_7,\ 3\,y_8,\ 0,\ 0,\ 3\,y_5,\ 3\,y_6,\ 3\,y_3,\ 3\,y_4,\ -3\,y_9 - 3\,y_7 - 3\,y_8 - 3\,y_5 - 3\,y_6 - 3\,y_3 + 13\,y_4 - 3\,y_1 + 13\,y_2,\ 3\,y_1,\ 3\,y_2]$$

$p = -s^4 - s^5 + s^9 + s^{10}$

783 . Coloring, {3, 4, 5, 7, 12}

$\Omega p(\Delta)=0: \quad p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, A, C, B, C, 1, 9]
B: [6, 8, 7, 6, A, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_1 - y_7 + y_6 + y_5 + y_4 - y_3 - y_2, 0, 0, 0, y_7, y_6, y_5, y_4, y_3, y_2]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, y_9, y_{10}, y_8, y_6, y_7, y_5, y_4, 0, y_3, y_1, y_2]$$

784 . Coloring, {3, 4, 5, 8, 9}

$\Omega p(\Delta)=0: \quad p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, B, B, C, C, 1, 5]
B: [6, 8, 7, 6, A, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, y_3, 0, y_6, y_7, 0, y_4, y_5, y_8]$$

Omega Rank for B : cycles: {{2, 3, 4, 6, 7, 8, 9, 10, 11, 12}} order: 10

See Matrix

$$[0, y_{10}, y_9, y_8, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

785 . Coloring, {3, 4, 5, 8, 10}

R: [7, 7, 8, 7, 3, A, B, B, B, 2, 1, 5]
B: [6, 8, 7, 6, A, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_1, 2\,y_1 - 3\,y_4, 0, 2\,y_4, 0, y_6, y_5, 0, y_4, y_3, 0]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_4, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7]$$

$p = -s^6 + s^8$

786 . Coloring, {3, 4, 5, 8, 11}

R: [7, 7, 8, 7, 3, A, B, B, B, C, 4, 5]
B: [6, 8, 7, 6, A, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_2, y_1, y_8, 0, y_7, y_6, 0, y_5, y_4, y_3]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, y_7, y_8, 0, y_9]$$

787 . Coloring, {3, 4, 5, 8, 12}

R: [7, 7, 8, 7, 3, A, B, B, B, C, 1, 9]
B: [6, 8, 7, 6, A, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, 0, y_6, y_5, y_4, y_3, y_2, y_3 + y_5]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_7, y_6, 0, y_8, 0, y_9]$$

788 . Coloring, {3, 4, 5, 9, 10}

R: [7, 7, 8, 7, 3, A, B, C, C, 2, 1, 5]
B: [6, 8, 7, 6, A, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[3\,y_3, 3\,y_2, 3\,y_1, 0, 3\,y_1 - 3\,y_7 + 3\,y_4, 0, -3\,y_3 - 3\,y_2 + 10\,y_1 - 3\,y_6 - 3\,y_5 + 10\,y_4, 3\,y_7, 0, 3\,y_6, 3\,y_5, 3\,y_4]$$

$p' = -s^3 - s^5 + s^6 + s^8 \quad p = s^3 + s^5 - s^6 - s^8$

Omega Rank for B : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_9, y_8, 0, y_7, y_5, y_6, y_3, y_2, y_4, y_1]$$

789 . Coloring, {3, 4, 5, 9, 11}

R: [7, 7, 8, 7, 3, A, B, C, C, C, 4, 5]
B: [6, 8, 7, 6, A, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 0, 9\,y_1 - 7\,y_4 + 9\,y_2 - 7\,y_3 - 7\,y_5 + 9\,y_6 - 7\,y_7, 7\,y_1, 7\,y_4, 0, 7\,y_2, 7\,y_3, 0, 7\,y_5, 7\,y_6, 7\,y_7]$$

$p = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, y_7, y_8, y_9, 0]$$

790 . Coloring, {3, 4, 5, 9, 12}

R: [7, 7, 8, 7, 3, A, B, C, C, C, 1, 9]
B: [6, 8, 7, 6, A, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[7\,y_1,\ 0,\ 7\,y_4,\ 0,\ 0,\ 0,\ 7\,y_2,\ 7\,y_6,\ 7\,y_5,\ 7\,y_4,\ 7\,y_3,\ 9\,y_1 - 14\,y_4 + 9\,y_2 - 7\,y_6 - 7\,y_5 + 9\,y_3]$$

$p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0,\ y_4,\ y_5,\ y_3,\ y_1,\ y_2,\ y_6,\ y_9,\ 0,\ y_8,\ y_7,\ 0]$$

791 . Coloring, {3, 4, 5, 10, 11}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, B, C, B, 2, 4, 5]
B: [6, 8, 7, 6, A, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0,\ 11\,y_1 - 5\,y_2 + 11\,y_3 - 5\,y_8 + 11\,y_4 - 5\,y_5 - 5\,y_6 + 11\,y_7,\ 5\,y_1,\ 5\,y_2,\ 5\,y_3,\ 0,\ 5\,y_8,\ 5\,y_4,\ 0,\ 5\,y_5,\ 5\,y_6,\ 5\,y_7]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_2,\ 0,\ y_1,\ 0,\ 0,\ y_3,\ y_4,\ y_5,\ y_8,\ y_6,\ y_7,\ y_9]$$

792 . Coloring, {3, 4, 5, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, B, C, B, 2, 1, 9]
B: [6, 8, 7, 6, A, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, y_5 + y_3, y_5, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$[0, 0, y_1, y_2, y_6, y_3, y_4, y_5, 0, y_7, y_8, y_9]$

793 . Coloring, {3, 4, 5, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, B, C, B, C, 4, 9]
B: [6, 8, 7, 6, A, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, 0, y_4, y_1, 0, 0, y_7, y_2, y_3, y_4, y_5, y_6]$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_9, y_8, y_7, 0, y_6, y_4, y_5, y_3, 0, y_2, y_1, -y_9 + y_8 - y_7 + y_6 + y_4 + y_5 - y_3 - y_2 + y_1]$$

$$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9 - s^{10}$$

794 . Coloring, {3, 4, 6, 7, 8}

R: [7, 7, 8, 7, A, 3, A, B, B, C, 1, 5]
B: [6, 8, 7, 6, 3, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_7, 0, y_3, y_4, 0, y_5, y_6, y_8]$$

Omega Rank for B : cycles: {{9, 12}} order: 10

See Matrix

$$[0, y_9, y_{10}, y_8, 0, y_7, y_6, y_5, y_4, y_3, y_1, y_2]$$

795 . Coloring, {3, 4, 6, 7, 9}

R: [7, 7, 8, 7, A, 3, A, C, C, C, 1, 5]
B: [6, 8, 7, 6, 3, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\,y_3, 0, y_3, 0, y_2, 0, y_3 + 2\,y_1, y_1, 0, y_5, 0, y_4]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_7, y_5, 2\,y_2, y_6, y_8, 0]$$

$p = -s^3 + s^9$

796 . Coloring, {3, 4, 6, 7, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, A, C, B, 2, 1, 5]
B: [6, 8, 7, 6, 3, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6 + y_4, y_1, y_6, 0, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_4, y_1, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^7 + s^9$

797 . Coloring, {3, 4, 6, 7, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, A, C, B, C, 4, 5]
B: [6, 8, 7, 6, 3, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_5, y_5 + y_3, y_1, 0, y_2, y_3, 0, y_4, y_5, y_6]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[2 y_2, 11 y_2 - 2 y_1 - 2 y_4 + 11 y_5 + 11 y_6 + 11 y_3 - 2 y_7 - 39 y_8, 2 y_1, 0, 0, 2 y_4, 2 y_5, 2 y_6, 3 y_2 + 3 y_5 + 3 y_6 + 3 y_3 - 11 y_8, 2 y_3, 2 y_7, 2 y_8]$$

$p = -s^3 + s^9$ $p' = -s^3 + s^9$

798 . Coloring, {3, 4, 6, 7, 12}

Ωp(Δ)=0: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, A, C, B, C, 1, 9]
B: [6, 8, 7, 6, 3, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1 + y_2 - y_4 - y_3 - y_6 + y_5 + y_7, 0, y_1, 0, 0, 0, y_2, y_4, y_3, y_6, y_5, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_8, y_7, y_6, y_5, y_4, y_3, y_2, 0, y_1, y_{10}, y_9]$$

799 . Coloring, {3, 4, 6, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, B, B, C, C, 1, 5]
B: [6, 8, 7, 6, 3, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {1, 7, 11}} order: 3

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, 5\,y_3 - y_4 + 4\,y_1 + 4\,y_2 - 6\,y_5, y_4, 0, -2\,y_1 - 2\,y_2 - 4\,y_3 + 5\,y_5, y_5, 6\,y_3 + 5\,y_1 + 5\,y_2 - 8\,y_5]$$

$p' = -s^4 + s^7$ $p = s^3 - s^6$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_{10}, y_6, y_7, y_8, y_9, y_5]$$

800 . Coloring, {3, 4, 6, 8, 10}

R: [7, 7, 8, 7, A, 3, B, B, B, 2, 1, 5]
B: [6, 8, 7, 6, 3, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 2\,y_4 - y_5, 0, 4\,y_4 - 2\,y_5, 0, y_3, y_4, 0, y_5, y_6, 0\,]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_5, 2\,y_5, 0, 2\,y_4, y_4, y_5, y_3, y_2, 0, y_1]$$

$p' = s^4 - s^6$ $p' = s^5 - s^7$ $p = s^4 - s^8$

801 . Coloring, {3, 4, 6, 8, 11}

R: [7, 7, 8, 7, A, 3, B, B, B, C, 4, 5]
B: [6, 8, 7, 6, 3, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, -2\,y_1 + 9\,y_2 + 9\,y_3 - 11\,y_5 - 2\,y_4, 2\,y_1, -2\,y_2 - 2\,y_3 + 2\,y_5 + 2\,y_4, 0, 2\,y_2, 2\,y_3, 0, 7\,y_2 + 7\,y_3 - 9\,y_5 - 2\,y_4, 2\,y_4, 2\,y_5]$$

$p' = s^3 - s^6$ $p' = s^4 - s^7$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_2, y_1, y_2, 0, 0, 2\,y_3, y_3, y_7, y_4, y_5, 0, y_6]$$

$p = -s^6 + s^8$ $p' = -s^6 + s^8$

802 . Coloring, {3, 4, 6, 8, 12}

R: [7, 7, 8, 7, A, 3, B, B, B, C, 1, 9]
B: [6, 8, 7, 6, 3, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, 0, y_2, -y_4 + y_6, y_3, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, 0, y_9]$$

803 . Coloring, {3, 4, 6, 9, 10}

R: [7, 7, 8, 7, A, 3, B, C, C, 2, 1, 5]
B: [6, 8, 7, 6, 3, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 9

See Matrix

$$[y_3, y_2, y_1, 0, y_9, 0, y_8, y_7, 0, y_6, y_5, y_4]$$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_1, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^3 + s^9$

804 . Coloring, {3, 4, 6, 9, 11}

R: [7, 7, 8, 7, A, 3, B, C, C, C, 4, 5]
B: [6, 8, 7, 6, 3, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 2\,y_1, 4\,y_1 + 4\,y_5 + 3\,y_2 + 3\,y_3 - 7\,y_4, 2\,y_5, 0, 10\,y_1 + 10\,y_5 + 4\,y_2 + 4\,y_3 - 16\,y_4, 2\,y_2, 0, 2\,y_3, 2\,y_4, 16\,y_1 + 16\,y_5 + 7\,y_2 + 7\,y_3 - 27\,y_4]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_8, y_7, y_6, 0, 0, y_4, y_5, y_3, 2\,y_6, y_2, y_1, 0]$$

$p = -s^3 + s^9$

805 . Coloring, {3, 4, 6, 9, 12}

R: [7, 7, 8, 7, A, 3, B, C, C, C, 1, 9]
B: [6, 8, 7, 6, 3, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[7\,y_1, 0, 7\,y_3, 0, 0, 0, 7\,y_6, 7\,y_5, 7\,y_4, 7\,y_3, 7\,y_2, 9\,y_1 - 14\,y_3 + 9\,y_6 - 7\,y_5 - 7\,y_4 + 9\,y_2]$$

$p' = s^3 + s^4 - s^6 - s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_2, y_1, y_8, y_7, y_6, y_5, y_4, 0, y_3, y_9, 0]$$

806 . Coloring, {3, 4, 6, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, B, C, B, 2, 4, 5]
B: [6, 8, 7, 6, 3, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_8, y_9, y_7, y_6, 0, y_5, y_4, 0, y_3, y_1, y_2]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, y_5, y_7, y_3, y_2, y_4, y_7, y_6]$$

$p = s^6 - s^8$ $p' = s^6 - s^8$

807 . Coloring, {3, 4, 6, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, B, C, B, 2, 1, 9]
B: [6, 8, 7, 6, 3, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_4 + y_7, y_4, 0, 0, 0, y_2, y_7, y_3, y_4, y_5, y_6]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_5, y_4, y_2, y_3, y_1, y_9, 0, y_8, y_6, y_7]$$

808 . Coloring, {3, 4, 6, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, B, C, B, C, 4, 9]
B: [6, 8, 7, 6, 3, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_6, y_2, 0, 0, y_1, y_3, y_7, y_6, y_5, y_4]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_2, y_2 + y_1 - y_3 - y_4 - y_5 + y_6 + y_9 - y_7 + y_8, y_1, 0, y_3, y_4, y_5, y_6, 0, y_9, y_7, y_8]$$

$p = -s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$

809 . Coloring, {3, 4, 7, 8, 9}

R: [7, 7, 8, 7, A, A, A, B, C, C, 1, 5]
B: [6, 8, 7, 6, 3, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, 0, y_3, y_4, 0, y_6, y_5, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_3, y_2, 0, y_6, y_7, y_5, y_4, 0, y_8, y_9]$$

810 . Coloring, {3, 4, 7, 8, 10}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, A, B, B, 2, 1, 5]
B: [6, 8, 7, 6, 3, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, 2\,y_5, 0, y_6, y_5, 0, y_4, y_3, 0]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, 7\,y_4, 7\,y_3, 0, 7\,y_2, -7\,y_4 - 7\,y_3 - 7\,y_2 + 9\,y_1 + 9\,y_7 - 7\,y_6 + 9\,y_5, 7\,y_1, 7\,y_7, 0, 7\,y_6, 7\,y_5]$$

$p = s^2 + s^3 - s^7 - s^8$

811 . Coloring, {3, 4, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, A, B, B, C, 4, 5]
B: [6, 8, 7, 6, 3, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[9\,y_1 - 7\,y_2 - 7\,y_6 - 7\,y_7 + 9\,y_8 + 9\,y_5 - 7\,y_4 + 9\,y_3, 7\,y_1, 7\,y_2, 0, 0, 7\,y_6, 7\,y_7, 7\,y_8, 7\,y_5, 0, 7\,y_4, 7\,y_3]$$

$p = -s^3 - s^4 + s^8 + s^9$

812 . Coloring, {3, 4, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, A, B, B, C, 1, 9]
B: [6, 8, 7, 6, 3, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_2, 0, 0, 0, 0, 0, y_1, y_7, y_6, y_5, y_4, y_3]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_5, y_4, y_3, y_2, y_1, y_9, y_8, 0, 0, y_7, y_6]$$

813 . Coloring, {3, 4, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, A, C, C, 2, 1, 5]
B: [6, 8, 7, 6, 3, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2 y_2, y_1, 0, 0, y_5, 0, y_6, y_2, 0, y_3, 0, y_4]$$

$p = - s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, 2 y_5]$$

$p = - s^3 + s^8$

814 . Coloring, {3, 4, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = - s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, A, C, C, C, 4, 5]
B: [6, 8, 7, 6, 3, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\, y_4, y_5, 0, y_3, y_4, 0, y_2, 0, y_1]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_3, y_2, 0, 0, y_5, y_6, y_7, y_3, 0, y_4, 0]$$

$p = -s^3 + s^8$

815 . Coloring, {3, 4, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, A, C, C, C, 1, 9]
B: [6, 8, 7, 6, 3, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\, y_3, 0, 0, 0, 0, 0, y_4, y_3, y_2, y_1, 0, y_5]$$

$p = s^4 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_5, y_1, y_2, y_5, y_3, y_4, y_6, 0, 0, y_7, 0]$$

$p = -s^3 + s^8$

816 . Coloring, {3, 4, 7, 10, 11}

R: [7, 7, 8, 7, A, A, A, C, B, 2, 4, 5]
B: [6, 8, 7, 6, 3, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_5, 0, y_6, y_1, 0, y_2, y_3, 0, y_4, y_3, y_6 - y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[5 y_5, 0, 5 y_4, 0, 0, 5 y_3, 5 y_2, -5 y_5 - 5 y_4 - 5 y_3 - 5 y_2 + 11 y_1 - 5 y_7 + 11 y_6, 5 y_1, 0, 5 y_7, 5 y_6]$$

$p = -s^2 - s^3 + s^7 + s^8$

817 . Coloring, {3, 4, 7, 10, 12}

R: [7, 7, 8, 7, A, A, A, C, B, 2, 1, 9]
B: [6, 8, 7, 6, 3, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, 0, y_3, y_4, y_5, y_8, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_5, y_6, y_1, y_2, y_3, y_4, 0, 0, y_7, 3\, y_4]$$

$p = -s^3 + s^8$

818 . Coloring, {3, 4, 7, 11, 12}

R: [7, 7, 8, 7, A, A, A, C, B, C, 4, 9]
B: [6, 8, 7, 6, 3, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, 0, y_2, y_3, y_4, y_6, y_5, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 2\, y_7, y_2, 0, y_3, y_4, y_5, 2\, y_3 - 3\, y_7, 0, 0, y_6, y_7]$$

$p' = s^3 - s^8$ $p = s^3 - s^8$

819 . Coloring, {3, 4, 8, 9, 10}

R: [7, 7, 8, 7, A, A, B, B, C, 2, 1, 5]
B: [6, 8, 7, 6, 3, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_4, y_3, 0, 0, y_2, 0, y_1, y_7, 0, y_6, y_5, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_3, y_2, 0, y_1, y_8, y_9, y_7, y_5, y_6, y_4]$$

820 . Coloring, {3, 4, 8, 9, 11}

R: [7, 7, 8, 7, A, A, B, B, C, C, 4, 5]
B: [6, 8, 7, 6, 3, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 16\,y_1 + 16\,y_2 - 27\,y_3 + 7\,y_4, 4\,y_1 + 4\,y_2 + 3\,y_4 - 7\,y_3, 0, 2\,y_1, 2\,y_2, 0, 10\,y_1 + 10\,y_2 - 16\,y_3 + 4\,y_4, 2\,y_4, 2\,y_3]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 9, 10, 11, 12}} order: 10

See Matrix

$$[y_4, y_5, y_6, 0, 0, y_1, y_2, y_3, y_7, y_8, y_9, y_{10}]$$

821 . Coloring, {3, 4, 8, 9, 12}

R: [7, 7, 8, 7, A, A, B, B, C, C, 1, 9]
B: [6, 8, 7, 6, 3, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-7\,y_1 + 11\,y_4 + 9\,y_3 - 7\,y_2 + 9\,y_5, 0, 0, 0, 0, 0, 7\,y_1, 7\,y_4, 7\,y_3, 14\,y_4, 7\,y_2, 7\,y_5]$$

$p' = -s^2 - s^3 + s^5 + s^6$ $p = -s^2 + s^4 + s^5 - s^7$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_2, y_1, y_6, y_7, y_5, y_3, y_4, 0, y_9, y_{10}, y_8]$$

822 . Coloring, {3, 4, 8, 10, 11}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, B, B, B, 2, 4, 5]
B: [6, 8, 7, 6, 3, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 2\,y_4, 0, y_3, y_4, 0, y_5, y_6, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_2, 0, y_5, 0, 0, y_4, y_3, y_2, y_1, y_7, 0, y_6]$$

$p = s^6 - s^8$

823 . Coloring, {3, 4, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, B, B, B, 2, 1, 9]
B: [6, 8, 7, 6, 3, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$[y_3, y_4, 0, 0, 0, 0, y_1, y_2, 2\,y_2, 2\,y_2, y_5, 0]$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$[0, 0, y_7, 2\,y_3, y_6, y_5, y_4, y_3, 0, y_2, 0, y_1]$

$p = s^3 - s^8$

824 . Coloring, {3, 4, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, B, B, B, C, 4, 9]
B: [6, 8, 7, 6, 3, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_6, 0, 0, y_5, y_4, y_3, 2\,y_4, y_2, y_1]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, 0, y_9]$$

825 . Coloring, {3, 4, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, B, C, C, 2, 4, 5]
B: [6, 8, 7, 6, 3, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_3, 0, y_1, y_2, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_5, 0, y_4, 0, 0, y_2, y_3, y_1, y_8, y_9, y_7, y_6]$$

826 . Coloring, {3, 4, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, B, C, C, 2, 1, 9]
B: [6, 8, 7, 6, 3, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, 0, y_3, 5\,y_1 + 5\,y_2 + 5\,y_3 - 11\,y_4 + 5\,y_5 - 11\,y_6, y_4, 10\,y_1 + 10\,y_2 + 10\,y_3 - 22\,y_4 + 10\,y_5 - 22\,y_6, y_5, y_6]$$

$p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

827 . Coloring, {3, 4, 9, 11, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, B, C, C, C, 4, 9]
B: [6, 8, 7, 6, 3, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 0, 7\,y_1, 0, 0, 7\,y_3, 7\,y_4, 7\,y_5, 14\,y_4, 7\,y_2, 9\,y_1 + 9\,y_3 - 21\,y_4 - 7\,y_5 + 9\,y_2]$$

$p = -s^2 - s^3 + s^5 + s^6$ $p = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_1, y_2, y_6, 0, y_7, y_8, y_9, y_5, 0, y_3, y_4, 0]$$

828 . Coloring, {3, 4, 10, 11, 12}

R: [7, 7, 8, 7, A, A, B, C, B, 2, 4, 9]
B: [6, 8, 7, 6, 3, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_2, 0, y_1, 0, 0, y_6, y_5, y_4, 2\,y_5, y_3, y_2]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_9, 0, y_8, 0, y_6, y_7, y_5, y_4, 0, y_3, y_1, y_2]$$

829 . Coloring, {3, 5, 6, 7, 8}

R: [7, 7, 8, 6, 3, 3, A, B, B, C, 1, 5]
B: [6, 8, 7, 7, A, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_8, 0, y_7, 0, y_6, y_4, y_5, y_3, 0, y_2, y_1, y_8 - y_7 + y_6 + y_4 - y_5 + y_3 + y_2 - y_1]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 2\,y_3, 0, 2\,y_5, 0, -2\,y_3 + 5\,y_5 - 2\,y_4, 2\,y_5, 2\,y_2, 5\,y_5 - 2\,y_2 - 2\,y_1, 2\,y_1, 2\,y_5, 2\,y_4]$$

$p' = s^7 - s^8$ $p = s^5 - s^9$ $p' = s^6 - s^8$ $p' = s^5 - s^8$

830 . Coloring, {3, 5, 6, 7, 9}

R: [7, 7, 8, 6, 3, 3, A, C, C, C, 1, 5]
B: [6, 8, 7, 7, A, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[2\,y_3, 0, y_6, 0, y_5, y_3, y_4, y_2, 0, y_1, 0, -y_6 + y_5 + 3\,y_3 - y_4 + y_2 + y_1]$$

$p = -s^4 + s^8$ $p = -s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, y_3, y_4, y_5, 2\,y_3, y_7, y_6, 0]$$

$p = s^5 - s^8$

831 . Coloring, {3, 5, 6, 7, 10}

R: [7, 7, 8, 6, 3, 3, A, C, B, 2, 1, 5]
B: [6, 8, 7, 7, A, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	5 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[2 y_8, 2 y_6, 2 y_7, 0, 2 y_5, 7 y_8 + 7 y_6 - 9 y_7 - 9 y_5 + 7 y_4 - 9 y_3 + 7 y_2 - 9 y_1, 2 y_4, 2 y_3, 0, 2 y_2, 7 y_8 + 7 y_6 - 9 y_7 - 9 y_5 + 7 y_4 - 9 y_3 + 7 y_2 - 9 y_1, 2 y_1]$$

$p = s^3 + s^4 + s^5 - s^7 - s^8 - s^9$ $p = s^3 - s^6 - s^7 + s^{10}$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 0, -y_1 + y_2 - y_4 + 2 y_5, 0, y_2, y_1, y_2, y_2 - y_3 + y_5, y_3, y_4, y_5]$$

$p = -s^3 + s^6$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$

832 . Coloring, {3, 5, 6, 7, 11}

R: [7, 7, 8, 6, 3, 3, A, C, B, C, 4, 5]
B: [6, 8, 7, 7, A, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, 2 y_6, y_5, 0, 2 y_2 - 2 y_6, y_6, y_7]$$

$p' = s^4 - s^8$ $p = s^4 - s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[-3 y_5 - 3 y_4 + 8 y_3 - 3 y_2 + 5 y_1, 3 y_7, 0, 0, 0, 3 y_6, 3 y_5, 3 y_4, 3 y_3, 3 y_2, -3 y_7 - 3 y_6 + 5 y_3 + 8 y_1, 3 y_1]$$

$p' = s^2 - s^8$ $p = s^2 - s^8$

833 . Coloring, {3, 5, 6, 7, 12}

R: [7, 7, 8, 6, 3, 3, A, C, B, C, 1, 9]
B: [6, 8, 7, 7, A, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_8 - y_7 + y_6 - y_5 - y_4 - y_3 + y_2 + y_1, 0, y_8, 0, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, y_8, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^6 + s^9$

834 . Coloring, {3, 5, 6, 8, 9}

R: [7, 7, 8, 6, 3, 3, B, B, C, C, 1, 5]
B: [6, 8, 7, 7, A, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, y_5, y_3, y_4, y_7, 0, 0, y_6, 3\, y_3]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_9, 0, y_8, 0, y_7, y_5, y_6, y_4, y_2, y_3, y_1]$$

835 . Coloring, {3, 5, 6, 8, 10}

R: [7, 7, 8, 6, 3, 3, B, B, B, 2, 1, 5]
B: [6, 8, 7, 7, A, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_3, 2\,y_1, y_2, 0, 2\,y_1, y_1, y_6, y_5, 0, 0, y_4, 0]$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$[0, 0, 0, 2\,y_2, 0, y_2, y_1, y_2, y_3, y_4, 0, y_5]$

$p = s^4 - s^6$ $p' = -s^4 + s^6$

836 . Coloring, {3, 5, 6, 8, 11}

R: [7, 7, 8, 6, 3, 3, B, B, B, C, 4, 5]
B: [6, 8, 7, 7, A, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$[0, 0, y_7, y_6, y_5, y_4, y_3, y_2, 0, 0, y_1, y_3]$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_3, y_1, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7]$$

$p = -s^6 + s^8$

837 . Coloring, {3, 5, 6, 8, 12}

R: [7, 7, 8, 6, 3, 3, B, B, B, C, 1, 9]
B: [6, 8, 7, 7, A, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_5, 0, y_4, 0, 0, y_3, y_2, y_1, 2y_4 - 2y_3, 0, y_6, 2y_3]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, 2y_5, y_2, y_5, y_3, y_4, 0, y_6, 0, y_7]$$

$p = -s^3 + s^8$

838 . Coloring, {3, 5, 6, 9, 10}

R: [7, 7, 8, 6, 3, 3, B, C, C, 2, 1, 5]
B: [6, 8, 7, 7, A, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[y_4, 2\,y_1, y_3, 0, y_2, y_1, -y_4 + 2\,y_3 - 2\,y_1 - y_6 + 2\,y_5, y_3 - y_2 - y_1 + y_5, 0, 0, y_6, y_5]$$

$p = -s^2 - s^3 + 2s^6 + s^8 - s^9$ $p' = -s^3 - s^5 + s^6 + s^8$ $p = -s^2 + s^5 + s^6 - s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

839 . Coloring, {3, 5, 6, 9, 11}

R: [7, 7, 8, 6, 3, 3, B, C, C, C, 4, 5]
B: [6, 8, 7, 7, A, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_3, y_4, y_2, y_5, y_6, 0, 0, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, y_5, y_4, y_5, y_6, y_7, 0]$$

$p = -s^2 + s^8$

840 . Coloring, {3, 5, 6, 9, 12}

R: [7, 7, 8, 6, 3, 3, B, C, C, C, 1, 9]
B: [6, 8, 7, 7, A, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[y_5, 0, y_1, 0, 0, 5\,y_5 - y_1 - y_4 - y_3 - y_2, y_5, y_4, y_3, 0, y_5, y_2]$$

$p' = -s^5 + s^7$ $p' = s^4 - s^6$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 2\,y_3, y_3, y_6, y_4, 0, y_5, y_7, 0]$$

$p = -s^2 + s^8$

841 . Coloring, {3, 5, 6, 10, 11}

R: [7, 7, 8, 6, 3, 3, B, C, B, 2, 4, 5]
B: [6, 8, 7, 7, A, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_3, y_1, y_2, y_4, y_5, y_6, y_7, 0, 0, y_8, y_9]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, 2\,y_3, y_3, y_4, y_6, y_5, y_7]$$

$p = -s^6 + s^8$

842 . Coloring, {3, 5, 6, 10, 12}

R: [7, 7, 8, 6, 3, 3, B, C, B, 2, 1, 9]
B: [6, 8, 7, 7, A, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_5, y_6, 0, 0, y_5, y_4, y_2, y_3, 0, y_7, y_8]$$

$$p = -s^6 + s^9$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_6, y_3, 0, y_4, y_5, y_7]$$

$$p = -s^5 + s^8$$

843 . Coloring, {3, 5, 6, 11, 12}

R: [7, 7, 8, 6, 3, 3, B, C, B, C, 4, 9]
B: [6, 8, 7, 7, A, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_8, y_4, 0, y_1, y_2, y_3, y_5, 0, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7, y_1, 0, 0, y_2, y_3, 2\,y_7, y_4, 0, y_5, y_6, y_7]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = -s^3 + s^9$

844 . Coloring, {3, 5, 7, 8, 9}

R: [7, 7, 8, 6, 3, A, A, B, C, C, 1, 5]
B: [6, 8, 7, 7, A, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[-y_1 + y_5 + y_6, 0, y_5 + y_6 - y_2 - y_4, 0, y_1, y_2, y_4, -y_3 + y_5 + y_6, 0, y_3, y_5, y_6]$$

$p' = -s^2 + s^4 - s^6 + s^8$ $p' = -s^2 + s^3 - s^6 + s^7$ $p = s^2 - s^3 + s^6 - s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1 + y_6, y_1, y_2, 0, y_6, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^6 + s^9$ $p' = -s^6 + s^9$

845 . Coloring, {3, 5, 7, 8, 10}

R: [7, 7, 8, 6, 3, A, A, B, B, 2, 1, 5]
B: [6, 8, 7, 7, A, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_5, y_6, 0, 2\,y_2, y_2, y_3, y_4, 0, y_7, y_8, 0]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, y_1, -y_1 - y_5 + 3\,y_4 - y_2 + 2\,y_3, 0, y_4, y_5, y_4, y_3, y_4, y_2, 2\,y_4 + y_3]$$

$p' = -s^5 + s^8$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p = s^3 - s^6$

846 . Coloring, {3, 5, 7, 8, 11}

R: [7, 7, 8, 6, 3, A, A, B, B, C, 4, 5]
B: [6, 8, 7, 7, A, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_3 + y_2 - y_5 - y_4, -y_6 + y_3 + y_2, y_6, y_5, y_4, y_3, 0, y_2, y_1, y_3 + y_2 - y_1]$$

$p' = s^2 - s^3 + s^6 - s^7$ $p' = -s^3 + s^4 - s^7 + s^8$ $p = s^2 - s^4 + s^6 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[y_3, y_4, y_5, 0, 0, y_6, y_7, y_8, y_4 - y_8 - y_1 + y_2, y_1, -y_3 - y_5 - y_6 - y_7 + 2\,y_4 + 2\,y_2, y_2]$$

$p' = -s^4 + s^9$ $p = -s^4 + s^9$

847 . Coloring, {3, 5, 7, 8, 12}

R: [7, 7, 8, 6, 3, A, A, B, B, C, 1, 9]
B: [6, 8, 7, 7, A, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[2\,y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7,\ 0,\ y_1,\ 0,\ 0,\ y_1,\ y_2,\ y_3,\ y_4,\ y_5,\ y_6,\ y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {2, 5, 8, 10, 12}}

See Matrix

$$[0,\ y_1 + y_2 - y_3 + y_4 + y_5 - y_6 - y_7 + y_9 - y_8,\ y_1,\ y_2,\ y_3,\ y_4,\ y_5,\ y_6,\ 0,\ y_7,\ y_9,\ y_8]$$

$p = s^3 + s^4 + s^5 - s^8 - s^9 - s^{10}$

848 . Coloring, {3, 5, 7, 9, 10}

R: [7, 7, 8, 6, 3, A, A, C, C, 2, 1, 5]
B: [6, 8, 7, 7, A, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[6\,y_2,\ 10\,y_1 - 9\,y_2 - 3\,y_4 + 10\,y_3 - 3\,y_5,\ 3\,y_1 + 3\,y_3 - 3\,y_6,\ 0,\ 3\,y_1,\ 3\,y_2,\ 3\,y_4,\ 3\,y_3,\ 0,\ 3\,y_5,\ 0,\ 3\,y_6]$$

$p = -s^2 - s^4 + s^5 + s^7$ $p' = -s^2 - s^4 + s^5 + s^7$ $p = s^2 - s^5 - s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ 0,\ -y_4 + y_6,\ y_1,\ 0,\ y_4,\ y_2,\ y_4,\ y_3,\ y_4,\ y_5,\ y_6]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$ $p' = -s^5 + s^8$

849 . Coloring, {3, 5, 7, 9, 11}

R: [7, 7, 8, 6, 3, A, A, C, C, C, 4, 5]
B: [6, 8, 7, 7, A, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, -y_2 + y_3 + y_4 - y_1, y_2, -y_2 + y_3 + y_4, y_1, y_2, y_3, 0, y_4, 0, y_3 + y_4]$$

$p = -s^4 + s^7$ $p = -s^4 + s^8$ $p = -s^4 + s^5$ $p = -s^4 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_7, y_4, y_5, 2\,y_6, y_6, y_8, 0]$$

$p = -s^4 + s^9$

850 . Coloring, {3, 5, 7, 9, 12}

R: [7, 7, 8, 6, 3, A, A, C, C, C, 1, 9]
B: [6, 8, 7, 7, A, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_1, 0, y_1, 0, 0, y_1, 2\,y_2 + 2\,y_3 - 2\,y_4, y_2 + y_3 - y_4, y_2, y_3, 0, y_4]$$

$p' = s^6 - s^7$ $p' = s^4 - s^7$ $p' = s^5 - s^7$ $p = s^4 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_7, y_6, y_5, 2\,y_4, y_4, y_3, y_2, 0, 2\,y_6 - y_4, y_1, 0]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

851 . Coloring, {3, 5, 7, 10, 11}

R: [7, 7, 8, 6, 3, A, A, C, B, 2, 4, 5]
B: [6, 8, 7, 7, A, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[0, 11\,y_6 - 5\,y_7 + 11\,y_8 - 5\,y_9 - 5\,y_5 + 11\,y_3 - 5\,y_4 - 5\,y_1 + 11\,y_2, 5\,y_6, 5\,y_7, 5\,y_8, 5\,y_9, 5\,y_5, 5\,y_3, 0, 5\,y_4, 5\,y_1, 5\,y_2]$$

$p = -s^4 - s^5 - s^6 + s^8 + s^9 + s^{10}$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[3\,y_4, 0, 3\,y_3, 0, 0, 3\,y_2, 3\,y_1, -3\,y_4 - 3\,y_3 - 3\,y_2 - 3\,y_1 + 10\,y_5 - 3\,y_6, 3\,y_4 + 3\,y_3 + 3\,y_2 + 3\,y_1 - 7\,y_5 + 3\,y_6, -3\,y_4 - 3\,y_3 - 3\,y_2 - 3\,y_1 + 10\,y_5 - 3\,y_6, 3\,y_6, 3\,y_5]$$

$p' = s^3 - s^8$ $p' = s^2 - s^7$ $p = s^2 - s^7$

852 . Coloring, {3, 5, 7, 10, 12}

R: [7, 7, 8, 6, 3, A, A, C, B, 2, 1, 9]
B: [6, 8, 7, 7, A, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	5 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_3, y_4, y_5, y_7, y_8, y_9, y_6]$$

$p = -s^7 + s^{10}$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, y_3, y_4, -2\,y_3 - 2\,y_4 + 5\,y_2 + 5\,y_1 - 4\,y_5, y_2, 4\,y_3 + 4\,y_4 - 7\,y_2 - 6\,y_1 + 5\,y_5, y_2, 0, 5\,y_3 + 5\,y_4 - 8\,y_2 - 8\,y_1 + 6\,y_5, y_1, y_5]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^9$ $p' = -s^4 + s^7$ $p = -s^3 + s^6$

853 . Coloring, {3, 5, 7, 11, 12}

R: [7, 7, 8, 6, 3, A, A, C, B, C, 4, 9]
B: [6, 8, 7, 7, A, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_7, y_6, 0, y_5, 2\,y_7, y_4, y_3, y_2, y_1, -3\,y_7 + y_6 - y_5 + y_4 + y_3 + y_2 - y_1]$$

$p' = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = s^3 - s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 10

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_{10}, y_8, y_9]$$

854 . Coloring, {3, 5, 8, 9, 10}

R: [7, 7, 8, 6, 3, A, B, B, C, 2, 1, 5]
B: [6, 8, 7, 7, A, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, y_5, y_6, 0, -y_5 + y_6 + 3\,y_4, y_4, y_3, y_2, 0, -y_5 + y_6 + 2\,y_4, y_1, y_4]$$

$p' = s^5 - s^8$ $p' = s^6 - s^9$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_5, 0, y_8, y_7, y_8, y_4, y_3, y_1, y_2]$$

$p = s^3 - s^9$

855 . Coloring, {3, 5, 8, 9, 11}

R: [7, 7, 8, 6, 3, A, B, B, C, C, 4, 5]
B: [6, 8, 7, 7, A, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_5, y_6, y_5 - y_6 + y_1 - y_2 - y_3 - y_4 + y_8 + y_7, y_1, y_2, y_3, 0, y_4, y_8, y_7]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 9, 10, 11, 12}} order: 10

See Matrix

$$[y_{10}, y_8, y_9, 0, 0, y_7, y_6, y_4, y_5, y_3, y_1, y_2]$$

856 . Coloring, {3, 5, 8, 9, 12}

R: [7, 7, 8, 6, 3, A, B, B, C, C, 1, 9]
B: [6, 8, 7, 7, A, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 + 3\,y_3, 0, 3\,y_1, 0, 0, 3\,y_1, 3\,y_3 - 3\,y_2, 3\,y_2, -3\,y_1 + 7\,y_3 - 3\,y_2 - 3\,y_4, 3\,y_2, 3\,y_3, 3\,y_4]$$

$p' = -s^3 + s^7$ $p = -s^3 + s^9$ $p = -s^3 + s^5$ $p' = -s^3 + s^5$ $p = -s^3 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, y_2 - y_7, y_2, y_3, y_7, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = s^4 - s^9$ $p' = -s^4 + s^9$

857 . Coloring, {3, 5, 8, 10, 11}

Ωp(Δ)=0: $p = s - s^2 - s^4 + 4s^5 - 8s^7 + 16s^8$

R: [7, 7, 8, 6, 3, A, B, B, B, 2, 4, 5]
B: [6, 8, 7, 7, A, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, -y_1 + y_2 + y_3 - y_4 + y_6 + y_5 + y_7 - y_8, y_1, y_2, y_3, y_4, y_6, y_5, 0, y_7, y_8, 0]$$

$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_5, 0, y_1, 0, 0, y_7, y_6, y_5, y_4, y_3, 0, y_2]$$

$p = -s^6 + s^8$

858 . Coloring, {3, 5, 8, 10, 12}

R: [7, 7, 8, 6, 3, A, B, B, B, 2, 1, 9]
B: [6, 8, 7, 7, A, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_1, y_3, 0, 0, y_3, y_4, y_6, 2\,y_3, y_6, y_5, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_4, y_2, y_4, y_3, y_4, 0, y_5, 0, y_6]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

859 . Coloring, {3, 5, 8, 11, 12}

R: [7, 7, 8, 6, 3, A, B, B, B, C, 4, 9]
B: [6, 8, 7, 7, A, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, y_1, 0, y_2, -2\,y_1 + 2\,y_2 - 2\,y_3 - 2\,y_4 - 2\,y_5 + 2\,y_6 + 2\,y_7, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_6, y_7, y_5, 0, y_8, 0, y_9]$$

860 . Coloring, {3, 5, 9, 10, 11}

R: [7, 7, 8, 6, 3, A, B, C, C, 2, 4, 5]
B: [6, 8, 7, 7, A, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_1, 3\,y_4 - 3\,y_6 + 3\,y_2, 0, -3\,y_5 - 3\,y_1 + 5\,y_4 + 5\,y_2, -3\,y_3 - 3\,y_7 + 5\,y_4 + 5\,y_2, 3\,y_2]$$

$p' = s + s^3 - s^7 - s^9$ $p = -2s - s^2 - 3s^3 - 2s^5 + 2s^6 + 3s^8 + s^9 + 2s^{10}$ $p = s + s^2 + 2s^3 + 2s^5 - 2s^6 + s^7 - 3s^8 - 2s^{10}$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_9, 0, 0, y_8, y_7, y_4, y_5, y_6, y_3, y_2]$$

861 . Coloring, {3, 5, 9, 10, 12}

R: [7, 7, 8, 6, 3, A, B, C, C, 2, 1, 9]
B: [6, 8, 7, 7, A, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 + 7\,y_3 + 4\,y_4 + 3\,y_6 - 3\,y_2 - 3\,y_5,\ 3\,y_1,\ 3\,y_3 + 3\,y_4 - 3\,y_6,\ 0,\ 0,\ 3\,y_3 + 3\,y_4 - 3\,y_6,\ 3\,y_2,\ 3\,y_4,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$ $p = -s^4 + s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0,\ 0,\ -y_6 + y_4,\ y_2,\ y_1,\ y_6,\ y_7,\ y_6,\ 0,\ y_5,\ y_4,\ y_3]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

862 . Coloring, {3, 5, 9, 11, 12}

R: [7, 7, 8, 6, 3, A, B, C, C, C, 4, 9]
B: [6, 8, 7, 7, A, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0,\ 0,\ -y_6 + y_5 + y_4 - y_3 - y_2 + y_1,\ y_6,\ 0,\ y_5,\ -2\,y_6 + 2\,y_5 + 2\,y_4 - 2\,y_3 - 2\,y_2 + 2\,y_1,\ y_4,\ y_3,\ y_2,\ 2\,y_4,\ y_1]$$

$p' = s^7 - s^8$ $p' = s^6 - s^8$ $p = s^6 - s^9$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, y_6, y_5, y_4, y_7, 0, y_9, y_8, 0]$$

863 . Coloring, {3, 5, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^4 - 4s^5 - 8s^6 + 8s^7 - 16s^8$

R: [7, 7, 8, 6, 3, A, B, C, B, 2, 4, 9]
B: [6, 8, 7, 7, A, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_2, y_1, y_2 + y_1 + y_3 - y_4 - y_8 - y_7 - y_9 + y_6 + y_5, 0, y_3, y_4, y_8, y_7, y_9, y_6, y_5]$$

$p = - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_4, 0, y_3, 0, y_1, y_2, y_6, y_5, 0, y_9, y_7, y_8]$$

864 . Coloring, {3, 6, 7, 8, 9}

R: [7, 7, 8, 6, A, 3, A, B, C, C, 1, 5]
B: [6, 8, 7, 7, 3, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_2, 0, y_1, 0, y_8, y_6, y_7, y_5, 0, y_4, y_3, y_9]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_1, y_3, y_2, 0, y_3, y_9, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^7 + s^{10}$

865 . Coloring, {3, 6, 7, 8, 10}

R: [7, 7, 8, 6, A, 3, A, B, B, 2, 1, 5]
B: [6, 8, 7, 7, 3, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 2\,y_4, y_4, y_5, y_6, 0, y_7, y_8, 0]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 9\,y_6 + 9\,y_5 - 7\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4, 5\,y_6, 0, 9\,y_6 + 9\,y_5 - 7\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4, 5\,y_5, 9\,y_6 + 9\,y_5 - 7\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4, 5\,y_1, 5\,y_2, 5\,y_3, 5\,y_4]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 + s^9$

866 . Coloring, {3, 6, 7, 8, 11}

R: [7, 7, 8, 6, A, 3, A, B, B, C, 4, 5]
B: [6, 8, 7, 7, 3, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {3, 4, 6, 8, 11}}

See Matrix

$$[0, 0, 7\,y_8, 7\,y_7, 7\,y_6, 7\,y_5, 7\,y_4, 7\,y_3, 0, 7\,y_2, 7\,y_1, 9\,y_8 + 9\,y_7 - 7\,y_6 + 9\,y_5 - 7\,y_4 + 9\,y_3 - 7\,y_2 + 9\,y_1]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 10

See Matrix

$$[y_3, y_1, y_2, 0, 0, y_3 - y_1 - y_2 + y_9 + y_7 + y_8 + y_6 - y_4 - y_5, y_9, y_7, y_8, y_6, y_4, y_5]$$

$p = s^9 - s^{10}$

867 . Coloring, {3, 6, 7, 8, 12}

R: [7, 7, 8, 6, A, 3, A, B, B, C, 1, 9]
B: [6, 8, 7, 7, 3, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_9, 0, 0, y_8, y_7, y_6, y_5, y_4, y_3, y_2]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_1, y_2, y_7, y_3, y_4, y_5, y_6, 0, y_9, y_8, y_{10}]$$

868 . Coloring, {3, 6, 7, 9, 10}

R: [7, 7, 8, 6, A, 3, A, C, C, 2, 1, 5]
B: [6, 8, 7, 7, 3, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2\ y_4, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, 0, y_8]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_7, y_2, 0, y_7, y_1, y_7, y_5, y_6, y_4, y_3]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

869 . Coloring, {3, 6, 7, 9, 11}

R: [7, 7, 8, 6, A, 3, A, C, C, C, 4, 5]
B: [6, 8, 7, 7, 3, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_7, y_6, y_4, y_5, y_6, y_3, 0, y_2, 0, y_1]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 - y_2 + y_3 - y_4 - y_5 - y_6 + y_7, y_1, y_2, 0, 0, y_3, y_4, y_5, 2\,y_2, y_6, y_7, 0]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = -s^3 + s^9$

870 . Coloring, {3, 6, 7, 9, 12}

R: [7, 7, 8, 6, A, 3, A, C, C, C, 1, 9]
B: [6, 8, 7, 7, 3, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[-4\,y_3 + 2\,y_2, 0, y_1, 0, 0, -2\,y_3 + y_2, 2\,y_1, y_3, y_4, y_2, 0, y_5]$$

$p = s^4 - s^6$ $p' = s^4 - s^6$ $p' = -s^5 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, -y_3 + 2\,y_6, y_1, 2\,y_3, y_3, y_4, y_7, 0, y_6, y_5, 0]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

871 . Coloring, {3, 6, 7, 10, 11}

R: [7, 7, 8, 6, A, 3, A, C, B, 2, 4, 5]
B: [6, 8, 7, 7, 3, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_7, y_5, y_6, y_4, y_3, 0, y_{10}, y_8, y_9]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_7 - y_6 - y_4 - y_3 + y_2 + y_1, 0, y_5, 0, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

$p' = s^7 - s^8$ $p = s^7 - s^9$

872 . Coloring, {3, 6, 7, 10, 12}

R: [7, 7, 8, 6, A, 3, A, C, B, 2, 1, 9]
B: [6, 8, 7, 7, 3, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_{10}, y_9, y_8, 0, 0, y_6, y_7, y_5, y_3, y_4, y_2, y_1]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_7, y_8, y_7, 0, y_5, y_6, y_4]$$

$p = -s^6 + s^9$

873 . Coloring, {3, 6, 7, 11, 12}

R: [7, 7, 8, 6, A, 3, A, C, B, C, 4, 9]
B: [6, 8, 7, 7, 3, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_7, y_8, y_9, y_5, y_6]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 + y_6 - y_4 - y_5 - y_7 + y_8 + y_9, y_1, y_2, 0, y_3, y_6, y_4, y_5, 0, y_7, y_8, y_9]$$

$$p = -s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$$

874 . Coloring, {3, 6, 8, 9, 10}

R: [7, 7, 8, 6, A, 3, B, B, C, 2, 1, 5]
B: [6, 8, 7, 7, 3, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_7 - y_4 + y_5, 0, 2\,y_7 - y_4 + y_5, y_7, y_3, y_4, 0, y_5, y_6, y_7]$$

$$p' = -s^5 + s^8 \quad p' = -s^6 + s^9 \quad p = -s^5 + s^8$$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_1, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$$p = -s^2 + s^8 \quad p' = -s^2 + s^8$$

875 . Coloring, {3, 6, 8, 9, 11}

R: [7, 7, 8, 6, A, 3, B, B, C, C, 4, 5]
B: [6, 8, 7, 7, 3, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8, 3\,y_4, 3\,y_2, 0, 3\,y_3, -3\,y_5 - 3\,y_6 + 5\,y_7 - 3\,y_8 - 3\,y_4 - 3\,y_2 + 5\,y_3 + 5\,y_1, 3\,y_1]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_5, y_6, y_7, 0, 0, y_8, y_1, y_2, y_3, y_4, y_9, y_{10}]$$

876 . Coloring, {3, 6, 8, 9, 12}

R: [7, 7, 8, 6, A, 3, B, B, C, C, 1, 9]
B: [6, 8, 7, 7, 3, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, 0, -3\,y_1 - 3\,y_3 - 3\,y_2 - 3\,y_4 - 3\,y_6 + 10\,y_5, 0, 0, 3\,y_4, 3\,y_3, 3\,y_2, -3\,y_4 + 3\,y_5, 3\,y_4, 3\,y_6, 3\,y_5]$$

$$p' = -s^5 + s^8 \quad p' = -s^4 + s^7 \quad p = -s^4 + s^7$$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_3, y_4, y_2, y_1, y_6, y_5, y_9, 0, y_8, y_6, y_7]$$

$p = s^3 - s^{10}$

877 . Coloring, {3, 6, 8, 10, 11}

R: [7, 7, 8, 6, A, 3, B, B, B, 2, 4, 5]
B: [6, 8, 7, 7, 3, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, y_9, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_5, 0, y_5, 0, 0, -3\,y_5 + 2\,y_1, y_1, y_5, y_2, y_4, 0, y_3]$$

$p = s^4 - s^8$ $p' = s^5 - s^7$ $p' = -s^4 + s^6$

878 . Coloring, {3, 6, 8, 10, 12}

R: [7, 7, 8, 6, A, 3, B, B, B, 2, 1, 9]
B: [6, 8, 7, 7, 3, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_2 - y_5, 0, 0, y_5, y_3, y_4, 2\,y_5, y_5, y_6, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_2, 2\,y_5, y_3, y_5, y_1, y_5, 0, y_6, 0, y_4]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$

879 . Coloring, {3, 6, 8, 11, 12}

R: [7, 7, 8, 6, A, 3, B, B, B, C, 4, 9]
B: [6, 8, 7, 7, 3, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_6, y_5, 0, y_3, 2\,y_1, y_4, y_2, y_1, y_7, y_8]$$

$p = s^4 - s^9$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_3, y_2, y_1, 0, y_8, y_7, y_6, y_5, 0, y_4, 0, y_9]$$

880 . Coloring, {3, 6, 9, 10, 11}

R: [7, 7, 8, 6, A, 3, B, C, C, 2, 4, 5]
B: [6, 8, 7, 7, 3, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 3, 4, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[0, y_3, y_2, y_1, -y_3 + y_2 + y_1 - y_9 + y_7 - y_8 + y_6 - y_5 + y_4, y_9, y_7, y_8, 0, y_6, y_5, y_4]$$

$$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$$p = -s^3 + s^9$$

881 . Coloring, {3, 6, 9, 10, 12}

R: [7, 7, 8, 6, A, 3, B, C, C, 2, 1, 9]
B: [6, 8, 7, 7, 3, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[2 y_2, 7 y_2 + 7 y_5 + 7 y_1 - 9 y_7 - 9 y_6 + 7 y_4 - 9 y_3, 7 y_2 + 5 y_5 + 7 y_1 - 9 y_7 - 9 y_6 + 7 y_4 - 9 y_3, 0, 0, 2 y_5, 2 y_1, 2 y_7, 2 y_6, 2 y_5, 2 y_4, 2 y_3]$$

$$p = -s^4 + s^{10} \quad p = -s^4 + s^6 + s^7 - s^9 \quad p = s^4 + s^5 - s^7 - s^8$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_8, y_7, y_5, y_6, y_4, y_6, 0, y_3, y_2, y_1]$$

$$p = s^4 - s^9$$

882 . Coloring, {3, 6, 9, 11, 12}

R: [7, 7, 8, 6, A, 3, B, C, C, C, 4, 9]
B: [6, 8, 7, 7, 3, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_2, y_1, 0, y_8, 2\, y_6, y_7, y_5, y_6, y_4, y_3]$$

$p = s^7 - s^9$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, 0]$$

883 . Coloring, {3, 6, 10, 11, 12}

R: [7, 7, 8, 6, A, 3, B, C, B, 2, 4, 9]
B: [6, 8, 7, 7, 3, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_9, y_{10}, y_8, 0, y_7, y_6, y_4, y_5, y_3, y_1, y_2]$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_3, 0, y_4, 0, y_1, y_2, y_8, y_9, 0, y_5, y_6, y_7]$$

884 . Coloring, {3, 7, 8, 9, 10}

R: [7, 7, 8, 6, A, A, A, B, C, 2, 1, 5]
B: [6, 8, 7, 7, 3, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_6 + y_5, y_6, y_3, y_6, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, -y_2 + y_6, y_3, 0, y_2, y_1, y_2, y_4, 0, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

885 . Coloring, {3, 7, 8, 9, 11}

R: [7, 7, 8, 6, A, A, A, B, C, C, 4, 5]
B: [6, 8, 7, 7, 3, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_5, y_3, y_4, 2\,y_1, y_1, 0, y_2, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_9, y_5, y_6, 0, y_7, y_8]$$

886 . Coloring, {3, 7, 8, 9, 12}

R: [7, 7, 8, 6, A, A, A, B, C, C, 1, 9]
B: [6, 8, 7, 7, 3, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_7, y_6, y_7, y_5, y_4, y_3, y_2]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_7, y_8, y_6, y_5, y_7, y_4, y_3, 0, 0, y_1, y_2]$$

$p = s^6 - s^9$

887 . Coloring, {3, 7, 8, 10, 11}

R: [7, 7, 8, 6, A, A, A, B, B, 2, 4, 5]
B: [6, 8, 7, 7, 3, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 2\,y_4, y_3, y_7, y_4, 0, y_5, y_6, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[-7\,y_1 - 7\,y_2 - 7\,y_3 + 9\,y_4 + 9\,y_5 - 7\,y_6 + 9\,y_7, 0, 7\,y_1, 0, 0, 7\,y_2, 7\,y_3, 7\,y_4, 7\,y_5, 0, 7\,y_6, 7\,y_7]$$

$p = -s^2 - s^3 + s^7 + s^8$

888 . Coloring, {3, 7, 8, 10, 12}

R: [7, 7, 8, 6, A, A, A, B, B, 2, 1, 9]
B: [6, 8, 7, 7, 3, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_5, y_6, 0, 0, 0, y_4, y_3, y_4, 2\,y_4, y_2, y_1, 0]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_5, y_4, y_5, 0, 0, y_6, y_7]$$

$p = s^5 - s^8$

889 . Coloring, {3, 7, 8, 11, 12}

R: [7, 7, 8, 6, A, A, A, B, B, C, 4, 9]
B: [6, 8, 7, 7, 3, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, 2\,y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, 0, y_8, y_9]$$

890 . Coloring, {3, 7, 9, 10, 11}

R: [7, 7, 8, 6, A, A, A, C, C, 2, 4, 5]
B: [6, 8, 7, 7, 3, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_2, 0, 2\,y_5, y_1, -3\,y_5 + 2\,y_3, y_6, y_5, 0, y_4, 0, y_3]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, 0, y_7, 2\,y_5]$$

$p = -s^3 + s^8$

891 . Coloring, {3, 7, 9, 10, 12}

R: [7, 7, 8, 6, A, A, A, C, C, 2, 1, 9]
B: [6, 8, 7, 7, 3, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-10\,y_1 - 10\,y_2 + 22\,y_3 - 10\,y_4 + 22\,y_5,\ 4\,y_1,\ 0,\ 0,\ 0,\ -5\,y_1 - 5\,y_2 + 11\,y_3 - 5\,y_4 + 11\,y_5,\ 4\,y_2,\ -5\,y_1 - 5\,y_2 + 11\,y_3 - 5\,y_4 + 11\,y_5,\ 4\,y_3,\ 4\,y_4,\ 0,\ 4\,y_5]$$

$p' = s^3 + s^4 - s^6 - s^7$ $p = s^2 - s^8$ $p' = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ 0,\ y_6,\ y_5,\ y_4,\ y_3,\ y_2,\ y_3,\ 0,\ 0,\ y_1,\ 2\,y_3]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

892 . Coloring, {3, 7, 9, 11, 12}

R: [7, 7, 8, 6, A, A, A, C, C, C, 4, 9]
B: [6, 8, 7, 7, 3, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0,\ 0,\ 0,\ 2\,y_3,\ 0,\ y_5,\ 2\,y_3,\ y_3,\ y_4,\ y_1,\ 0,\ y_2]$$

$p' = s^4 - s^6$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_5, y_4, y_3, 0, y_4, y_2, y_1, y_7, 0, 0, y_6, 0]$$

$p = s^3 - s^8$

893 . Coloring, {3, 7, 10, 11, 12}

R: [7, 7, 8, 6, A, A, A, C, B, 2, 4, 9]
B: [6, 8, 7, 7, 3, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_4, 0, y_3, 0, y_2, y_1, y_9, y_8, y_7, y_6, y_5]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_3, y_2, 0, 0, y_1, 3\, y_2]$$

$p = -s^3 + s^8$

894 . Coloring, {3, 8, 9, 10, 11}

R: [7, 7, 8, 6, A, A, B, B, C, 2, 4, 5]
B: [6, 8, 7, 7, 3, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_6, 0, y_5, y_4, y_3, y_2, y_7, 0, y_1, -y_6 + y_5 - y_4 - y_3 + y_2 + 2\,y_7 + y_1, y_7]$$

$p' = s^3 - s^4 + s^5 - s^6 + s^7 - s^8 \quad p = s^3 - s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_4, 0, y_3, 0, 0, y_1, y_2, y_9, y_7, y_8, y_6, y_5]$$

895 . Coloring, {3, 8, 9, 10, 12}

R: [7, 7, 8, 6, A, A, B, B, C, 2, 1, 9]
B: [6, 8, 7, 7, 3, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 - 6\,y_3 - 3\,y_2 + 13\,y_4 - 3\,y_5 - 3\,y_6 + 13\,y_7, 3\,y_1, 0, 0, 0, 3\,y_3, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^4 - s^5 + s^7 + s^8 \quad p = s^4 - s^6 - s^7 + s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_7, y_5, y_4, y_6, y_3, y_6, 0, y_2, y_6, y_1]$$

$p = -s^3 + s^8 \quad p' = -s^3 + s^8$

896 . Coloring, {3, 8, 9, 11, 12}

Ωp(Δ)=0: $p = s + s^2 + 3s^4 + 4s^5 + 8s^7 + 16s^8$

R: [7, 7, 8, 6, A, A, B, B, C, C, 4, 9]
B: [6, 8, 7, 7, 3, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, 0, y_6, 2\,y_5, y_5, y_4, y_3, y_2, y_1]$$

$$p = s^6 - s^8$$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_1, y_2, y_3, 0, y_8, y_9, y_{10}, y_4, 0, y_5, y_6, y_7]$$

897 . Coloring, {3, 8, 10, 11, 12}

R: [7, 7, 8, 6, A, A, B, B, B, 2, 4, 9]
B: [6, 8, 7, 7, 3, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_4, 0, y_3, 0, y_2, y_1, y_7, 2\,y_7, y_6, y_5, 0]$$

$$p = -s^2 + s^8$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[2\,y_5, 0, y_2, 0, y_1, y_6, y_7, y_5, 0, y_4, 0, y_3]$$

$$p = -s^3 + s^8$$

898 . Coloring, {3, 9, 10, 11, 12}

R: [7, 7, 8, 6, A, A, B, C, C, 2, 4, 9]
B: [6, 8, 7, 7, 3, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_1, 0, 8\,y_1 + 8\,y_2 - 3\,y_3 - 3\,y_6 + 8\,y_5 - 11\,y_7, 0, 3\,y_2, 3\,y_3, 5\,y_1 + 5\,y_2 - 3\,y_4 + 5\,y_5 - 8\,y_7, 3\,y_4, 3\,y_6, 3\,y_5, 3\,y_7]$$

$p = -s^2 + s^8 \quad p' = s^2 - s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_5, 0, y_4, y_2, y_3, y_8, 0, y_9, y_7, y_6]$$

899 . Coloring, {4, 5, 6, 7, 8}

$\Omega p(\Delta)=0: \quad p' = 3s^2 + 2s^3 - 8s^4 + 8s^5 - 32s^7 \quad p = 3s^2 + 14s^3 - 24s^5 + 32s^6 - 32s^7 - 128s^8$

R: [7, 7, 7, 7, 3, 3, A, B, B, C, 1, 5]
B: [6, 8, 8, 6, A, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_7 - y_6 + y_5 + y_4 + y_3 - y_2 - y_1, 0, y_7, 0, y_6, 0, y_5, y_4, y_3, y_2, y_1]$$

$p = s^7 - s^8$

900 . Coloring, {4, 5, 6, 7, 9}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, 3, A, C, C, C, 1, 5]
B: [6, 8, 8, 6, A, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_5, 0, 0, y_6, 0, y_4]$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 - y_2 + y_3 + y_4 + y_5 - y_6, 0, y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

901 . Coloring, {4, 5, 6, 7, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, A, C, B, 2, 1, 5]
B: [6, 8, 8, 6, A, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_1, y_2, 0, y_3, 0, y_4, 0, 0, y_5, y_6, y_6]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, 0, y_2 + y_1 + y_4 + y_5 - y_6 - y_3, 0, y_1, y_4, y_5, y_6, y_3]$$

$p = s^6 - s^7$

902 . Coloring, {4, 5, 6, 7, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, A, C, B, C, 4, 5]
B: [6, 8, 8, 6, A, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, 0, 0, y_6, y_7, y_5]$$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[-3\,y_1 + 5\,y_2 - 3\,y_3 + 8\,y_5, 3\,y_4, 0, 0, 0, -3\,y_4 + 8\,y_2 - 3\,y_6 + 5\,y_5, 0, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_6, 3\,y_5]$$

$p = -s + s^7$ $p' = -s + s^7$

903 . Coloring, {4, 5, 6, 7, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, A, C, B, C, 1, 9]
B: [6, 8, 8, 6, A, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[-y_1 + y_2 - y_3 - y_4 + y_5 + y_6, 0, y_1, 0, 0, 0, y_2, 0, y_3, y_4, y_5, y_6]$$

$$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

904 . Coloring, {4, 5, 6, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, B, B, C, C, 1, 5]
B: [6, 8, 8, 6, A, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, 0, 0, 0, y_5, y_6]$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, 0, y_2, 0, y_3, 0, y_4, y_5, y_6, y_7, y_8]$$

905 . Coloring, {4, 5, 6, 8, 10}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, 3, 3, B, B, B, 2, 1, 5]
B: [6, 8, 8, 6, A, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	5 *vs* 6

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, y_3, y_2, 0, y_3, 0, y_4, 0, 0, 0, y_5, 0]$$

$p = s^3 - s^6$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, y_4, 0, y_5, 0, y_4, y_3, y_2, 0, y_1]$$

$p = -s^4 + s^6$

906 . Coloring, {4, 5, 6, 8, 11}

$\Omega p(\Delta)=0$: $p' = s^2 - 8s^5 - 16s^6$ $p' = s^3 - 8s^6 - 16s^7$ $p = s^2 - 8s^5 - 16s^6$

R: [7, 7, 7, 7, 3, 3, B, B, B, C, 4, 5]
B: [6, 8, 8, 6, A, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_3, y_2, 0, y_4, 0, 0, 0, y_6, y_5]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, 0, y_4, y_5, y_6, 0, y_7]$$

907 . Coloring, {4, 5, 6, 8, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, 3, B, B, B, C, 1, 9]
B: [6, 8, 8, 6, A, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_4, 0, y_5, 0, 0, 0, y_1, 0, y_2, 0, y_3, y_5]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_2, y_3, y_4, 0, y_5, 0, y_6, 0, y_7]$$

908 . Coloring, {4, 5, 6, 9, 10}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, 3, B, C, C, 2, 1, 5]
B: [6, 8, 8, 6, A, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_6, y_1, 0, y_4, 0, y_3, 0, 0, 0, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, 0, y_1, 0, y_2, y_4, y_5, y_6, y_7]$$

909 . Coloring, {4, 5, 6, 9, 11}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^5 + 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 7, 7, 7, 3, 3, B, C, C, C, 4, 5]
B: [6, 8, 8, 6, A, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_4, 0, y_5, 0, 0, 0, y_3, y_6]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_7, y_6, 0, 0, 0, y_5, 0, y_4, y_3, y_2, y_1, 0]$$

910 . Coloring, {4, 5, 6, 9, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^4 + 8s^5 - 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, 3, 3, B, C, C, C, 1, 9]
B: [6, 8, 8, 6, A, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3 y_1, 0, -3 y_1 - 3 y_2 + 5 y_5 - 3 y_4 + 5 y_3, 0, 0, 0, 3 y_2, 0, 3 y_5, 0, 3 y_4, 3 y_3]$$

$p = - s^2 - s^3 + s^5 + s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 - y_2 - y_3 + y_4 + y_5 - y_6, 0, y_1, y_2, y_3, 0, y_4, 0, y_5, y_6, 0]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

911 . Coloring, {4, 5, 6, 10, 11}

$\Omega p(\Delta)=0$: $p = - 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, B, C, B, 2, 4, 5]
B: [6, 8, 8, 6, A, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2 y_6, y_4, y_1, y_2, 0, y_3, 0, 0, 0, y_5, y_6]$$

$p = - s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_7, 0, y_6, y_4, y_5, y_3, y_2]$$

912 . Coloring, {4, 5, 6, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, B, C, B, 2, 1, 9]
B: [6, 8, 8, 6, A, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, 2\,y_5, 2\,y_5, 0, 0, 0, y_2, 0, y_4, 0, y_3, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1]$$

913 . Coloring, {4, 5, 6, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, B, C, B, C, 4, 9]
B: [6, 8, 8, 6, A, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 0, 2\,y_1, 2\,y_2, 0, 0, 2\,y_5, 0, 2\,y_4, 0, 2\,y_3, 3\,y_1]$$

$p = s^3 - s^6$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_8, y_6, 0, y_7, 0, y_3, y_4, y_5]$$

914 . Coloring, {4, 5, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 + 8s^5 + 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, A, A, B, C, C, 1, 5]
B: [6, 8, 8, 6, A, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, 0, y_5, y_6, y_7, y_8, y_9]$$

915 . Coloring, {4, 5, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, A, B, B, 2, 1, 5]
B: [6, 8, 8, 6, A, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_1, y_2, y_3, 0, 2\,y_1 - 2\,y_3, 0, y_4, 0, 0, y_5, 2\,y_1 - 2\,y_3, 0]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_2, 0, y_1, 0, y_6, y_5, y_4, 2\,y_4, y_7]$$

$p = s^6 - s^8$

916 . Coloring, {4, 5, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, A, B, B, C, 4, 5]
B: [6, 8, 8, 6, A, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_4, y_3, y_2, 0, y_1, 0, 0, y_7, y_5, y_6]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_2 - 2\,y_6, y_2, y_1, 0, 0, y_4, 0, y_3, y_7, y_6, 2\,y_6, y_5]$$

$p' = -s^6 + s^8$ $p = -s^6 + s^8$

917 . Coloring, {4, 5, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, A, B, B, C, 1, 9]
B: [6, 8, 8, 6, A, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[-y_1 + y_2 - y_3 - y_4 + y_5 + y_6, 0, y_1, 0, 0, 0, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_2, y_1, y_7, y_8, y_6, 0, y_5, 0, y_3, y_4, y_9]$$

918 . Coloring, {4, 5, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, A, C, C, 2, 1, 5]
B: [6, 8, 8, 6, A, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6, y_5, y_4, 0, y_3, 0, y_2, 0, 0, y_1, 0, y_6]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$[0, 0, y_3, y_2, 0, y_1, 0, y_7, y_8, y_6, y_4, y_5]$

919 . Coloring, {4, 5, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, A, C, C, C, 4, 5]
B: [6, 8, 8, 6, A, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$[0, 0, y_1, y_2, y_3, 0, y_4, 0, 0, y_5, 0, y_6]$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$[y_3, y_4, y_5, 0, 0, y_6, 0, y_7, 2\,y_1, y_1, y_2, 0]$

$p = -s^3 + s^8$

920 . Coloring, {4, 5, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, A, C, C, C, 1, 9]
B: [6, 8, 8, 6, A, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_4,\ 0,\ y_4,\ 0,\ 0,\ 0,\ y_3,\ 0,\ y_1,\ y_2,\ 0,\ 3\,y_4 - y_3 + y_1 + y_2]$$

$p' = -s^4 + s^5 \quad p = s^4 - s^5$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0,\ y_5,\ y_1,\ y_2,\ y_3,\ y_4,\ 0,\ y_6,\ 0,\ y_7,\ y_8,\ 0]$$

921 . Coloring, {4, 5, 7, 10, 11}

Ωp(Δ)=0: $p = s^2 - 12s^4 + 8s^5 + 16s^6 + 32s^7 - 64s^8 \quad p' = s^2 + 2s^3 - 8s^4 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, A, C, B, 2, 4, 5]
B: [6, 8, 8, 6, A, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0,\ y_3,\ y_4,\ y_2,\ y_2,\ 0,\ y_1,\ 0,\ 0,\ y_5,\ y_6,\ y_6]$$

$p' = -s^4 + s^7 \quad p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_3 - 3\,y_2 - 3\,y_5 + 10\,y_6,\ 0,\ 3\,y_1,\ 0,\ 0,\ 3\,y_3,\ 0,\ 3\,y_2,\ -3\,y_4 + 3\,y_6,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6]$$

$p' = -s^2 + s^7 \quad p = -s^2 + s^7$

922 . Coloring, {4, 5, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 + 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, A, A, C, B, 2, 1, 9]
B: [6, 8, 8, 6, A, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$[y_2, y_1, y_3, 0, 0, 0, y_7, 0, y_5, y_6, y_4, y_3]$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$[0, 0, 3y_2, 3y_3, 3y_1, -3y_2 - 3y_3 + 5y_1 - 3y_4 + 5y_5 - 3y_6 + 5y_7, 0, 3y_4, 0, 3y_5, 3y_6, 3y_7]$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

923 . Coloring, {4, 5, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, A, C, B, C, 4, 9]
B: [6, 8, 8, 6, A, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_2 - y_6 - y_3 + y_4 + y_5, y_1, 0, 0, y_2, 0, y_6, y_3, y_4, y_5]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_8, y_7, 0, y_6, y_5, 0, y_4, 0, y_3, y_2, y_9]$$

924 . Coloring, {4, 5, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, B, B, C, 2, 1, 5]
B: [6, 8, 8, 6, A, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_3, y_2, 0, y_3, 0, y_4, 0, 0, y_6, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_6, y_7, 0, y_5, 0, y_3, y_4, y_2, y_1, y_8]$$

925 . Coloring, {4, 5, 8, 9, 11}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^5 - 32s^7$ $p = s^2 - 4s^4 - 8s^5 + 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, 3, A, B, B, C, C, 4, 5]
B: [6, 8, 8, 6, A, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_3, y_2, y_1, 0, y_7, 0, 0, y_6, y_5, y_4]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_3, y_4, y_2, 0, 0, y_1, 0, y_6, y_5, y_8, y_9, y_7]$$

926 . Coloring, {4, 5, 8, 9, 12}

Ωp(Δ)=0: $p' = -s^2 - 2s^3 + 8s^4 + 8s^5 - 32s^7$ $p = s^2 + 2s^3 - 8s^4 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, B, B, C, C, 1, 9]
B: [6, 8, 8, 6, A, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3 y_4, 0, 3 y_3, 0, 0, 0, 3 y_2, 0, 3 y_1, 3 y_3, -3 y_4 + 7 y_3 - 3 y_2 + 10 y_1, 3 y_3 + 3 y_1]$$

$p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_2, y_1, y_9, y_8, y_7, 0, y_6, 0, y_5, y_4, y_3]$$

927 . Coloring, {4, 5, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, B, B, B, 2, 4, 5]
B: [6, 8, 8, 6, A, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$[0, y_4, 2y_4 - 3y_1, y_3, 2y_1, 0, y_2, 0, 0, y_1, y_5, 0]$

$p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$[2y_1, 0, 2y_2, 0, 0, 2y_3, 0, 2y_4, 2y_5, 3y_1, 0, 2y_6]$

$p = -s^5 + s^7$

928 . Coloring, {4, 5, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, B, B, B, 2, 1, 9]
B: [6, 8, 8, 6, A, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$[y_2, y_1, y_4, 0, 0, 0, y_5, 0, 2y_4, y_4, y_3, 0]$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, 0, y_5, 0, y_6, 0, y_7]$$

929 . Coloring, {4, 5, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, B, B, B, C, 4, 9]
B: [6, 8, 8, 6, A, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_4, y_1, 0, 0, y_2, 0, y_6, y_4, y_5, y_3]$$

$p = - s^4 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, 0, y_7, 0, y_8]$$

930 . Coloring, {4, 5, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, B, C, C, 2, 4, 5]
B: [6, 8, 8, 6, A, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 2\,y_1 - 2\,y_6, 0, y_5, 0, 0, y_6, y_4, 2\,y_6]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_8, 0, y_7, 0, 0, y_6, 0, y_5, y_4, y_3, y_2, y_1]$$

931 . Coloring, {4, 5, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, B, C, C, 2, 1, 9]
B: [6, 8, 8, 6, A, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, 0, -y_1 - y_2 - 2\,y_3 + 6\,y_5 - y_4, 0, y_5, y_3, y_4, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, 7\,y_1, -7\,y_1 + 9\,y_3 - 7\,y_4 - 7\,y_2 + 9\,y_5 - 7\,y_6 + 9\,y_7, 7\,y_3, 7\,y_4, 0, 7\,y_2, 0, 7\,y_5, 7\,y_6, 7\,y_7]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

932 . Coloring, {4, 5, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, B, C, C, C, 4, 9]
B: [6, 8, 8, 6, A, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 7\,y_1 + 7\,y_2 - 9\,y_5 + 7\,y_3 - 9\,y_4, 2\,y_1, 0, 0, 2\,y_2, 0, 2\,y_5, 7\,y_1 + 7\,y_2 - 9\,y_5 + 7\,y_3 - 9\,y_4, 2\,y_3, 2\,y_4]$$

$p = s^2 - s^4 - s^5 + s^7$ $p' = s^2 + s^3 - s^5 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_3, y_1, y_2, 0, y_5, y_4, 0, y_8, 0, y_7, y_6, 0]$$

933 . Coloring, {4, 5, 10, 11, 12}

Ωp(Δ)=0: $p' = -3s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$ $p = 3s^2 + 10s^3 + 40s^5 + 32s^6 + 32s^7 + 128s^8$

R: [7, 7, 7, 7, 3, A, B, C, B, 2, 4, 9]
B: [6, 8, 8, 6, A, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	8 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_5, y_4, y_3, 0, 0, y_2, 0, y_5, y_4, y_1, y_4]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 8, 11}}

See Matrix

$$[y_4, 0, y_3, 0, y_2, y_1, 0, -y_4 - y_3 + y_2 - y_1 + y_7 - y_6 + y_5, 0, y_7, y_6, y_5]$$

$p = s + s^2 + s^3 - s^6 - s^7 - s^8$

934 . Coloring, {4, 6, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = 9s^2 - 4s^4 + 24s^5 - 16s^6 + 96s^7 - 64s^8$ $p' = 3s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, A, B, C, C, 1, 5]
B: [6, 8, 8, 6, 3, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	8 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, y_2, 0, y_3, 0, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_7, y_8, y_9, 0, y_1, 0, y_2, y_3, y_4, y_5, y_6]$$

935 . Coloring, {4, 6, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, B, B, 2, 1, 5]
B: [6, 8, 8, 6, 3, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_3, y_2, y_1, 0, 2\,y_1, 0, y_5, 0, 0, y_4, 2\,y_1, 0]$$

$p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_1, -2\,y_1 + 2\,y_3, 0, y_2, 0, y_3, y_6, y_4, 2\,y_1, y_5]$$

$p = -s^5 + s^7$ $p' = -s^5 + s^7$

936 . Coloring, {4, 6, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, B, B, C, 4, 5]
B: [6, 8, 8, 6, 3, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_4, 0, y_3, 0, 0, y_5, 2\,y_1, y_6]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_2, y_6, y_1, 0, 0, y_5, 0, y_4, y_3, y_7, 2\,y_1, y_8]$$

$p = s^7 - s^9$

937 . Coloring, {4, 6, 7, 8, 12}

$\Omega p(\Delta)=0: \quad p = -s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, B, B, C, 1, 9]
B: [6, 8, 8, 6, 3, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[-y_2 + y_1 - y_5 - y_6 + y_4 + y_3, 0, y_2, 0, 0, 0, y_1, 0, y_5, y_6, y_4, y_3]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_9, y_7, y_8, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1]$$

938 . Coloring, {4, 6, 7, 9, 10}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, A, C, C, 2, 1, 5]
B: [6, 8, 8, 6, 3, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[2\,y_5, y_4, y_5, 0, y_1, 0, y_2, 0, 0, y_3, 0, 2\,y_5]$$

$p = -s^3 + s^6 \quad p' = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_1, 0, y_2, 0, y_8, y_6, y_7, y_4, y_5]$$

939 . Coloring, {4, 6, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, C, C, C, 4, 5]
B: [6, 8, 8, 6, 3, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, y_1, 2\,y_1, y_2, 0, y_4, 0, 0, y_3, 0, y_5]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_7, y_6, y_5, 0, 0, y_4, 0, y_3, 2\,y_5, y_2, y_1, 0]$$

$p = -s^2 + s^8$

940 . Coloring, {4, 6, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, A, C, C, C, 1, 9]
B: [6, 8, 8, 6, 3, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_1, 0, y_1, 0, 0, 0, 3\,y_1 + y_2 + y_3 - y_4, 0, y_2, y_3, 0, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_4, y_5, y_3, y_1, y_2, 0, y_8, 0, y_7, y_6, 0]$$

941 . Coloring, {4, 6, 7, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, A, C, B, 2, 4, 5]
B: [6, 8, 8, 6, 3, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, y_5, y_3, y_3, 0, y_2, 0, 0, y_4, y_5, y_5]$$

$p' = s^4 - s^7$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_8, 0, y_7, 0, 0, y_6, 0, y_4, y_5, y_3, y_1, y_2]$$

942 . Coloring, {4, 6, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, 3, A, C, B, 2, 1, 9]
B: [6, 8, 8, 6, 3, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_5, y_1, y_7, 0, 0, 0, y_2, 0, y_3, y_4, y_6, y_7]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_3, y_5, 0, y_4, 0, y_8, y_6, y_7]$$

943 . Coloring, {4, 6, 7, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 7, 7, 7, A, 3, A, C, B, C, 4, 9]
B: [6, 8, 8, 6, 3, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_2 - y_3 - y_4 + y_6 + y_5, y_1, 0, 0, y_2, 0, y_3, y_4, y_6, y_5]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_7, y_6, 0, y_5, y_4, 0, y_3, 0, y_2, y_9, y_8]$$

944 . Coloring, {4, 6, 8, 9, 10}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 7, 7, 7, A, 3, B, B, C, 2, 1, 5]
B: [6, 8, 8, 6, 3, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_6, 0, y_4, 0, y_3, 0, 0, y_5, y_7, y_6]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_4, 0, y_2, 0, y_3, y_5, y_6, y_8, y_7]$$

945 . Coloring, {4, 6, 8, 9, 11}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$ $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$

R: [7, 7, 7, 7, A, 3, B, B, C, C, 4, 5]
B: [6, 8, 8, 6, 3, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, y_2, y_1, y_4, 0, 4\,y_2 + 4\,y_1 + 5\,y_4 - 6\,y_3, 0, 0, -2\,y_2 - 2\,y_1 - 4\,y_4 + 5\,y_3, y_3, 5\,y_2 + 5\,y_1 + 6\,y_4 - 8\,y_3]$$

$p' = -s^3 + s^6$ $p' = -s^2 + s^5$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_5, y_4, 0, 0, y_3, 0, y_2, y_8, y_9, y_7, y_6]$$

946 . Coloring, {4, 6, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, B, B, C, C, 1, 9]
B: [6, 8, 8, 6, 3, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-3\,y_2 - 3\,y_1 + 10\,y_4 - 3\,y_3, 0, 3\,y_2, 0, 0, 0, 3\,y_1, 0, -3\,y_2 + 3\,y_4, 3\,y_2, 3\,y_3, 3\,y_4]$$

$p = s^2 - s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_1, y_5, y_2, y_3, y_4, 0, y_6, 0, y_7, y_8, y_9]$$

947 . Coloring, {4, 6, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, B, B, B, 2, 4, 5]
B: [6, 8, 8, 6, 3, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_4, y_3, y_2, 2\,y_3, 0, y_1, 0, 0, y_6, y_5, 0]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_5, 0, y_5, 0, 0, -2\,y_5 + 2\,y_3, 0, y_3, y_4, y_2, 0, y_1]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$

948 . Coloring, {4, 6, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, B, B, B, 2, 1, 9]
B: [6, 8, 8, 6, 3, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_2, y_3, y_5, 0, 0, 0, y_4, 0, 2\,y_5, y_5, y_1, 0]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_3, y_1, y_2, y_7, 0, y_6, 0, y_5, 0, y_4]$$

949 . Coloring, {4, 6, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 8s^5 - 24s^6 - 16s^7 - 64s^8$ $p' = s^3 + 4s^4 + 8s^5 + 8s^6 + 16s^7$

R: [7, 7, 7, 7, A, 3, B, B, B, C, 4, 9]
B: [6, 8, 8, 6, 3, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, 0, y_5, y_6, 0, 0, y_4, 0, y_3, y_5, y_2, y_1]$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$[y_4, y_3, y_2, 0, y_1, y_6, 0, y_5, 0, y_8, 0, y_7]$

950 . Coloring, {4, 6, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, B, C, C, 2, 4, 5]
B: [6, 8, 8, 6, 3, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, y_2, y_1, y_5, y_4, 0, y_3, 0, 0, y_7, y_6, 2\, y_1]$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$[y_1, 0, y_2, 0, 0, y_6, 0, y_4, y_5, y_3, y_8, y_7]$

951 . Coloring, {4, 6, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, B, C, C, 2, 1, 9]
B: [6, 8, 8, 6, 3, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$[y_1, -y_1 - 2y_4 - y_3 + 6y_5 - y_2, y_4, 0, 0, 0, y_3, 0, y_5, y_4, y_2, y_5]$

$p' = s^3 - s^6$ $p' = s^4 - s^7$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$[0, 0, y_4, y_3, y_2, y_1, 0, y_7, 0, y_6, y_5, y_8]$

952 . Coloring, {4, 6, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, B, C, C, C, 4, 9]
B: [6, 8, 8, 6, 3, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 7\,y_5 + 7\,y_4 - 9\,y_3 + 7\,y_2 - 9\,y_1, 2\,y_5, 0, 0, 2\,y_4, 0, 2\,y_3, 7\,y_5 + 7\,y_4 - 9\,y_3 + 7\,y_2 - 9\,y_1, 2\,y_2, 2\,y_1]$$

$p' = s^2 + s^3 - s^5 - s^6$ $p = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_8, y_7, y_6, 0, y_5, y_4, 0, y_3, 0, y_2, y_1, 0]$$

953 . Coloring, {4, 6, 10, 11, 12}

Ωp(Δ)=0: $p = s^2 - 2s^3 - 8s^5 - 32s^7$ $p' = -s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, B, C, B, 2, 4, 9]
B: [6, 8, 8, 6, 3, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_5, y_4, y_1, 0, 0, y_2, 0, y_5, y_4, y_3, y_4]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_8, 0, y_7, y_6, 0, y_5, 0, y_4, y_3, y_2]$$

954 . Coloring, {4, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, A, B, C, 2, 1, 5]
B: [6, 8, 8, 6, 3, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$[y_2, y_1, 0, 0, y_2, 0, y_3, 0, 0, y_4, y_5, y_5]$

$p = s^3 - s^6$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$[0, 0, y_1, y_7, 0, y_6, 0, y_5, y_4, 0, y_3, y_2]$

955 . Coloring, {4, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, A, B, C, C, 4, 5]
B: [6, 8, 8, 6, 3, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, 0, y_1, y_2, 0, y_6, 0, 0, y_3, y_4, y_5]$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_2, y_1, y_8, 0, 0, y_7, 0, y_6, y_5, 0, y_4, y_3]$$

956 . Coloring, {4, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, A, B, C, C, 1, 9]
B: [6, 8, 8, 6, 3, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_3 - y_4 - y_5 + y_1 + y_2, 0, 0, 0, 0, 0, y_3, 0, y_4, y_5, y_1, y_2]$$

$p = -s^5 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 2y_1, 2y_2, 2y_3, 2y_4, 2y_5, 0, 2y_7, 0, 0, 3y_1, 2y_6]$$

$p = -s^4 + s^8$

957 . Coloring, {4, 7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 + 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, A, A, B, B, 2, 4, 5]
B: [6, 8, 8, 6, 3, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, 0, y_2, y_5, 0, y_3, 0, 0, y_4, y_5, 0]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, 0, y_2 + y_1 - y_4 - y_3 - y_6 + y_5, 0, y_4, y_3, 0, y_6, y_5]$$

$p = s^6 - s^7$

958 . Coloring, {4, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 - 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 - 8s^4 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, A, B, B, 2, 1, 9]
B: [6, 8, 8, 6, 3, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, 0, y_3, 0, y_4, y_5, y_6, 0]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_4, y_3, y_2, y_1, 0, y_4 + y_3 - y_2 - y_1 - y_6 + y_5, 0, 0, y_6, y_5]$$

$p = s^4 - s^5 + s^6 - s^7$

959 . Coloring, {4, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$ $p = s^2 - 12s^4 + 8s^5 + 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, A, A, A, B, B, C, 4, 9]
B: [6, 8, 8, 6, 3, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	4 *vs* 8

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_5 - y_3 - y_4 + y_2 + y_1, 0, 0, y_5, 0, y_3, y_4, y_2, y_1]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_3 + y_4 - y_2, y_3, y_4, 0, y_1, y_3 + y_4 - y_1, 0, y_4, 0, 0, y_3, y_2]$$

$p' = s^4 - s^5$ $p' = -s^5 + s^7$ $p = s^4 - s^6$ $p' = -s^5 + s^6$

960 . Coloring, {4, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^5 - 32s^7$ $p = s^2 - 4s^4 - 8s^5 + 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, A, A, A, C, C, 2, 4, 5]
B: [6, 8, 8, 6, 3, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, 0, y_4, y_5, 0, y_3, 0, 0, y_2, 0, y_4]$$

$p = s^3 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, 0, y_4, y_5, 0, y_6, y_7]$$

961 . Coloring, {4, 7, 9, 10, 12}

Ωp(Δ)=0: $p = s^2 - 12s^4 + 8s^5 + 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, A, C, C, 2, 1, 9]
B: [6, 8, 8, 6, 3, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	2 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[-y_1 + 2y_2, y_1, 0, 0, 0, 0, 2y_2, 0, y_2, 2y_2, 0, y_2]$$

$p = -s^2 + s^3$ $p = -s^2 + s^4$ $p = -s^2 + s^5$ $p = -s^2 + s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_5, y_4, y_2, y_3, 0, y_1, 0, 0, y_7, y_6]$$

962 . Coloring, {4, 7, 9, 11, 12}

Ωp(Δ)=0: $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$

R: [7, 7, 7, 7, A, A, A, C, C, C, 4, 9]
B: [6, 8, 8, 6, 3, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 5	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, y_4, 0, 0, y_3, 0, y_1, y_2, 0, y_4 - y_3 + y_1 + y_2]$$

$p = -s^4 + s^5$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_3, y_2, 0, y_3, y_4, 0, y_5, 0, 0, y_6, 0]$$

$p = -s^2 + s^7$

963 . Coloring, {4, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, A, C, B, 2, 4, 9]
B: [6, 8, 8, 6, 3, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, 0, y_3, 0, y_4, y_6, y_5, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, y_3, y_4, 0, y_5, 0, 0, y_6, y_7]$$

964 . Coloring, {4, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, B, B, C, 2, 4, 5]
B: [6, 8, 8, 6, 3, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_1, y_7, 0, y_6, 0, 0, y_5, y_4, y_3]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, 0, y_4, y_5, y_6, y_7, y_8]$$

965 . Coloring, {4, 8, 9, 10, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, B, B, C, 2, 1, 9]
B: [6, 8, 8, 6, 3, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3 y_6, 3 y_5, 0, 0, 0, 0, 3 y_4, 0, 3 y_3, 3 y_2, -3 y_6 - 3 y_5 - 3 y_4 + 13 y_3 - 3 y_2 + 13 y_1, 3 y_1]$$

$p = - s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_1, y_3, y_4, y_2, 0, y_6, 0, 2 y_5, y_5, y_7]$$

$p = s^4 - s^8$

966 . Coloring, {4, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, B, B, C, C, 4, 9]
B: [6, 8, 8, 6, 3, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 0, -7\,y_5 + 9\,y_4 + 9\,y_3 - 7\,y_2 + 9\,y_1, 0, 0, 7\,y_5, 0, 7\,y_4, 7\,y_3, 7\,y_2, 7\,y_1]$$

$p = -s^2 - s^3 + s^5 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_1, 2\,y_1 - 2\,y_6, y_2, 0, y_4, y_3, 0, y_5, 0, 2\,y_6, y_6, y_7]$$

$p' = -s^4 + s^8$ $p = -s^4 + s^8$

967 . Coloring, {4, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^5 + 32s^7$ $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$

R: [7, 7, 7, 7, A, A, B, B, B, 2, 4, 9]
B: [6, 8, 8, 6, 3, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	5 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_1, 0, y_2, 0, 0, y_3, 0, y_4, y_4, y_5, 0]$$

$p = s^3 - s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_4, 0, y_1 + y_2 + y_3 - y_5, 0, y_1, y_2, 0, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^7$ $p = -s^3 + s^4 - s^5 + s^6$

968 . Coloring, {4, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^2 + 2s^3 - 8s^5 + 32s^7$ $p = -9s^2 + 4s^4 - 24s^5 - 16s^6 + 96s^7 + 64s^8$

R: [7, 7, 7, 7, A, A, B, C, C, 2, 4, 9]
B: [6, 8, 8, 6, 3, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	3 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, -y_1 + 2y_3, 0, y_1, 0, 0, 2y_3, 0, y_3, -y_2 + 2y_3, y_2, y_3]$$

$p = s^3 - s^7$ $p' = s^4 - s^6$ $p' = s^5 - s^6$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_2, 0, y_3, 0, y_1, y_8, 0, y_7, 0, y_6, y_5, y_4]$$

969 . Coloring, {5, 6, 7, 8, 9}

R: [7, 7, 7, 6, 3, 3, A, B, C, C, 1, 5]
B: [6, 8, 8, 7, A, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_3, 0, y_2, y_6, y_4, 0, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_1, 0, y_2, 0, y_5, y_6, y_7, y_4, y_3, y_8, y_9]$$

970 . Coloring, {5, 6, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, A, B, B, 2, 1, 5]
B: [6, 8, 8, 7, A, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[2\,y_1, 2\,y_2, 3\,y_1 - 2\,y_3, 0, 4\,y_3, 2\,y_3, 2\,y_4, 0, 0, 2\,y_5, 4\,y_3, 0]$$

$p' = s^3 - s^6$ $p' = s^4 - s^7$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, 5\,y_3, 0, 5\,y_1, 5\,y_2, 10\,y_1, 11\,y_3 - 15\,y_1 + 11\,y_2 - 5\,y_4 + 11\,y_5 - 5\,y_6, 5\,y_4, 5\,y_5, 5\,y_6]$$

$p = -s^3 + s^5 + s^6 - s^8$ $p = s^3 + s^4 - s^6 - s^7$

971 . Coloring, {5, 6, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, A, B, B, C, 4, 5]
B: [6, 8, 8, 7, A, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$[0, 0, y_4, y_1, y_2, y_5, y_3, 0, 0, y_6, y_7, y_8]$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$[y_2, y_1, 0, 0, 0, y_3, y_4, y_6, y_5, y_9, y_8, y_7]$

972 . Coloring, {5, 6, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = -6s^2 + s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, A, B, B, C, 1, 9]
B: [6, 8, 8, 7, A, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$[-y_1 + y_3 + y_2 - y_5 - y_4 + y_6 + y_7, 0, y_1, 0, 0, y_3, y_2, 0, y_5, y_4, y_6, y_7]$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}, {4, 7, 11}}

See Matrix

$$[0, 11\,y_1 - 5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_5 - 5\,y_6 + 11\,y_7 - 5\,y_8, 0, 5\,y_1, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 0, 5\,y_6, 5\,y_7, 5\,y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

973 . Coloring, {5, 6, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, A, C, C, 2, 1, 5]
B: [6, 8, 8, 7, A, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2\,y_1, y_4, y_3, 0, y_2, y_1, y_6, 0, 0, y_5, 0, 2\,y_1]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_3, 0, y_1, y_2, 2\,y_1, y_4, y_5, y_6, y_7]$$

$p = s^5 - s^8$

» SYNC'D !RANK'D

974 . Coloring, {5, 6, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, A, C, C, C, 4, 5]
B: [6, 8, 8, 7, A, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, y_6, 0, y_7]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, 0, y_7, y_6, y_5, 2\,y_6, y_4, y_3, 0]$$

$p = s^2 - s^8$

975 . Coloring, {5, 6, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = -2s^2 + 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, A, C, C, C, 1, 9]
B: [6, 8, 8, 7, A, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_4, 0, y_5, 0, 0, y_4, y_3, 0, y_2, y_1, 0, y_5 + y_4 - y_3 + y_2 + y_1]$$

$p = s^5 - s^7$ $p' = s^5 - s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_3, 2\,y_2, y_2, y_5, y_6, 0, y_7, y_4, 0]$$

$p = -s^5 + s^8$

976 . Coloring, {5, 6, 7, 10, 11}

R: [7, 7, 7, 6, 3, 3, A, C, B, 2, 4, 5]
B: [6, 8, 8, 7, A, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_7, y_6, y_5, y_5, y_4, y_3, 0, 0, y_2, y_1, y_1]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, y_3, 2\,y_3, y_4, y_7, y_5, y_6]$$

$p = s^6 - s^8$

977 . Coloring, {5, 6, 7, 10, 12}

R: [7, 7, 7, 6, 3, 3, A, C, B, 2, 1, 9]
B: [6, 8, 8, 7, A, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_7, y_6, y_5, 0, 0, y_4, y_3, 0, y_5, y_2, y_1, y_4]$$

$p' = s^5 - s^8$ $p = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_1, y_2, -y_2 + y_4, 2\,y_2 - 2\,y_4 + y_3, -2\,y_2 + 2\,y_4, 0, y_1, y_4, y_3]$$

$p = s^2 - s^5$ $p' = s^2 - s^5$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$

978 . Coloring, {5, 6, 7, 11, 12}

R: [7, 7, 7, 6, 3, 3, A, C, B, C, 4, 9]
B: [6, 8, 8, 7, A, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1 - y_5 + y_4, y_1 + y_4 - y_3, 0, y_1 + y_4 - y_2, y_1, 0, y_5, y_3, y_4, y_2]$$

$p = s - s^2 + s^5 - s^6$ $p' = -s + s^2 - s^5 + s^6$ $p' = -s + s^3 - s^5 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_6 + y_5 - y_4 - y_3 + y_2 - 2\,y_7, y_1, 0, 0, y_6, y_5, y_7, y_4, 0, y_3, y_2, y_7]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = -s^3 + s^9$

979 . Coloring, {5, 6, 8, 9, 10}

R: [7, 7, 7, 6, 3, 3, B, B, C, 2, 1, 5]
B: [6, 8, 8, 7, A, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_6, y_2, 0, y_3, y_6, y_4, 0, 0, 0, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_7, 2\,y_2, y_6, y_4, y_5, y_3]$$

$p = -s^2 + s^8$

980 . Coloring, {5, 6, 8, 9, 11}

R: [7, 7, 7, 6, 3, 3, B, B, C, C, 4, 5]
B: [6, 8, 8, 7, A, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_2, y_1, y_7, y_6, y_5, 0, 0, 0, y_4, y_3]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_6, y_7, 0, 0, 0, y_3, y_4, y_5, y_2, y_1, y_8, y_9]$$

981 . Coloring, {5, 6, 8, 9, 12}

R: [7, 7, 7, 6, 3, 3, B, B, C, C, 1, 9]
B: [6, 8, 8, 7, A, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-5\,y_1 - 5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_5 + 11\,y_6,\ 0,\ 5\,y_1,\ 0,\ 0,\ 5\,y_2,\ 5\,y_3,\ 0,\ 5\,y_4,\ 0,\ 5\,y_5,\ 5\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0,\ y_1,\ 0,\ y_8,\ y_7,\ y_6,\ y_5,\ y_4,\ 0,\ y_3,\ y_6,\ y_2]$$

$p = s^4 - s^9$

982 . Coloring, {5, 6, 8, 10, 11}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, B, B, B, 2, 4, 5]
B: [6, 8, 8, 7, A, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0,\ y_3,\ y_1,\ y_2,\ y_3,\ y_4,\ y_5,\ 0,\ 0,\ 0,\ y_6,\ 0]$$

$p = -s^2 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_3,\ 0,\ 0,\ 0,\ 0,\ y_4,\ y_3,\ 2\,y_3,\ y_2,\ y_1,\ 0,\ y_5]$$

$p' = s^4 - s^6$ $p = s^4 - s^6$

» SYNC'D !RANK'D

983 . Coloring, {5, 6, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, B, B, B, 2, 1, 9]
B: [6, 8, 8, 7, A, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$[y_3, 2\,y_5, y_4, 0, 0, y_5, y_2, 0, 2\,y_5, 0, y_1, 0]$

$p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$[0, 0, 0, 2\,y_4, y_5, y_4, y_3, 2\,y_4, 0, y_2, 0, y_1]$

$p' = s^3 - s^6$ $p = s^3 - s^6$

» SYNC'D !RANK'D

984 . Coloring, {5, 6, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 - s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, B, B, B, C, 4, 9]
B: [6, 8, 8, 7, A, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_4, 0, y_3, y_2, 0, y_5, 0, y_6, y_7]$$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[2\, y_4, y_1, 0, 0, y_2, y_3, y_4, y_5, 0, y_7, 0, y_6]$$

$p = s^3 - s^8$

985 . Coloring, {5, 6, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, B, C, C, 2, 4, 5]
B: [6, 8, 8, 7, A, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_7, y_5, y_4, y_3, y_2, y_1, 0, 0, 0, y_6, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_7, y_2, 2\, y_2, y_3, y_4, y_5, y_6]$$

$p = -s^2 + s^8$

986 . Coloring, {5, 6, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = -2s^2 + 7s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, B, C, C, 2, 1, 9]
B: [6, 8, 8, 7, A, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-y_1 - 3y_2 - y_3 + 6y_5 - y_4, 2y_2, y_1, 0, 0, y_2, y_3, 0, y_5, 0, y_4, y_5]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_5, y_4, 2y_5, 0, y_3, y_7, y_6]$$

$p = -s^5 + s^8$

987 . Coloring, {5, 6, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 7s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, B, C, C, C, 4, 9]
B: [6, 8, 8, 7, A, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, 3y_2, 3y_1, 0, -3y_2 - 3y_1 - 3y_6 + 5y_5 - 3y_4 + 5y_3, 3y_6, 0, 3y_5, 0, 3y_4, 3y_3]$$

$p = -s - s^2 + s^6 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 + 3\,y_3 - y_4 - y_5 + y_6, y_1, 0, 0, 2\,y_3, y_2, y_3, y_4, 0, y_5, y_6, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$ $p = -s^2 + s^8$

» SYNC'D !RANK'D

988 . Coloring, {5, 6, 10, 11, 12}

R: [7, 7, 7, 6, 3, 3, B, C, B, 2, 4, 9]
B: [6, 8, 8, 7, A, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 2\,y_6, y_1, y_2, 0, y_3, y_4, 0, y_7, 0, y_5, y_6]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_2, 0, 0, 0, y_1, y_5, y_4, 2\,y_4, 0, y_3, y_7, y_6]$$

$p = s^5 - s^8$

989 . Coloring, {5, 7, 8, 9, 10}

Ωp(Δ)=0: $p = 2s^2 - 7s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, A, B, C, 2, 1, 5]
B: [6, 8, 8, 7, A, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 10	9 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6, y_5, y_4, 0, y_6, y_2, y_3, 0, 0, y_1, y_2, y_2]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_8, 0, y_7, y_6, y_5, y_4, y_7, y_3, y_2]$$

$p = s^6 - s^9$

» SYNC'D !RANK'D

990 . Coloring, {5, 7, 8, 9, 11}

Ωp(Δ)=0: $p = 2s^2 + 7s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, A, B, C, C, 4, 5]
B: [6, 8, 8, 7, A, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_3, y_4, y_5, y_6, y_7, 0, 0, y_1, y_2, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_7, y_5, y_6, y_7, y_9, y_8]$$

$p = -s^3 + s^{10}$

991 . Coloring, {5, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, A, B, C, C, 1, 9]
B: [6, 8, 8, 7, A, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, y_3, y_1 - y_3 + y_5 + y_4 - y_2, 0, y_5, y_4, y_3, y_2]$$

$p' = s^6 - s^7$ $p' = s^5 - s^7$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}, {4, 7, 11}}

See Matrix

$$[0, -3\,y_1 + 5\,y_2 - 3\,y_3 - 3\,y_8 + 5\,y_4 - 3\,y_5 - 3\,y_6 + 5\,y_9 - 3\,y_7, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_8, 3\,y_4, 3\,y_5, 0, 3\,y_6, 3\,y_9, 3\,y_7]$$

$p = -s^3 - s^4 - s^5 + s^8 + s^9 + s^{10}$

992 . Coloring, {5, 7, 8, 10, 11}

R: [7, 7, 7, 6, 3, A, A, B, B, 2, 4, 5]
B: [6, 8, 8, 7, A, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, -2\,y_2 + 2\,y_3, y_4, y_5, 0, 0, y_6, -2\,y_2 + 2\,y_3, 0]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[-y_1 + y_2 + y_5 + y_3 + y_6 - y_7, 0, y_1, 0, 0, y_2, y_4, y_5, y_3, y_4, y_6, y_7]$$

$p = s^7 - s^9$ $p' = s^7 - s^8$

993 . Coloring, {5, 7, 8, 10, 12}

R: [7, 7, 7, 6, 3, A, A, B, B, 2, 1, 9]
B: [6, 8, 8, 7, A, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_4, 0, 0, y_4, y_3, 0, 2\,y_4, y_6, y_5, 0]$$

$p = s^4 - s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_1, 0, -7\,y_6 + 8\,y_5 - 7\,y_4 + 14\,y_2 - 3\,y_1, -5\,y_6 + 7\,y_5 - 5\,y_4 + 7\,y_2, -7\,y_6 + 14\,y_5 - 7\,y_4 - 3\,y_3 + 8\,y_2]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

994 . Coloring, {5, 7, 8, 11, 12}

R: [7, 7, 7, 6, 3, A, A, B, B, C, 4, 9]
B: [6, 8, 8, 7, A, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_2, 0, y_1, y_3 + y_2 - y_1 + y_6 + y_7 - y_5 - y_4, 0, y_6, y_7, y_5, y_4]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 10

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

995 . Coloring, {5, 7, 9, 10, 11}

R: [7, 7, 7, 6, 3, A, A, C, C, 2, 4, 5]
B: [6, 8, 8, 7, A, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_2, y_3, 2y_4 - 2y_5, y_4, y_5, y_6, 0, 0, y_1, 0, 2y_4 - 2y_5]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_8, y_4, y_7, y_8, y_6, y_5]$$

$p = s^4 - s^9$

996 . Coloring, {5, 7, 9, 10, 12}

R: [7, 7, 7, 6, 3, A, A, C, C, 2, 1, 9]
B: [6, 8, 8, 7, A, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[2\,y_1,\ y_4,\ y_1,\ 0,\ 0,\ y_1,\ -y_4 - 4\,y_1 + 6\,y_3 - y_2,\ 0,\ y_3,\ y_2,\ 0,\ y_3]$$

$p = -s^2 + s^8$ $p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 6

See Matrix

$$[0,\ 0,\ 3\,y_1,\ 3\,y_2,\ 3\,y_4,\ -7\,y_1 - 7\,y_2 + 14\,y_4 + 8\,y_5 - 3\,y_6,\ -7\,y_1 - 7\,y_2 + 8\,y_4 - 3\,y_3 + 14\,y_5,\ 3\,y_3,\ 0,\ 3\,y_5,\ 3\,y_6,\ -5\,y_1 - 5\,y_2 + 7\,y_4 + 7\,y_5]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

997 . Coloring, {5, 7, 9, 11, 12}

R: [7, 7, 7, 6, 3, A, A, C, C, C, 4, 9]
B: [6, 8, 8, 7, A, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0,\ 0,\ y_1,\ 2\,y_1,\ 0,\ -5\,y_1 + 2\,y_2,\ y_2,\ 0,\ -8\,y_1 + 3\,y_2 - y_3 + y_4,\ y_3,\ 0,\ y_4]$$

$p = s^4 - s^5$ $p' = -s^4 + s^5$ $p' = -s^4 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_6, y_4, y_5, 0, 2\,y_2, y_3, y_2, y_1, 0, y_8, y_7, 0]$$

$p = -s^4 + s^9$

998 . Coloring, {5, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, A, C, B, 2, 4, 9]
B: [6, 8, 8, 7, A, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_4, y_7, 0, y_8, y_5, 0, y_6, y_2, y_3, y_4]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[-3\,y_1 + 5\,y_2 - 3\,y_3 - 3\,y_4 - 3\,y_5 + 5\,y_6 - 3\,y_7 + 5\,y_8, 0, 3\,y_1, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 0, 3\,y_6, 3\,y_7, 3\,y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

999 . Coloring, {5, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, B, B, C, 2, 4, 5]
B: [6, 8, 8, 7, A, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, -y_1 + y_5 + y_2 - y_3 + y_4 + y_6 - y_7 - y_8, y_1, y_5, y_2, y_3, y_4, 0, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_2, 0, y_1, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

1000 . Coloring, {5, 8, 9, 10, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, B, B, C, 2, 1, 9]
B: [6, 8, 8, 7, A, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3 y_1 - 6 y_2 - 3 y_7 + 13 y_6 - 3 y_5 - 3 y_3 + 13 y_4, 3 y_1, 3 y_2, 0, 0, 3 y_2, 3 y_7, 0, 3 y_6, 3 y_5, 3 y_3, 3 y_4]$$

$p' = s^4 + s^5 - s^7 - s^8$ $p = s^4 - s^6 - s^7 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_4 + y_6, y_3, y_6, y_2, -y_4 + 2 y_6 + y_2, 0, y_1, y_6, y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

» SYNC'D !RANK'D

1001 . Coloring, {5, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, B, C, C, 4, 9]
B: [6, 8, 8, 7, A, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_3, y_1, 0, y_2, y_3 - y_1 + y_2 - y_5 - y_6 + y_7 + y_4, 0, y_5, y_6, y_7, y_4]$$

$p = s^7 - s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_6, y_4, y_8, y_5, 0, y_7, y_8, y_9]$$

$p = -s^5 + s^{10}$

» SYNC'D !RANK'D

1002 . Coloring, {5, 8, 10, 11, 12}

R: [7, 7, 7, 6, 3, A, B, B, B, 2, 4, 9]
B: [6, 8, 8, 7, A, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_4 + y_5 - y_3 + y_1 + y_2 - y_6, y_4, y_5, 0, y_3, y_1, 0, 2\,y_4, y_2, y_6, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\,y_3, 0, y_4, 0, y_1, y_2, y_3, y_5, 0, y_7, 0, y_6]$$

$p = s^5 - s^8$

1003 . Coloring, {5, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 3s^3 - 6s^4 + 8s^5 - 24s^6 + 32s^7 - 32s^8$

R: [7, 7, 7, 6, 3, A, B, C, C, 2, 4, 9]
B: [6, 8, 8, 7, A, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, -y_1 - y_2 + 3\,y_6 - y_5, y_1, -y_3 + 3\,y_6 - y_4, 0, y_2, y_3, 0, y_6, y_4, y_5, y_6]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$ $p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[-y_1 + y_2 - y_3 + y_4 - y_5 + y_6 - y_7 + y_8, 0, y_1, 0, y_2, y_3, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

M \; N

$ [[0, 0, 0, 0, 168, 0, 78, 0, 0, 208, 0, 152] , [0, 0, 0, 152, 0, 0, 208, 0, 0, 81, 0, 165] , [0, 0, 0, 52, 94, 0, 170, 0, 0, 127, 0, 163] , [0, 152, 52, 0, 0, 78, 0, 0, 168, 0, 156, 0] , [168, 0, 94, 0, 0, 76, 0, 164, 0, 0, 104, 0] , [0, 0, 0, 78, 76, 0, 102, 0, 0, 162, 0, 188] , [78, 208, 170, 0, 0, 102, 0, 102, 240, 0, 312, 0] , [0, 0, 0, 0, 164, 0, 102, 0, 0, 236, 0, 104] , [0, 0, 0, 168, 0, 0, 240, 0, 0, 94, 0, 104] , [208, 81, 127, 0, 0, 162, 0, 236, 94, 0, 304, 0] , [0, 0, 0, 156, 104, 0, 312, 0, 0, 304, 0, 336] , [152, 165, 163, 0, 0, 188, 0, 104, 104, 0, 336, 0]] $ $ [[0, 0, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1] , [0, 0, 0, 1, 1, 0, 1, 0,

0, 1, 0, 1] , [0, 0, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1] , [1, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0] , [1, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0] , [0, 0, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1] , [1, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0] , [0, 0, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1] , [0, 0, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1] , [1, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0] , [0, 0, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1] , [1, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0]] $

τ= 74 , r'= 1/2

R: [7, 7, 7, 6, 3, A, B, C, C, 2, 4, 9]
B: [6, 8, 8, 7, A, 3, A, B, B, C, 1, 5]

Ranges

Action of R on ranges, [[11], [25], [6], [24], [20], [25], [6], [24], [20], [11], [25], [6], [24], [21], [22], [14], [12], [13], [9], [30], [7], [28], [31], [31], [16], [8], [29], [8], [29], [5], [15]]
Action of B on ranges, [[21], [21], [22], [17], [23], [26], [27], [18], [23], [26], [26], [27], [18], [11], [25], [2], [12], [30], [3], [12], [13], [10], [30], [30], [3], [31], [19], [31], [19], [4], [1]]

Cycles: R , {{2, 4, 6, 7, 10, 11}, {9, 12}}, B , {{1, 3, 6, 8, 11}, {5, 10, 12}}

β({1, 5}) = 7/202
β({1, 7}) = 13/808
β({1, 10}) = 13/303
β({1, 12}) = 19/606
β({2, 4}) = 19/606
β({2, 7}) = 13/303
β({2, 10}) = 27/1616
β({2, 12}) = 55/1616
β({3, 4}) = 13/1212
β({3, 5}) = 47/2424
β({3, 7}) = 85/2424
β({3, 10}) = 127/4848
β({3, 12}) = 163/4848
β({4, 6}) = 13/808
β({4, 9}) = 7/202
β({4, 11}) = 13/404
β({5, 6}) = 19/1212
β({5, 8}) = 41/1212
β({5, 11}) = 13/606
β({6, 7}) = 17/808
β({6, 10}) = 27/808
β({6, 12}) = 47/1212
β({7, 8}) = 17/808
β({7, 9}) = 5/101
β({7, 11}) = 13/202
β({8, 10}) = 59/1212
β({8, 12}) = 13/606
β({9, 10}) = 47/2424
β({9, 12}) = 13/606
β({10, 11}) = 19/303
β({11, 12}) = 7/101

Partitions
α([{1, 2, 3, 6, 8, 9, 11}, {4, 5, 7, 10, 12}]) = 1/1

b1 = {1, 2, 3, 6, 8, 9, 11} ` , ` b2 = {4, 5, 7, 10, 12}

Action of R and B on the blocks of the partitions: = [2, 1] [1, 2]
with invariant measure [1, 1]

N by blocks, check: true . ` See partition graph.

` ` See level-2 partition graph.

`

Right Group	
Coloring	{5, 9, 10, 11, 12}
Rank	2
R,B	[7, 7, 7, 6, 3, A, B, C, C, 2, 4, 9], [6, 8, 8, 7, A, 3, A, B, B, C, 1, 5]
π_2	[0, 0, 0, 168, 0, 78, 0, 0, 208, 0, 152, 0, 152, 0, 0, 208, 0, 0, 81, 0, 165, 52, 94, 0, 170, 0, 0, 127, 0, 163, 0, 78, 0, 0, 168, 0, 156, 0, 76, 0, 164, 0, 0, 104, 0, 102, 0, 0, 162, 0, 188, 102, 240, 0, 312, 0, 0, 236, 0, 104, 94, 0, 104, 304, 0, 336]
u_2	[0, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1, 1, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 0, 1] (dim 1)
wpp	[7, 7, 7, 5, 5, 7, 5, 7, 7, 5, 7, 5]

1004 . Coloring, {6, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = - 6s^2 + 5s^3 - 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, A, B, C, 2, 1, 5]
B: [6, 8, 8, 7, 3, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_2, y_1, y_2 - y_4, 0, y_2, y_4, y_3, 0, 0, y_5, y_4, y_4]$$

$p' = - s^5 + s^8$ $p = s^3 - s^6$ $p' = - s^4 + s^7$ $p' = - s^3 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_3, y_1, 0, y_3, y_2, y_3 + y_6, y_4, y_6, y_5, y_7]$$

$p = s^5 - s^8$ $p' = - s^5 + s^8$

1005 . Coloring, {6, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 6s^2 + 5s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, A, B, C, C, 4, 5]
B: [6, 8, 8, 7, 3, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, y_7, y_8, y_1, y_4, y_2, 0, 0, y_3, y_5, y_6]$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$[y_1 + y_2 - y_7 - y_5 - y_6 + y_4 + y_8, y_1, y_3, 0, 0, y_2, y_3, y_7, y_5, y_6, y_4, y_8]$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$ $p = -s^2 + s^{10}$

1006 . Coloring, {6, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = 9s^3 + 2s^4 - 16s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, A, B, C, C, 1, 9]
B: [6, 8, 8, 7, 3, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$[y_1 + y_4, 0, y_1, 0, 0, y_4, y_2, 0, -2y_1 + y_4 + y_2 - y_5 + y_3, y_5, y_4, y_3]$

$p' = s^5 - s^6$ $p = s^5 - s^7$ $p' = -s^6 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 5\,y_3, -5\,y_3 + 5\,y_1 - 5\,y_2 + 5\,y_5 + 5\,y_6 - 5\,y_8, 6\,y_1 - 5\,y_4 + 6\,y_5 + 6\,y_6 - 5\,y_7, 5\,y_1, 5\,y_2, 5\,y_4, 5\,y_5, 0, 5\,y_6, 5\,y_7, 5\,y_8]$$

$p' = -s^4 - s^6 + s^7 + s^9$ $p = -s^4 - s^6 + s^7 + s^9$

1007 . Coloring, {6, 7, 8, 10, 11}

R: [7, 7, 7, 6, A, 3, A, B, B, 2, 4, 5]
B: [6, 8, 8, 7, 3, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_7, y_4, y_5, 0, 0, y_6, y_7, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1 - y_3 - y_4 + y_5, 0, y_2, 0, 0, y_1, y_2, y_6, y_3, y_4, y_6, y_5]$$

$p = s^6 - s^7$ $p' = -s^6 + s^7$ $p' = -s^6 + s^8$

1008 . Coloring, {6, 7, 8, 10, 12}

R: [7, 7, 7, 6, A, 3, A, B, B, 2, 1, 9]
B: [6, 8, 8, 7, 3, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_5, y_3, y_4, 0, 0, y_2, y_1, 0, 2\,y_2, y_6, 2\,y_4, 0]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 0, 11\,y_1 - 5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_5 - 5\,y_6 + 11\,y_7 - 5\,y_8, 5\,y_1, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 0, 5\,y_6, 5\,y_7, 5\,y_8]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

1009 . Coloring, {6, 7, 8, 11, 12}

R: [7, 7, 7, 6, A, 3, A, B, B, C, 4, 9]
B: [6, 8, 8, 7, 3, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, -y_2 + y_1 + y_3 - y_5 - y_4 + y_6 + y_7, y_2, 0, y_1, y_3, 0, y_5, y_4, y_6, y_7]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_2, y_3, y_2 - y_3 + y_1 - y_5 + y_6 + y_4 + y_9 - y_7 - y_8, 0, y_1, y_5, y_6, y_4, 0, y_9, y_7, y_8]$$

$p = s^7 - s^8 + s^9 - s^{10}$

1010 . Coloring, {6, 7, 9, 10, 11}

R: [7, 7, 7, 6, A, 3, A, C, C, 2, 4, 5]
B: [6, 8, 8, 7, 3, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_6, y_5, 2\,y_4 - 2\,y_3, y_4, y_3, y_2, 0, 0, y_1, 0, 2\,y_4 - 2\,y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_5 - y_2 - y_3 - y_4 + y_6 + y_7, 0, y_1, 0, 0, y_5, y_1, y_2, y_3, y_4, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

1011 . Coloring, {6, 7, 9, 10, 12}

R: [7, 7, 7, 6, A, 3, A, C, C, 2, 1, 9]
B: [6, 8, 8, 7, 3, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[2\,y_2, -y_1 - 3\,y_2 - y_3 - y_4 + 6\,y_5, y_1, 0, 0, y_2, y_3, 0, y_5, y_4, 0, y_5]$$

$p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, 0, y_9, y_8, y_6, y_7, y_5, y_4, 0, y_3, y_1, y_2]$$

1012 . Coloring, {6, 7, 9, 11, 12}

R: [7, 7, 7, 6, A, 3, A, C, C, C, 4, 9]
B: [6, 8, 8, 7, 3, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_3, 0, y_2 + y_3 - y_1 + y_4 + y_5 - y_6, y_1, 0, y_4, y_5, 0, y_6]$$

$p = -s^6 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 + y_3 - 3y_4 - y_5 - y_6 + y_7, y_1, y_2, 0, 2y_4, y_3, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

1013 . Coloring, {6, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 16s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, A, C, B, 2, 4, 9]
B: [6, 8, 8, 7, 3, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_5, y_3, y_4, 0, y_1, y_2, 0, y_8, y_9, y_7, y_6]$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1 - y_2 + y_6 - y_3 - y_4 - y_8 + y_5 + y_7, 0, y_1, 0, y_2, y_6, y_3, y_4, 0, y_8, y_5, y_7]$$

$$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$$

1014 . Coloring, {6, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 + 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, B, B, C, 2, 4, 5]
B: [6, 8, 8, 7, 3, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_4, y_3, y_5, y_6, 0, 0, y_9, y_8, y_7]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, y_2, y_3, y_4, y_5, y_8, y_6, y_7]$$

$$p = -s^3 + s^9$$

1015 . Coloring, {6, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, B, B, C, 2, 1, 9]
B: [6, 8, 8, 7, 3, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-6\,y_1 - 9\,y_4 - 3\,y_2 + 13\,y_3 - 3\,y_5 + 13\,y_6,\ 3\,y_1 + 3\,y_4,\ 3\,y_1,\ 0,\ 0,\ 3\,y_4,\ 3\,y_2,\ 0,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6]$$

$p = -s^3 + s^9$ $p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0,\ 0,\ y_2,\ y_1,\ y_3,\ y_7,\ y_4,\ y_5,\ 0,\ y_6,\ y_7,\ y_8]$$

$p = -s^5 + s^9$

1016 . Coloring, {6, 8, 9, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, B, B, C, C, 4, 9]
B: [6, 8, 8, 7, 3, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0,\ 0,\ -3\,y_1 - 3\,y_2 - 3\,y_3 + 10\,y_6 - 3\,y_5,\ 3\,y_1,\ 0,\ 3\,y_2,\ 3\,y_3,\ 0,\ -3\,y_4 + 3\,y_6,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6]$$

$p' = s^2 - s^7$ $p = -s^2 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1,\ y_2,\ y_3,\ 0,\ y_4,\ y_5,\ y_8,\ y_6,\ 0,\ y_7,\ y_8,\ y_9]$$

$p = -s^6 + s^{10}$

1017 . Coloring, {6, 8, 10, 11, 12}

R: [7, 7, 7, 6, A, 3, B, B, B, 2, 4, 9]
B: [6, 8, 8, 7, 3, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, 0, y_6, y_5, 0, 2\,y_4, y_4, y_7, 0]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[2\,y_5, 0, y_1, 0, y_2, y_3, y_5, y_4, 0, y_6, 0, y_7]$$

$p = -s^4 + s^8$

1018 . Coloring, {6, 9, 10, 11, 12}

R: [7, 7, 7, 6, A, 3, B, C, C, 2, 4, 9]
B: [6, 8, 8, 7, 3, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, -y_1 - y_2 - y_3 - y_4 + 6\,y_7 - y_5 - y_6, y_1, y_2, 0, y_3, y_4, 0, y_7, y_5, y_6, y_7]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$

1019 . Coloring, {7, 8, 9, 10, 11}

R: [7, 7, 7, 6, A, A, A, B, C, 2, 4, 5]
B: [6, 8, 8, 7, 3, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$[0, y_1, 0, y_4, y_4, y_3, y_2, 0, 0, y_6, y_5, y_5]$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$[y_1, 0, y_8, 0, 0, y_7, y_6, y_5, y_4, 0, y_3, y_2]$

1020 . Coloring, {7, 8, 9, 10, 12}

R: [7, 7, 7, 6, A, A, A, B, C, 2, 1, 9]
B: [6, 8, 8, 7, 3, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, -3\,y_1 - 6\,y_2 - 3\,y_6 + 13\,y_5 - 3\,y_4 + 13\,y_3, 0, 0, 0, 3\,y_2, 3\,y_6, 0, 3\,y_5, 3\,y_4, 3\,y_2, 3\,y_3]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p' = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 0, 5\,y_1 + 5\,y_2 + 5\,y_4 - 5\,y_6, 6\,y_1 + 6\,y_2 + 6\,y_4 - 5\,y_3 - 5\,y_5, 5\,y_1, 5\,y_2, 5\,y_3, 5\,y_4, 0, 0, 5\,y_5, 5\,y_6]$$

$p = -s^2 - s^4 + s^5 + s^7$ $p = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$

1021 . Coloring, {7, 8, 9, 11, 12}

R: [7, 7, 7, 6, A, A, A, B, C, C, 4, 9]
B: [6, 8, 8, 7, 3, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_5, 0, y_4, 3\,y_1, 0, y_3, y_2, y_1, y_5 - y_4 + y_3 + y_2 - 4\,y_1]$$

$p = -s^5 + s^7$ $p = -s^5 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[-y_1 + y_2 + y_3 - 3\,y_4 + y_5 + y_6 - y_7, 2\,y_4, y_1, 0, y_2, y_3, y_4, y_5, 0, 0, y_6, y_7]$$

$p = -s^5 + s^6 - s^7 + s^8$ $p = -s^5 + s^9$

1022 . Coloring, {7, 8, 10, 11, 12}

Ωp(Δ)=0: $p = 2s^2 - 5s^3 - 2s^4 - 16s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, A, B, B, 2, 4, 9]

B: [6, 8, 8, 7, 3, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_2, 0, y_1, 0, y_3, y_4, 0, y_5, y_7, y_6, 0]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_8, 0, 0, y_6, y_7]$$

1023 . Coloring, {7, 9, 10, 11, 12}

Ωp(Δ)=0: $p = 2s^2 + 3s^3 + 2s^4 - 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, A, A, C, C, 2, 4, 9]
B: [6, 8, 8, 7, 3, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -y_1 + 2y_3, 0, y_1, 0, -y_2 + 2y_3, y_2, 0, y_3, 2y_3, 0, y_3]$$

$p = -s^3 + s^5$ $p = -s^3 + s^7$ $p = -s^3 + s^6$ $p = -s^3 + s^4$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_3, y_2, 0, 0, y_1, 2y_3]$$

$p = -s^3 + s^8$

1024 . Coloring, {8, 9, 10, 11, 12}

R: [7, 7, 7, 6, A, A, B, B, C, 2, 4, 9]
B: [6, 8, 8, 7, 3, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, -3y_1 + 5y_3 - 3y_4 + 8y_5, 0, -3y_2 + 8y_3 - 3y_6 + 5y_5, 0, 3y_1, 3y_2, 0, 3y_3, 3y_6, 3y_4, 3y_5]$$

$p = -s + s^7$ $p' = -s + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_4, 0, y_1 + y_2 + y_3 - y_6, 0, y_1, y_2, y_5, y_3, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^5 - s^6 + s^7$ $p = -s^4 + s^8$ $p' = -s^4 + s^8$

1025 . Coloring, {2, 3, 4, 5, 6, 7}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, A, C, B, C, 1, 5]
B: [6, 7, 7, 6, A, A, B, B, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[-y_4 + y_5 + y_3, 0, y_5, 0, y_4, 0, y_3, y_2, 0, y_5 + y_3 - y_2, y_5 + y_3 - y_1, y_1]$$

$p = -s^5 + s^7$ $p = -s^5 + s^8$ $p = -s^5 + s^6$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, -3\,y_1 + 8\,y_3 - 3\,y_5 + 5\,y_6, 0, -3\,y_2 + 5\,y_3 - 3\,y_4 + 8\,y_6, 0, 3\,y_1, 3\,y_2, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p' = s - s^7$ $p = s - s^7$

1026 . Coloring, {2, 3, 4, 5, 6, 8}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, 3, B, B, B, C, 1, 5]
B: [6, 7, 7, 6, A, A, A, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	3 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, 0, y_6, y_7]$$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, -y_2 + 2\,y_3, 0, y_2, 0, -y_1 + 2\,y_3, y_1, 0, y_3, 2\,y_3, 0, y_3]$$

$p = -s^3 + s^4$ $p = -s^3 + s^5$ $p = -s^3 + s^6$ $p = -s^3 + s^7$

1027 . Coloring, {2, 3, 4, 5, 6, 9}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$ $p = s^2 - 12s^4 + 8s^5 + 16s^6 - 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, 3, B, C, C, C, 1, 5]
B: [6, 7, 7, 6, A, A, A, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_1, 5\,y_1 - y_2 - y_3 - y_4, 0, 0, y_1, y_4]$$

$p' = -s^2 + s^6 \quad p = s - s^5 \quad p' = s - s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, y_4, y_5, 0, y_3, y_6, y_7, 0]$$

1028 . Coloring, {2, 3, 4, 5, 6, 10}

$\Omega p(\Delta)=0: \quad p = 9s^3 - 16s^5 - 24s^6 - 16s^7 + 64s^8 \quad p' = 3s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, 3, B, C, B, 2, 1, 5]
B: [6, 7, 7, 6, A, A, A, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[7\,y_4, 7\,y_5, 7\,y_3, 0, 7\,y_2, 0, 7\,y_1, 9\,y_4 - 7\,y_5 - 7\,y_3 - 7\,y_2 + 9\,y_1 + 9\,y_7 - 7\,y_6, 0, 0, 7\,y_7, 7\,y_6]$$

$p = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1 - y_2 - y_3 + 3\,y_4 + y_5, 0, y_1, 2\,y_4, 0, y_2, y_3, y_4, y_5]$$

$p = s^5 - s^6 \quad p' = -s^5 + s^6$

1029 . Coloring, {2, 3, 4, 5, 6, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, B, C, B, C, 4, 5]
B: [6, 7, 7, 6, A, A, A, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 0, 9\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4 + 9\,y_5 - 7\,y_6, 7\,y_1, 7\,y_2, 0, 7\,y_3, 7\,y_4, 0, 0, 7\,y_5, 7\,y_6]$$

$p = -s - s^2 - s^3 + s^5 + s^6 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[3\,y_6, 3\,y_7, 0, 0, 0, 3\,y_3, 3\,y_4, 0, 3\,y_5, -3\,y_6 - 3\,y_7 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_2 + 13\,y_1, 3\,y_2, 3\,y_1]$$

$p = -s^4 - s^5 + s^7 + s^8$

1030 . Coloring, {2, 3, 4, 5, 6, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, B, C, B, C, 1, 9]
B: [6, 7, 7, 6, A, A, A, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, 0, 0, y_2, y_3, y_4, 0, y_7, y_6]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_2, y_3, y_4, 0, 0, y_5, y_6, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1031 . Coloring, {2, 3, 4, 5, 7, 8}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, A, B, B, C, 1, 5]
B: [6, 7, 7, 6, A, 3, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_4, 0, y_3, 0, y_2, y_7, 0, y_6, y_5, y_8]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, -y_1 - y_2 - y_3 - y_4 + 6\,y_7 - y_5 - y_6, y_1, y_2, 0, y_3, y_4, 0, y_7, y_5, y_6, y_7]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

1032 . Coloring, {2, 3, 4, 5, 7, 9}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, A, A, C, C, C, 1, 5]
B: [6, 7, 7, 6, A, 3, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_7, y_4, 0, y_5, 0, y_6]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_4, y_2, 0, y_3, y_5, 0, 2\,y_6, y_6, y_7, 0]$$

$p = s^3 - s^8$

1033 . Coloring, {2, 3, 4, 5, 7, 10}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, A, A, C, B, 2, 1, 5]
B: [6, 7, 7, 6, A, 3, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, y_4, 0, y_5, y_9, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, -3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_5 + 10\,y_6, 3\,y_1, 0, 3\,y_2, 3\,y_3, 0, -3\,y_4 + 3\,y_6, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$

1034 . Coloring, {2, 3, 4, 5, 7, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, 3, A, A, C, B, C, 4, 5]
B: [6, 7, 7, 6, A, 3, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_6 - 3\,y_7 + 13\,y_8 - 3\,y_5 - 3\,y_4 + 13\,y_3, 3\,y_1, 3\,y_2, 0, 0, 3\,y_6, 3\,y_7, 0, 3\,y_8, 3\,y_5, 3\,y_4, 3\,y_3]$$

$p = -s^3 - s^4 + s^8 + s^9$

1035 . Coloring, {2, 3, 4, 5, 7, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, A, A, C, B, C, 1, 9]
B: [6, 7, 7, 6, A, 3, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_6, y_7, y_5, 0, 0, y_4, y_8, y_9]$$

1036 . Coloring, {2, 3, 4, 5, 8, 9}

Ωp(Δ)=0: $p = -s^2 - 4s^4 + 8s^5 + 16s^6 - 32s^7 + 64s^8$ $p = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$

R: [7, 8, 8, 7, 3, A, B, B, C, C, 1, 5]
B: [6, 7, 7, 6, A, 3, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_8, 0, y_7, 0, y_6, 0, y_5, y_4, 0, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_6, 0, y_5, y_3, 0, y_4, y_7, y_8, y_9]$$

1037 . Coloring, {2, 3, 4, 5, 8, 10}

Ωp(Δ)=0: $p = s^3 - 16s^5 - 8s^6 + 16s^7 + 64s^8$ $p' = s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, A, B, B, B, 2, 1, 5]
B: [6, 7, 7, 6, A, 3, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 2\,y_2 - 3\,y_5, 0, 2\,y_5, 0, y_3, y_4, 0, y_5, y_6, 0]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_4 + y_5 - y_2 - y_3 + y_6, y_1, 0, y_4, y_5, 0, y_2, y_3, 0, y_6]$$

$p = -s^6 + s^7$

1038 . Coloring, {2, 3, 4, 5, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, A, B, B, B, C, 4, 5]
B: [6, 7, 7, 6, A, 3, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[-y_1 - y_2 - y_4 - y_3 + 6\,y_6 - y_5, y_1, y_2, 0, 0, y_4, y_3, 0, y_6, y_5, 0, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1039 . Coloring, {2, 3, 4, 5, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, B, B, B, C, 1, 9]
B: [6, 7, 7, 6, A, 3, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, 0, y_2, y_6, y_3, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_6, y_4, y_4, y_3, 0, 0, y_5, 0, y_6]$$

$p = s^4 - s^7$ $p' = -s^4 + s^7$

1040 . Coloring, {2, 3, 4, 5, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 8s^5 - 8s^6 - 16s^7$ $p' = s^3 - 8s^5 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, A, B, C, C, 2, 1, 5]
B: [6, 7, 7, 6, A, 3, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {1, 7, 11}} order: 12

See Matrix

$$[2y_4, 2y_3, 5y_4 - 2y_3 - 2y_5, 0, 2y_2, 0, 2y_4, 2y_1, 0, 5y_4 - 2y_2 - 2y_1, 2y_4, 2y_5]$$

$p' = -s^4 + s^8$ $p' = -s^3 + s^7$ $p' = -s^3 + s^4 - s^5 + s^6$ $p = s^3 - s^4 + s^5 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, -y_1 + y_3 + y_2 - y_4 - y_5 + y_6 + y_7, y_1, 0, y_3, y_2, 0, y_4, y_5, y_6, y_7]$$

$$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$$

1041 . Coloring, {2, 3, 4, 5, 9, 11}

$\Omega p(\Delta)=0$: $p = -s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, B, C, C, C, 4, 5]
B: [6, 7, 7, 6, A, 3, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 0, 5y_3 - 2y_4, 2y_3, 5y_3 - 2y_1 - 2y_2, 0, 2y_3, 2y_1, 0, 2y_2, 2y_3, 2y_4]$$

$$p = -s^2 + s^3 - s^4 + s^5 \quad p = -s^2 + s^6 \quad p = -s^2 - s^4 + s^5 + s^7 \quad p' = -s^3 + s^7$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_2, y_1, 0, 0, y_6, y_7, 0, y_4, y_5, y_8, 0]$$

1042 . Coloring, {2, 3, 4, 5, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, B, C, C, C, 1, 9]
B: [6, 7, 7, 6, A, 3, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[2\,y_2,\ 0,\ 5\,y_2 - 2\,y_3,\ 0,\ 0,\ 0,\ 2\,y_2,\ -2\,y_1 + 2\,y_3,\ 2\,y_1,\ 5\,y_2 - 2\,y_3,\ 2\,y_2,\ 2\,y_3]$$

$p = -s^3 + s^5$ $p = -s^3 + s^6$ $p = -s^3 + s^7$ $p = -s^3 + s^8$ $p = -s^3 + s^4$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0,\ y_5,\ y_1,\ y_2,\ y_7,\ y_3,\ y_4,\ 0,\ 0,\ y_6,\ y_7,\ 0]$$

$p = -s^5 + s^8$

1043 . Coloring, {2, 3, 4, 5, 10, 11}

$\Omega p(\Delta)=0$: $p = -6s^2 + s^3 + 8s^6 - 16s^7 + 64s^8$ $p = 9s^2 + 2s^4 - 16s^6 + 16s^7 - 96s^8$ $p = -27s^2 + 8s^5 + 48s^6 - 64s^7 + 256s^8$

R: [7, 8, 8, 7, 3, A, B, C, B, 2, 4, 5]
B: [6, 7, 7, 6, A, 3, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0,\ 7\,y_6,\ 7\,y_5,\ 7\,y_4,\ 7\,y_3,\ 0,\ 7\,y_2,\ 7\,y_1,\ 0,\ -7\,y_6 - 7\,y_5 + 9\,y_4 - 7\,y_3 + 9\,y_2 - 7\,y_1 + 9\,y_8 - 7\,y_7,\ 7\,y_8,\ 7\,y_7]$$

$p = s^3 + s^4 + s^5 - s^7 - s^8 - s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_6,\ 0,\ y_5,\ 0,\ 0,\ y_4,\ y_3,\ 0,\ y_2,\ y_1,\ y_6 + y_5 - y_4 - y_3 + y_2 + y_1 - y_7,\ y_7]$$

$p = s^7 - s^8$

1044 . Coloring, {2, 3, 4, 5, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^2 + 2s^3 + 8s^5 + 32s^7$ $p = 9s^2 + 2s^4 - 16s^5 - 80s^7 - 32s^8$ $p = -27s^2 + 56s^5 + 16s^6 + 256s^7 + 128s^8$

R: [7, 8, 8, 7, 3, A, B, C, B, 2, 1, 9]
B: [6, 7, 7, 6, A, 3, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, y_2, y_6, 0, 0, 0, y_3, y_5, y_4, y_6, y_8, y_7]$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, y_1, y_2, y_3, y_5, y_4, 0, 0, y_6, y_7, y_8]$

1045 . Coloring, {2, 3, 4, 5, 11, 12}

$\Omega p(\Delta)=0$: $p = -9s^2 + 4s^4 - 24s^5 + 16s^6 - 96s^7 + 64s^8$ $p = 3s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 8, 8, 7, 3, A, B, C, B, C, 4, 9]
B: [6, 7, 7, 6, A, 3, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, 0, y_4, y_1, 0, 0, y_2, y_7, y_3, y_4, y_5, y_6]$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6, y_1, y_2, 0, y_6, y_5, y_4, 0, 0, y_3, y_7, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

1046 . Coloring, {2, 3, 4, 6, 7, 8}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, B, B, C, 1, 5]
B: [6, 7, 7, 6, 3, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_6, 0, y_2, 0, y_3, y_4, 0, y_5, y_8, y_7]$$

Omega Rank for B : cycles: {{9, 12}, {2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, -y_1 - y_2 - y_3 - y_4 + 6\,y_7 - y_5 - y_6, y_1, y_2, 0, y_3, y_4, 0, y_7, y_5, y_6, y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

1047 . Coloring, {2, 3, 4, 6, 7, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, C, C, C, 1, 5]
B: [6, 7, 7, 6, 3, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\,y_3, 0, y_3, 0, y_2, 0, -2\,y_3 + 2\,y_1, y_1, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_4, y_5, 0, y_3, y_2, 0, 2\,y_4, y_6, y_7, 0]$$

$p = s^2 - s^8$

1048 . Coloring, {2, 3, 4, 6, 7, 10}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$

R: [7, 8, 8, 7, A, 3, A, C, B, 2, 1, 5]
B: [6, 7, 7, 6, 3, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, y_7, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_4, 0, y_5, y_2, 0, y_3, y_8, y_6, y_7]$$

1049 . Coloring, {2, 3, 4, 6, 7, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 + 8s^5 + 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, 3, A, C, B, C, 4, 5]
B: [6, 7, 7, 6, 3, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_3, y_1, 0, y_2, y_3, 0, y_5, y_6, y_4]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[2y_4, 2y_5, 2y_6, 0, 0, 2y_7, 2y_3, 0, 2y_1, -2y_4 + 11y_5 + 11y_6 + 11y_7 - 2y_3 - 39y_1 + 11y_2, 2y_2, 3y_5 + 3y_6 + 3y_7 - 11y_1 + 3y_2]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

1050 . Coloring, {2, 3, 4, 6, 7, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 + 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, 3, A, C, B, C, 1, 9]
B: [6, 7, 7, 6, 3, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_2, y_3, y_1, y_4, y_5, y_6, 0, 0, y_9, y_7, y_8]$$

1051 . Coloring, {2, 3, 4, 6, 8, 9}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^5 + 32s^7$ $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$

R: [7, 8, 8, 7, A, 3, B, B, C, C, 1, 5]
B: [6, 7, 7, 6, 3, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[y_4, 0, y_3, 0, y_2, 0, y_1, 4y_4 + 4y_3 + 5y_2 - y_1 - 6y_5, 0, -2y_4 - 2y_3 - 4y_2 + 5y_5, y_5, 5y_4 + 5y_3 + 6y_2 - 8y_5]$$

$p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_8, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7, y_8]$$

$p = -s^6 + s^9$

1052 . Coloring, {2, 3, 4, 6, 8, 10}

$\Omega p(\Delta)=0$: $p' = s^3 - 8s^6 - 16s^7$ $p = s^3 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, A, 3, B, B, B, 2, 1, 5]
B: [6, 7, 7, 6, 3, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	4 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_4, y_3, y_2, 0, 2\,y_2, 0, y_1, y_7, 0, y_6, y_5, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_1, 0, -2\,y_1 + 2\,y_2, y_2, 0, -5\,y_1 + 3\,y_2 - y_3 + y_4, y_3, 0, y_4]$$

$p' = -s^4 + s^5$ $p = s^4 - s^5$ $p' = -s^4 + s^6$

1053 . Coloring, {2, 3, 4, 6, 8, 11}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, B, B, B, C, 4, 5]
B: [6, 7, 7, 6, 3, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, -2\,y_1 - 2\,y_4 + 9\,y_2 + 9\,y_3 - 11\,y_5, 2\,y_1, 2\,y_4 - 2\,y_2 - 2\,y_3 + 2\,y_5, 0, 2\,y_2, 2\,y_3, 0, -2\,y_4 + 7\,y_2 + 7\,y_3 - 9\,y_5, 2\,y_4, 2\,y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[2\,y_1, -3\,y_1 - y_2 - y_3 + 6\,y_5 - y_4, y_1, 0, 0, y_2, y_3, 0, y_5, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

1054 . Coloring, {2, 3, 4, 6, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, 3, B, B, B, C, 1, 9]
B: [6, 7, 7, 6, 3, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, 0, y_3, 0, 0, 0, y_6, y_4, y_5, y_3, y_2, y_4]$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$[0, y_1, y_2, y_6, y_5, y_5, y_3, 0, 0, y_4, 0, y_6]$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1055 . Coloring, {2, 3, 4, 6, 9, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + s^4 + 4s^5 + 8s^7 - 16s^8$ $p = -9s^3 - 8s^5 + 8s^6 - 16s^7 + 64s^8$

R: [7, 8, 8, 7, A, 3, B, C, C, 2, 1, 5]
B: [6, 7, 7, 6, 3, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {1, 7, 11}}

See Matrix

$$[y_5, 5\,y_5 - y_1 - y_2 - y_3 - y_4 - y_6, y_1, 0, y_2, 0, y_5, y_3, 0, y_4, y_5, y_6]$$

$p = s^2 - s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7, y_1, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1056 . Coloring, {2, 3, 4, 6, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, 3, B, C, C, C, 4, 5]
B: [6, 7, 7, 6, 3, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 5\,y_4 - y_2 - y_1 - y_5 - y_3, y_4, y_2, 0, y_4, y_1, 0, y_5, y_4, y_3]$$

$p' = s^3 - s^6$ $p' = -s^4 + s^7$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, y_3, 0, 0, y_4, y_5, 0, 2\,y_3, y_6, y_7, 0]$$

$p = -s^5 + s^8$

1057 . Coloring, {2, 3, 4, 6, 9, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, B, C, C, C, 1, 9]
B: [6, 7, 7, 6, 3, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[2\,y_3,\ 0,\ 5\,y_3 - 2\,y_2 - 2\,y_1,\ 0,\ 0,\ 0,\ 2\,y_3,\ 2\,y_2,\ 2\,y_1,\ 5\,y_3 - 2\,y_2 - 2\,y_1,\ 2\,y_3,\ 2\,y_2 + 2\,y_1]$$

$p' = s^4 - s^5$ $p' = s^3 - s^5$ $p = s^3 - s^6$ $p' = -s^5 + s^7$ $p' = -s^5 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0,\ y_3,\ y_1,\ y_2,\ -2\,y_1 + 2\,y_2,\ y_4,\ y_5,\ 0,\ 0,\ y_6,\ -2\,y_1 + 2\,y_2,\ 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1058 . Coloring, {2, 3, 4, 6, 10, 11}

Ωp(Δ)=0: $p = s^2 + 8s^5 + 16s^6$ $p' = s^2 + 8s^5 + 16s^6$ $p' = s^3 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, A, 3, B, C, B, 2, 4, 5]
B: [6, 7, 7, 6, 3, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {2, 5, 8, 10, 12}}

See Matrix

$$[0,\ -7\,y_1 + 9\,y_2 - 7\,y_3 + 9\,y_8 - 7\,y_4 - 7\,y_5 + 9\,y_6 - 7\,y_7,\ 7\,y_1,\ 7\,y_2,\ 7\,y_3,\ 0,\ 7\,y_8,\ 7\,y_4,\ 0,\ 7\,y_5,\ 7\,y_6,\ 7\,y_7]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, y_2 + y_3 - y_5, y_1, 0, y_2, y_3, y_4, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$ $p = -s^5 + s^8$

1059 . Coloring, {2, 3, 4, 6, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^3 - 8s^5 - 8s^6 - 16s^7$ $p' = s^2 - 8s^4 - 8s^5 - 16s^6$ $p = s^2 - 8s^5 - 80s^6 - 64s^7 - 128s^8$

R: [7, 8, 8, 7, A, 3, B, C, B, 2, 1, 9]
B: [6, 7, 7, 6, 3, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_6, 0, 0, 0, y_5, y_3, y_4, y_6, y_7, y_8]$$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_5, y_3, y_4, 0, 0, y_8, y_6, y_7]$$

1060 . Coloring, {2, 3, 4, 6, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$ $p = s^2 - 12s^4 + 8s^5 + 16s^6 - 32s^7 + 64s^8$

R: [7, 8, 8, 7, A, 3, B, C, B, C, 4, 9]
B: [6, 7, 7, 6, 3, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_5, y_4, 0, 0, y_3, y_2, y_1, y_5, y_7, y_6]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, y_3 - y_6, 0, y_2, y_3, y_4, 0, 0, y_5, y_6, y_6]$$

$p = -s^4 + s^7$ $p' = s^4 - s^7$ $p' = s^5 - s^8$

1061 . Coloring, {2, 3, 4, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, A, B, C, C, 1, 5]
B: [6, 7, 7, 6, 3, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, y_6, 0, y_5, y_4, 0, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 2\,y_7, y_6, y_5, 0, y_4, y_3, 0, y_2, 0, y_1, y_7]$$

$p = s^3 - s^8$

1062 . Coloring, {2, 3, 4, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 + 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, A, A, B, B, 2, 1, 5]
B: [6, 7, 7, 6, 3, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	2 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 + y_3 - y_4 - y_5 + y_6, y_1, 0, 0, y_2, 0, y_3, y_4, 0, y_5, y_6, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, y_2, y_2, 0, y_2, y_2, 0, 3\,y_2 - y_1, 0, y_2, y_1]$$

$p' = s^4 - s^6$ $p' = s^3 - s^5$ $p' = s^2 - s^6$ $p' = s - s^5$ $p = s - s^7$

1063 . Coloring, {2, 3, 4, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 - 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^4 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, A, A, B, B, C, 4, 5]
B: [6, 7, 7, 6, 3, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, y_1, 0, y_5, y_6, 0, y_4, y_3, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[y_6, y_5, y_4, 0, 0, y_3, y_2, 0, y_1, 0, -y_6 - y_5 - y_4 - y_3 - y_2 + 6\,y_1, y_1]$$

$p' = -s^2 + s^7$ $p = -s^2 + s^7$

1064 . Coloring, {2, 3, 4, 7, 8, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^5 + 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 8, 8, 7, A, A, A, B, B, C, 1, 9]
B: [6, 7, 7, 6, 3, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_6, y_1, y_2, y_3, y_7, y_4, 0, 0, 0, y_5, y_6]$$

$p = -s^3 + s^8$

1065 . Coloring, {2, 3, 4, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, A, A, C, C, 2, 1, 5]
B: [6, 7, 7, 6, 3, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, 0, 0, y_3, 0, y_4, y_5, 0, y_6, 0, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, 0, y_5, 0, y_6, y_7]$$

1066 . Coloring, {2, 3, 4, 7, 9, 11}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$ $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$

R: [7, 8, 8, 7, A, A, A, C, C, C, 4, 5]
B: [6, 7, 7, 6, 3, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, y_5, y_1, 0, y_4, y_5, 0, y_2, 0, y_3]$$

$p = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_4, y_2, 0, 0, y_3, y_5, 0, y_4, 0, y_6, 0]$$

$p = -s^2 + s^7$

1067 . Coloring, {2, 3, 4, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, A, A, C, C, C, 1, 9]
B: [6, 7, 7, 6, 3, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[y_2, 0, 0, 0, 0, 0, y_1, y_2, y_3, y_4, 0, y_5]$$

$p = s^4 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_3, y_1, y_2, y_3, y_4, y_6, 0, 0, 0, y_5, 0]$$

$p = s^2 - s^7$

1068 . Coloring, {2, 3, 4, 7, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, A, C, B, 2, 4, 5]
B: [6, 7, 7, 6, 3, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[-5\,y_2 - 5\,y_1 - 5\,y_5 + 11\,y_6 - 5\,y_3 + 11\,y_4, 0, 5\,y_2, 0, 0, 5\,y_1, 5\,y_5, 0, 5\,y_6, 0, 5\,y_3, 5\,y_4]$$

$p = -s - s^2 + s^6 + s^7$

1069 . Coloring, {2, 3, 4, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, A, C, B, 2, 1, 9]
B: [6, 7, 7, 6, 3, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_8, y_7, 0, 0, 0, 0, y_6, y_5, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_3, y_2, y_1, y_7, y_6, 0, 0, 0, y_5, y_4]$$

1070 . Coloring, {2, 3, 4, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, A, C, B, C, 4, 9]
B: [6, 7, 7, 6, 3, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 2\,y_7, y_2, 0, y_3, y_4, y_5, 0, 0, 0, y_6, y_7]$$

$p = -s^3 + s^8$

1071 . Coloring, {2, 3, 4, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 8s^5 - 24s^6 - 16s^7 - 64s^8$ $p' = s^3 + 4s^4 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, A, A, B, B, C, 2, 1, 5]
B: [6, 7, 7, 6, 3, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, -y_7 + y_6 + y_5 - y_4 - y_3 + y_2 + y_1, y_7, 0, y_6, y_5, 0, y_4, y_3, y_2, y_1]$$

$p = s - s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1072 . Coloring, {2, 3, 4, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, B, B, C, C, 4, 5]
B: [6, 7, 7, 6, 3, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_4, 2\,y_3, 0, 2\,y_2, 7\,y_4 - 27\,y_3 - 2\,y_2 + 16\,y_1, 0, 3\,y_4 - 7\,y_3 + 4\,y_1, 2\,y_1, 4\,y_4 - 16\,y_3 + 10\,y_1]$$

$p' = s^3 - s^6$ $p' = s^2 - s^5$ $p = s^2 - s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_5, y_6, y_4, 0, 0, y_3, y_2, 0, y_1, y_7, y_9, y_8]$$

1073 . Coloring, {2, 3, 4, 8, 9, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, B, B, C, C, 1, 9]
B: [6, 7, 7, 6, 3, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[2\,y_1, 0, 0, 0, 0, 0, 2\,y_2, 7\,y_1 + 7\,y_2 - 9\,y_3 + 7\,y_4 - 9\,y_5, 2\,y_3, 7\,y_1 + 7\,y_2 - 9\,y_3 + 7\,y_4 - 9\,y_5, 2\,y_4, 2\,y_5]$$

$p' = -s^2 - s^3 + s^5 + s^6$ $p = -s^2 + s^4 + s^5 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_3, y_4, y_5, 0, 0, y_6, y_7, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

1074 . Coloring, {2, 3, 4, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 8s^5 - 16s^6$ $p' = s^2 - 8s^5 - 16s^6$ $p' = s^3 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, A, A, B, B, B, 2, 4, 5]
B: [6, 7, 7, 6, 3, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[-y_1 + y_2 + y_3 - y_4 - y_5 + y_6, 0, y_1, 0, 0, y_2, y_3, 0, y_4, y_5, 0, y_6]$$

$p = -s^6 + s^7$

1075 . Coloring, {2, 3, 4, 8, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 8s^4 + 8s^5 + 16s^6$ $p' = s^3 + 8s^5 + 8s^6 + 16s^7$ $p = s^2 + 8s^5 - 48s^6 - 64s^7 - 128s^8$

R: [7, 8, 8, 7, A, A, B, B, B, 2, 1, 9]
B: [6, 7, 7, 6, 3, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, 0, y_3, y_4, y_5, y_5, y_6, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, y_6, 0, y_7]$$

1076 . Coloring, {2, 3, 4, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, A, B, B, B, C, 4, 9]
B: [6, 7, 7, 6, 3, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, 0, y_4, y_3, y_2, y_3, y_6, y_5]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, y_6, 0, y_4, y_4, y_5, 0, 0, y_3, 0, y_2]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

1077 . Coloring, {2, 3, 4, 9, 10, 11}

$\Omega p(\Delta)=0$: $p' = s^7$ $p' = s^6$ $p' = s^5$ $p = s^2$ $p' = s^2$ $p' = s^3$ $p' = s^4$

R: [7, 8, 8, 7, A, A, B, C, C, 2, 4, 5]
B: [6, 7, 7, 6, 3, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
1 *vs* 8	1 *vs* 8	1 *vs* 8	1 *vs* 8	1 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {4, 7, 11}}

See Matrix

$$[0, y_1, 0, y_1, y_1, 0, y_1, y_1, 0, y_1, y_1, y_1]$$

$$p = -s + s^2 \quad p = -s + s^3 \quad p = -s + s^4 \quad p = -s + s^8 \quad p = -s + s^5 \quad p = -s + s^6 \quad p = -s + s^7$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_1, 0, 0, y_1, y_1, 0, y_1, y_1, y_1, y_1]$$

$$p' = s^2 - s^7 \quad p' = s^5 - s^7 \quad p' = s^3 - s^7 \quad p' = s^6 - s^7 \quad p' = s^4 - s^7 \quad p' = s - s^7 \quad p = s - s^8$$

` See 8-level graph

`

M \; N

$ [[0, 0, 1, 0, 0, 1, 1, 0, 1, 1, 1, 1] , [0, 0, 0, 1, 1, 0, 1, 1, 0, 1, 1, 1] , [1, 0, 0, 0, 0, 1, 1, 0, 1, 1, 1, 1] , [0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 1] , [0, 1, 0, 1, 0, 0, 1, 1, 0, 1, 1, 1] , [1, 0, 1, 0, 0, 0, 1, 0, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 0, 1, 1, 2, 2, 2] , [0, 1, 0, 1, 1, 0, 1, 0, 0, 1, 1, 1] , [1, 0, 1, 0, 0, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 0, 2, 2] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 0, 2] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 2, 0]] $ $ [[0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] , [0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0]] $

τ= 20 , r'= 7/8

R: [7, 8, 8, 7, A, A, B, C, C, 2, 4, 5]
B: [6, 7, 7, 6, 3, 3, A, B, B, C, 1, 9]

Ranges

Action of R on ranges, [[2], [2]]
Action of B on ranges, [[1], [1]]

Cycles: R , {{2, 5, 8, 10, 12}, {4, 7, 11}}, B , {{1, 3, 6, 7, 9, 10, 11, 12}}

β({1, 3, 6, 7, 9, 10, 11, 12}) = 1/2
β({2, 4, 5, 7, 8, 10, 11, 12}) = 1/2

Partitions
α([{10}, {11}, {2, 3}, {12}, {5, 6}, {1, 4}, {8, 9}, {7}]) = 1/1

b1 = {10} ` , ` b2 = {11} ` , ` b3 = {2, 3} ` , ` b4 = {12} ` , ` b5 = {5, 6} ` , ` b6 = {1, 4} ` , ` b7 = {8, 9} ` , ` b8 = {7}

Action of R and B on the blocks of the partitions: = [5, 8, 1, 7, 4, 2, 3, 6] [8, 7, 5, 1, 6, 2, 4, 3]

with invariant measure [1, 1, 1, 1, 1, 1, 1, 1]

N by blocks, check: true . ` See partition graph.

` ` See level-8 partition graph.

`

Right Group	
Coloring	{2, 3, 4, 9, 10, 11}
Rank	8
R,B	[7, 8, 8, 7, A, A, B, C, C, 2, 4, 5], [6, 7, 7, 6, 3, 3, A, B, B, C, 1, 9]
π_2	[0, 1, 0, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 0, 1, 1, 0, 1, 1, 1, 0, 0, 1, 1, 0, 1, 1, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 2, 2, 2, 0, 1, 1, 1, 1, 1, 1, 2, 2, 2]
u_2	[1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] (dim 1)
wpp	[2, 2, 2, 2, 2, 2, 1, 2, 2, 1, 1, 1]
π_8	[0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
u_8	[0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]

1078 . Coloring, {2, 3, 4, 9, 10, 12}

Ωp(Δ)=0: $p = 9s^2 + 2s^4 - 16s^6 + 16s^7 - 96s^8$ $p = - 27s^2 + 8s^5 + 48s^6 - 64s^7 + 256s^8$ $p = - 6s^2 + s^3 + 8s^6 - 16s^7 + 64s^8$

R: [7, 8, 8, 7, A, A, B, C, C, 2, 1, 9]

B: [6, 7, 7, 6, 3, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[y_4, 5\,y_4 - y_1 - y_2 - y_3 - y_5, 0, 0, 0, 0, y_4, y_1, y_2, y_3, y_4, y_5]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$ $p = -s^4 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_5, y_3, y_4, y_2, y_1, 0, 0, y_8, y_6, y_7]$$

1079 . Coloring, {2, 3, 4, 9, 11, 12}

$\Omega p(\Delta)=0$: $p' = 3s^2 + 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = 9s^2 - 28s^4 + 40s^5 - 16s^6 - 96s^7 + 64s^8$

R: [7, 8, 8, 7, A, A, B, C, C, C, 4, 9]
B: [6, 7, 7, 6, 3, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	3 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_2, 0, 0, y_2, y_1, -2\,y_1 + 5\,y_2 - y_3, y_1, y_2, y_3]$$

$p' = -s^2 + s^6$ $p' = -s^2 + s^4$ $p = -s^2 + s^4$ $p = -s^2 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_7, y_4, y_5, 0, 0, y_6, y_7, 0]$$

$p = -s^5 + s^8$

1080 . Coloring, {2, 3, 4, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 8s^5 - 8s^6 - 16s^7$ $p' = s^3 - 8s^5 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, A, A, B, C, B, 2, 4, 9]
B: [6, 7, 7, 6, 3, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_1, 0, 0, y_8, y_7, y_6, y_5, y_4, y_3]$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_4, 0, y_3, 0, y_2, y_1, y_8, 0, 0, y_7, y_6, y_5]$$

1081 . Coloring, {2, 3, 5, 6, 7, 8}

$\Omega p(\Delta)=0$: $p = 6s^2 + 5s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, B, B, C, 1, 5]
B: [6, 7, 7, 7, A, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_8, 0, y_9, 0, y_7, y_5, y_6, y_4, 0, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, -y_1 + 2\,y_4, 0, y_1, 0, -y_2 + 2\,y_4, y_2, 0, y_4, -y_3 + 2\,y_4, y_3, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$ $p = -s^4 + s^8$ $p = -s^4 + s^7$

1082 . Coloring, {2, 3, 5, 6, 7, 9}

$\Omega p(\Delta)=0$: $p = -2s^2 + s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, C, C, C, 1, 5]
B: [6, 7, 7, 7, A, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[2\,y_3, 0, y_1, 0, y_2, y_3, y_4, y_5, 0, y_6, 0, y_7]$$

$p = -s^4 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_1, 0, y_4, y_3, 0, 2\,y_4, y_5, y_6, 0]$$

$p = s^4 - s^7$

1083 . Coloring, {2, 3, 5, 6, 7, 10}

R: [7, 8, 8, 6, 3, 3, A, C, B, 2, 1, 5]
B: [6, 7, 7, 7, A, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	5 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_9, y_8, y_7, 0, y_6, y_5, y_4, y_3, 0, y_2, y_5, y_1]$$

$p = -s^6 + s^{10}$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_5, 0, y_4, y_3, 0, y_2, y_1, -y_5 - y_3 + 2\,y_2 + 2\,y_1, -y_4 + y_2 + y_1]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

1084 . Coloring, {2, 3, 5, 6, 7, 11}

R: [7, 8, 8, 6, 3, 3, A, C, B, C, 4, 5]
B: [6, 7, 7, 7, A, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_6, y_5, y_4, y_3, y_2, y_1, 0, y_5, y_2, -y_6 + y_4 + y_3 + y_1]$$

$p' = -s^4 + s^8$ $p' = -s^4 + s^5 - s^6 + s^7$ $p = s^4 - s^5 + s^6 - s^7$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_6, 3\,y_5, 0, 0, 0, 3\,y_4, 3\,y_3, 0, 3\,y_2, -3\,y_6 - 3\,y_3 + 8\,y_2 + 5\,y_1, -3\,y_5 - 3\,y_4 + 5\,y_2 + 8\,y_1, 3\,y_1]$$

$p' = -s + s^7$ $p = -s + s^7$

1085 . Coloring, {2, 3, 5, 6, 7, 12}

R: [7, 8, 8, 6, 3, 3, A, C, B, C, 1, 9]
B: [6, 7, 7, 7, A, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_9, 0, 0, y_8, y_7, y_6, y_5, y_4, y_3, y_2]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_4, 0, y_3, y_2, y_6, y_1, 0, 0, y_5, y_7, y_6]$$

$p = s^5 - s^8$

1086 . Coloring, {2, 3, 5, 6, 8, 9}

R: [7, 8, 8, 6, 3, 3, B, B, C, C, 1, 5]
B: [6, 7, 7, 7, A, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, 0, y_7, 3\, y_4]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_7, 0, y_6, 0, y_5, y_4, 0, y_3, y_2, y_1, y_5]$$

$p = s^5 - s^8$

1087 . Coloring, {2, 3, 5, 6, 8, 10}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 + 2s^4 - 16s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, B, B, B, 2, 1, 5]
B: [6, 7, 7, 7, A, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 8	4 *vs* 6

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_3, y_2, 0, 2\,y_3, y_3, y_4, y_5, 0, 0, y_6, 0]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, 2\,y_4, 0, y_4, y_3, 0, y_2, y_1, 0, y_4 - y_3 + y_2 + y_1]$$

$p' = s^4 - s^5$ $p = s^4 - s^6$

» SYNC'D !RANK'D

1088 . Coloring, {2, 3, 5, 6, 8, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 + 2s^4 + 16s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, B, B, B, C, 4, 5]
B: [6, 7, 7, 7, A, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	3 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_2, y_3, y_4, y_1, y_5, y_6, 0, 0, y_7, 2\, y_5]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[y_1, -y_1 + 2\, y_3, 0, 0, 0, y_2, -y_2 + 2\, y_3, 0, y_3, 2\, y_3, 0, y_3]$$

$p' = s^5 - s^6$ $p' = s^4 - s^6$ $p' = s^3 - s^6$ $p = s^3 - s^7$

1089 . Coloring, {2, 3, 5, 6, 8, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, B, B, B, C, 1, 9]
B: [6, 7, 7, 7, A, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_5, y_4, 2\, y_2 - 2\, y_3, 0, y_6, 2\, y_3]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_3, 0, 2\, y_5, y_4, y_5, y_2, 0, 0, y_1, 0, 2\, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

1090 . Coloring, {2, 3, 5, 6, 9, 10}

$\Omega p(\Delta)=0$: $p = -2s^2 + 5s^3 + 2s^4 + 16s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, B, C, C, 2, 1, 5]
B: [6, 7, 7, 7, A, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[5\,y_7, 10\,y_4, 5\,y_6, 0, 5\,y_5, 5\,y_4, 5\,y_3, 5\,y_2, 0, 0, 5\,y_1, 11\,y_7 - 5\,y_6 - 5\,y_5 - 15\,y_4 + 11\,y_3 - 5\,y_2 + 11\,y_1]$$

$p = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$ $p = s^2 - s^5 - s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_5, 0, y_3, y_4, 0, y_1, y_2, y_5 - y_3 - y_4 + y_1 + y_2 - y_6, y_6]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

1091 . Coloring, {2, 3, 5, 6, 9, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 + 5s^3 - 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, B, C, C, C, 4, 5]
B: [6, 7, 7, 7, A, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	8 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_3, y_8, y_4, y_5, 0, 0, y_6, y_7]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_4, y_3, 0, 0, 0, y_2, y_1, 0, y_7, y_6, y_5, 0]$$

1092 . Coloring, {2, 3, 5, 6, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, B, C, C, C, 1, 9]
B: [6, 7, 7, 7, A, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[5\,y_7, 0, 5\,y_6, 0, 0, 5\,y_5, 5\,y_4, 5\,y_2, 5\,y_3, 0, 5\,y_1, 11\,y_7 - 5\,y_6 - 5\,y_5 + 11\,y_4 - 5\,y_2 - 5\,y_3 + 11\,y_1]$$

$p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, 0, y_2, 2\,y_3, y_3, y_4, 0, 0, y_5, 2\,y_3, 0]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

» SYNC'D !RANK'D

1093 . Coloring, {2, 3, 5, 6, 10, 11}

R: [7, 8, 8, 6, 3, 3, B, C, B, 2, 4, 5]
B: [6, 7, 7, 7, A, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 2\,y_4, -y_1 + y_2 + y_3 - 3\,y_4 + y_5 + y_6 - y_7, y_1, y_2, y_3, y_4, y_5, 0, 0, y_6, y_7]$$

$p = -s^5 + s^6 - s^7 + s^8$ $p = -s^5 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1 - y_2 - y_3 + 4\,y_4 + y_5, 0, 0, 0, 0, y_1, 3\,y_4, 0, y_2, y_3, y_4, y_5]$$

$p = -s^5 + s^7$ $p = -s^5 + s^6$

1094 . Coloring, {2, 3, 5, 6, 10, 12}

R: [7, 8, 8, 6, 3, 3, B, C, B, 2, 1, 9]
B: [6, 7, 7, 7, A, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_8, 2\,y_6, y_7, 0, 0, y_6, y_4, y_5, y_3, 0, y_2, y_1]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_5, y_3, 0, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

1095 . Coloring, {2, 3, 5, 6, 11, 12}

R: [7, 8, 8, 6, 3, 3, B, C, B, C, 4, 9]
B: [6, 7, 7, 7, A, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_5, y_4, 0, y_1, y_2, y_3, y_6, 0, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, y_2, y_3, y_4, 0, 0, y_5, y_6, y_6]$$

$p' = -s^4 + s^7 \quad p = s^4 - s^7$

1096 . Coloring, {2, 3, 5, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, A, B, C, C, 1, 5]
B: [6, 7, 7, 7, A, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	9 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_6, y_5, 0, y_8, y_9, y_7]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_1, -y_5 + y_1, y_3, 0, y_5, y_2, 0, y_1, y_5, y_4, y_5]$$

$p' = s^3 - s^6$ $p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^3 - s^9$

1097 . Coloring, {2, 3, 5, 7, 8, 10}

R: [7, 8, 8, 6, 3, A, A, B, B, 2, 1, 5]
B: [6, 7, 7, 7, A, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_2, y_1, y_3, 0, 2\,y_4, y_4, y_5, y_6, 0, y_7, y_8, 0]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 3\,y_4, 3\,y_3, 0, 3\,y_2, 3\,y_4 + 3\,y_3, 0, 3\,y_1, 3\,y_2, -3\,y_2 + 3\,y_4 + 3\,y_3, -3\,y_2 + 7\,y_4 + 7\,y_3 - 3\,y_1]$$

$p' = s^5 - s^7$ $p' = s^4 - s^6$ $p' = s^3 - s^7$ $p = s^3 - s^7$

1098 . Coloring, {2, 3, 5, 7, 8, 11}

R: [7, 8, 8, 6, 3, A, A, B, B, C, 4, 5]
B: [6, 7, 7, 7, A, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_7, y_3, y_4, y_5, 0, y_6, y_8, y_9]$$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 7, 11}} order: 10

See Matrix

$$[y_1, y_2, -y_1 - y_2 - y_3 - y_4 + 6\, y_5 - y_6 - y_7, 0, 0, y_3, y_4, 0, y_5, y_6, y_7, y_5]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

1099 . Coloring, {2, 3, 5, 7, 8, 12}

R: [7, 8, 8, 6, 3, A, A, B, B, C, 1, 9]
B: [6, 7, 7, 7, A, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_6, y_5, y_4, 2\, y_5, y_3, y_2, 0, 0, y_1, y_7, 2\, y_3]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

1100 . Coloring, {2, 3, 5, 7, 9, 10}

R: [7, 8, 8, 6, 3, A, A, C, C, 2, 1, 5]
B: [6, 7, 7, 7, A, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[2\,y_5,\ y_8,\ y_7,\ 0,\ y_6,\ y_5,\ y_4,\ y_3,\ 0,\ y_2,\ 0,\ y_1]$$

$p = s^5 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ 0,\ -y_4 + y_6,\ y_1,\ 0,\ y_4,\ y_2,\ 0,\ y_3,\ y_4,\ y_5,\ y_6]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

1101 . Coloring, {2, 3, 5, 7, 9, 11}

R: [7, 8, 8, 6, 3, A, A, C, C, C, 4, 5]
B: [6, 7, 7, 7, A, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0,\ 0,\ y_3,\ 2\,y_7,\ y_2,\ y_1,\ y_7,\ y_6,\ 0,\ y_5,\ 0,\ y_4]$$

$p = s^4 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_3,\ y_1,\ y_2,\ 0,\ 0,\ y_7,\ y_6,\ 0,\ 2\,y_5,\ y_5,\ y_4,\ 0]$$

$p = -s^3 + s^8$

1102 . Coloring, {2, 3, 5, 7, 9, 12}

R: [7, 8, 8, 6, 3, A, A, C, C, C, 1, 9]
B: [6, 7, 7, 7, A, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_1, 0, y_1, 0, 0, y_1, -3\,y_1 + 2\,y_2, y_2, y_5, y_4, 0, y_3]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$ $p = -s^4 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, y_1, y_3, 4\,y_1 - 2\,y_5, 2\,y_1 - y_5, y_4, 0, 0, y_5, y_6, 0\,]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

1103 . Coloring, {2, 3, 5, 7, 10, 11}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, A, C, B, 2, 4, 5]
B: [6, 7, 7, 7, A, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_6, y_5, y_4, y_3, y_2, y_8, y_1, 0, y_9, y_8, y_7]$$

$p = -s^6 + s^{10}$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[3\,y_3,\ 0,\ 3\,y_2,\ 0,\ 0,\ 3\,y_1,\ -3\,y_3 - 3\,y_2 - 3\,y_1 + 10\,y_6 + 10\,y_5 - 3\,y_4,\ 0,\ 3\,y_6,\ 3\,y_5,\ 3\,y_4,\ 3\,y_6 + 3\,y_5]$$

$p' = s^2 - s^7$ $p = s^2 - s^7$

1104 . Coloring, {2, 3, 5, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 + 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, A, C, B, 2, 1, 9]
B: [6, 7, 7, 7, A, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	5 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1,\ y_2,\ y_3,\ 0,\ 0,\ y_3,\ y_4,\ y_5,\ y_6,\ y_9,\ y_7,\ y_8]$$

$p = -s^2 + s^{10}$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0,\ 0,\ y_1,\ y_2,\ -2\,y_1 - 2\,y_2 + 5\,y_3 + 5\,y_4 - 4\,y_5,\ y_3,\ 4\,y_1 + 4\,y_2 - 6\,y_3 - 6\,y_4 + 5\,y_5,\ 0,\ 0,\ 5\,y_1 + 5\,y_2 - 8\,y_3 - 8\,y_4 + 6\,y_5,\ y_4,\ y_5]$$

$p' = -s^4 + s^7$ $p = -s^3 + s^6$ $p' = -s^3 + s^6$

1105 . Coloring, {2, 3, 5, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 + 2s^4 - 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, A, C, B, C, 4, 9]
B: [6, 7, 7, 7, A, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_1, 0, y_6, y_2, y_3, y_7, y_4, y_8, y_5]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_9, y_8, y_7, 0, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

1106 . Coloring, {2, 3, 5, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, B, B, C, 2, 1, 5]
B: [6, 7, 7, 7, A, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, y_6, y_5, 0, -y_6 + y_5 + 3y_4, y_4, y_3, y_2, 0, -y_6 + y_5 + 2y_4, y_1, y_4]$$

$p = s^5 - s^8$ $p' = s^6 - s^9$ $p' = s^5 - s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, -y_1 + y_7 + y_6 - y_5 - y_4 + y_3 + y_2, 0, y_7, y_6, 0, y_5, y_4, y_3, y_2]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1107 . Coloring, {2, 3, 5, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, B, B, C, C, 4, 5]
B: [6, 7, 7, 7, A, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$[0, 0, y_1, y_1 - y_2 + y_8 - y_7 - y_6 - y_5 + y_4 + y_3, y_2, y_8, y_7, y_6, 0, y_5, y_4, y_3]$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$[y_1, y_9, y_8, 0, 0, y_6, y_7, 0, y_5, y_4, y_3, y_2]$

1108 . Coloring, {2, 3, 5, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = -2s^2 + s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, B, B, C, C, 1, 9]
B: [6, 7, 7, 7, A, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	8 *vs* 10	4 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_2 - 3\,y_4 + 3\,y_3,\ 0,\ 3\,y_4,\ 0,\ 0,\ 3\,y_4,\ 3\,y_2,\ 3\,y_3,\ 3\,y_1,\ -3\,y_4 + 3\,y_3,\ 3\,y_2 + 3\,y_3,\ 7\,y_2 - 3\,y_1 + 4\,y_3]$$

$p' = s^4 - s^6$ $p' = s^5 - s^7$ $p' = s^3 - s^7$ $p = s^3 - s^7$ $p' = -s^6 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0,\ y_2,\ y_1,\ y_1 + y_5,\ y_1 + y_5,\ y_5,\ y_4,\ 0,\ 0,\ y_3,\ y_5,\ y_5]$$

$p' = -s^5 + s^8$ $p = s^3 - s^6$ $p' = s^4 - s^7$ $p' = s^3 - s^6$

» SYNC'D !RANK'D

1109 . Coloring, {2, 3, 5, 8, 10, 11}

R: [7, 8, 8, 6, 3, A, B, B, B, 2, 4, 5]
B: [6, 7, 7, 7, A, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0,\ -y_1 + y_2 - y_3 + 3\,y_4 + y_5 + y_6 - y_7,\ y_1,\ y_2,\ 2\,y_4,\ y_3,\ y_4,\ y_5,\ 0,\ y_6,\ y_7,\ 0]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[-y_1 + y_4 + y_5 - y_6 - y_3 + y_2,\ 0,\ y_1,\ 0,\ 0,\ y_4,\ y_5,\ 0,\ y_6,\ y_3,\ 0,\ y_2]$$

$p = -s^6 + s^7$

1110 . Coloring, {2, 3, 5, 8, 10, 12}

R: [7, 8, 8, 6, 3, A, B, B, B, 2, 1, 9]
B: [6, 7, 7, 7, A, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, y_7, y_5, 0, 0, y_5, y_3, y_4, 2\,y_5, y_1, y_2, 0]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_3, y_2, y_3, y_4, 0, 0, y_5, 0, y_6]$$

$p = -s^4 + s^7$

1111 . Coloring, {2, 3, 5, 8, 11, 12}

R: [7, 8, 8, 6, 3, A, B, B, B, C, 4, 9]
B: [6, 7, 7, 7, A, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_7, y_6, 0, y_5, y_7, y_4, y_2, y_3, y_1, y_6 - y_5 + y_4 + y_2 + y_3 - y_1]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2\,y_3 - 2\,y_1, y_4, y_5, 0, y_3, y_1, y_2, 0, 0, y_6, 0, 2\,y_3 - 2\,y_1]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

1112 . Coloring, {2, 3, 5, 9, 10, 11}

R: [7, 8, 8, 6, 3, A, B, C, C, 2, 4, 5]
B: [6, 7, 7, 7, A, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, -y_1 + y_2 + y_3 - y_4 + y_5 + y_6 + y_7 - y_8 - y_9, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

$p = s^7 - s^8 + s^9 - s^{10}$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[-y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1113 . Coloring, {2, 3, 5, 9, 10, 12}

R: [7, 8, 8, 6, 3, A, B, C, C, 2, 1, 9]
B: [6, 7, 7, 7, A, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[5\,y_1, 11\,y_1 - 10\,y_2 + 11\,y_3 - 5\,y_4 - 5\,y_7 - 5\,y_5 + 11\,y_6 - 5\,y_8, 5\,y_2, 0, 0, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_7, 5\,y_5, 5\,y_6, 5\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$ $p = s^5 - s^7 - s^8 + s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_1, y_2, y_3, y_4, 0, 0, y_5, 2\,y_3, y_6]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

1114 . Coloring, {2, 3, 5, 9, 11, 12}

R: [7, 8, 8, 6, 3, A, B, C, C, C, 4, 9]
B: [6, 7, 7, 7, A, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_4, 0, y_5, y_6, y_3, y_1, y_2, y_3, y_4 - y_5 + y_1 + y_2]$$

$p = -s^6 + s^7$ $p = -s^6 + s^8$ $p = -s^6 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_7, y_4, y_5, 0, 0, y_6, y_7, 0]$$

$p = s^5 - s^8$

1115 . Coloring, {2, 3, 5, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 - 5s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, B, C, B, 2, 4, 9]
B: [6, 7, 7, 7, A, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_8, y_7, y_6, 0, y_5, y_7, y_4, y_3, y_2, y_1, -y_8 + y_6 - y_5 + y_4 + y_3 + y_2 - y_1]$$

$p' = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9 \quad p = s^2 - s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, y_7, y_6, y_8]$$

1116 . Coloring, {2, 3, 6, 7, 8, 9}

Ωp(Δ)=0: $p = -3s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, B, C, C, 1, 5]
B: [6, 7, 7, 7, 3, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_6, y_2, 0, y_6, y_3, 0, y_6 + y_4, y_4, y_5, y_6]$$

$p = -s^4 + s^7 \quad p' = -s^4 + s^7 \quad p' = -s^5 + s^8$

1117 . Coloring, {2, 3, 6, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = s^2 + 3s^3 - 6s^4 + 8s^5 - 24s^6 + 32s^7 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, B, B, 2, 1, 5]
B: [6, 7, 7, 7, 3, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_4 + y_3 + y_1 + y_2 - y_7 - y_6 + y_5, y_4, y_3, 0, 2\,y_1, y_1, y_2, y_7, 0, y_6, y_5, 0]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, y_1, -y_2 + y_3 + y_4 - y_5 + y_6, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = s^3 + s^4 - s^6 - s^7$ $p = -s^3 + s^5 + s^6 - s^8$

M \; N

$ [[0, 352, 168, 0, 402, 0, 270, 0, 0, 0, 540, 0] , [352, 0, 0, 0, 0, 84, 0, 624, 0, 672, 0, 0] , [168, 0, 0, 0, 0, 336, 0, 210, 0, 576, 0, 442] , [0, 0, 0, 0, 0, 0, 270, 0, 0, 402, 168, 0, 892] , [402, 0, 0, 0, 0, 446, 0, 221, 0, 663, 0, 0] , [0, 84, 336, 270, 446, 0, 260, 0, 0, 0, 336, 0] , [270, 0, 0, 0, 0, 260, 0, 260, 667, 681, 0, 1326] , [0, 624, 210, 0, 221, 0, 260, 0, 0, 0, 417, 0] , [0, 0, 0, 402, 0, 0, 667, 0, 0, 0, 663, 0] , [0, 672, 576, 168, 663, 0, 681, 0, 0, 0, 704, 0] , [540, 0, 0, 0, 0, 336, 0, 417, 663, 704, 0, 804] , [0, 0, 442, 892, 0, 0, 1326, 0, 0, 0, 804, 0]] $ $ [[0, 1, 1, 1, 1, 0, 1, 0, 0, 0, 1, 0] , [1, 0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1] , [1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1] , [1, 0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1] , [1, 0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1] , [0, 1, 1, 1, 1, 0, 1, 0, 0, 0, 1, 0] , [1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1] , [0, 1, 1, 1, 1, 0, 1, 0, 0, 0, 1, 0] , [0, 1, 1, 1, 1, 0, 1, 0, 0, 0, 1, 0] , [1, 0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1] , [0, 1, 1, 1, 1, 0, 1, 0, 0, 0, 1, 0]] $

$\tau = 72$, $r' = 1/2$

R: [7, 8, 8, 6, A, 3, A, B, B, 2, 1, 5]
B: [6, 7, 7, 7, 3, A, B, C, C, C, 4, 9]

Ranges

Action of R on ranges, [[22], [22], [24], [24], [4], [10], [26], [7], [10], [26], [7], [18], [9], [21], [6], [17], [11], [28], [8], [11], [2], [28], [28], [8], [19], [5], [5], [1], [3]]
Action of B on ranges, [[20], [20], [9], [21], [13], [24], [25], [25], [24], [25], [25], [23], [24], [25], [25], [23], [11], [12], [12], [28], [15], [29], [29], [29], [27], [16], [16], [16], [14]]

Cycles: R , {{1, 2, 7, 8, 10, 11}}, B , {{4, 7, 11}, {9, 12}}

$\beta(\{1, 2\}) = 11/433$

β({1, 3}) = 21/1732
β({1, 5}) = 201/6928
β({1, 7}) = 135/6928
β({1, 11}) = 135/3464
β({2, 6}) = 21/3464
β({2, 8}) = 39/866
β({2, 10}) = 21/433
β({3, 6}) = 21/866
β({3, 8}) = 105/6928
β({3, 10}) = 18/433
β({3, 12}) = 221/6928
β({4, 6}) = 135/6928
β({4, 9}) = 201/6928
β({4, 10}) = 21/1732
β({4, 12}) = 223/3464
β({5, 6}) = 223/6928
β({5, 8}) = 221/13856
β({5, 10}) = 663/13856
β({6, 7}) = 65/3464
β({6, 11}) = 21/866
β({7, 8}) = 65/3464
β({7, 9}) = 667/13856
β({7, 10}) = 681/13856
β({7, 12}) = 663/6928
β({8, 11}) = 417/13856
β({9, 11}) = 663/13856
β({10, 11}) = 22/433
β({11, 12}) = 201/3464

Partitions
α([{2, 3, 4, 5, 7, 11}, {1, 6, 8, 9, 10, 12}]) = 1/1

b1 = {2, 3, 4, 5, 7, 11} ` , ` b2 = {1, 6, 8, 9, 10, 12}

Action of R and B on the blocks of the partitions: = [2, 1] [1, 2]
with invariant measure [1, 1]

N by blocks, check: true . ` See partition graph.

` ` See level-2 partition graph.

`

Right Group	
Coloring	{2, 3, 6, 7, 8, 10}
Rank	2
R,B	[7, 8, 8, 6, A, 3, A, B, B, 2, 1, 5], [6, 7, 7, 7, 3, A, B, C, C, C, 4, 9]
π_2	[352, 168, 0, 402, 0, 270, 0, 0, 0, 540, 0, 0, 0, 0, 84, 0, 624, 0, 672, 0, 0, 0, 0, 336, 0, 210, 0, 576, 0, 442, 0, 270, 0, 0, 402, 168, 0, 892, 446, 0, 221, 0, 663, 0, 0, 260, 0, 0, 0, 336, 0, 260, 667, 681, 0, 1326, 0, 0, 417, 0, 0, 663, 0, 704, 0, 804]
u_2	[1, 1, 1, 1, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1, 0, 0, 1, 0, 1, 1, 1, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 0, 1, 1, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1, 0, 0, 1, 0, 0, 1, 0, 1, 0, 1] (dim 1)
wpp	[6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6]

1118 . Coloring, {2, 3, 6, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 3s^3 - 6s^4 - 8s^5 - 24s^6 - 32s^7 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, B, B, C, 4, 5]
B: [6, 7, 7, 7, 3, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {3, 4, 6, 8, 11}}

See Matrix

$$[0, 0, -y_1 + y_2 - y_3 + y_4 - y_5 + y_6 - y_7 + y_8, y_1, y_2, y_3, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = - s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-y_3 + 3\,y_6 - y_4, -y_1 - y_2 + 3\,y_6 - y_5, y_1, 0, 0, y_2, y_3, 0, y_6, y_4, y_5, y_6]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$ $p = - s^2 + s^8$ $p' = - s^2 + s^8$

M \; N

$ [[0, 152, 52, 0, 0, 78, 0, 0, 168, 0, 156, 0] , [152, 0, 0, 0, 0, 0, 208, 0, 0, 81, 0, 165] , [52, 0, 0, 0, 94, 0, 170, 0, 0, 127, 0, 163] , [0, 0, 0, 0, 168, 0, 78, 0, 0, 208, 0, 152] , [0, 0, 94, 168, 0, 76, 0, 164, 0, 0, 104, 0] , [78, 0, 0, 0, 76, 0, 102, 0, 0, 162, 0, 188] , [0, 208, 170, 78, 0, 102, 0, 102, 240, 0, 312, 0] , [0, 0, 0, 0, 164, 0, 102, 0, 0, 236, 0, 104] , [168, 0, 0, 0, 0, 0, 240, 0, 0, 94, 0, 104] , [0, 81, 127, 208, 0, 162, 0, 236, 94, 0, 304, 0] , [156, 0, 0, 0, 104, 0, 312, 0, 0, 304, 0, 336] , [0, 165, 163, 152, 0, 188, 0, 104, 104, 0, 336, 0]] $ $ [[0, 1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 0] , [1, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1] , [1, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1] , [1, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1] , [0, 1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 0] , [1, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1] , [0, 1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 0] , [1, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1] , [1, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1] , [0, 1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 0] , [1, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1] , [0, 1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 0]] $

τ= 74 , r'= 1/2

R: [7, 8, 8, 6, A, 3, A, B, B, C, 4, 5]
B: [6, 7, 7, 7, 3, A, B, C, C, 2, 1, 9]

Ranges

Action of R on ranges, [[23], [23], [10], [25], [14], [26], [27], [18], [26], [26], [27], [18], [21], [21], [22], [17], [11], [30], [15], [11], [12], [9], [30], [30], [15], [31], [19], [31], [19], [16], [13]]
Action of B on ranges, [[20], [20], [21], [22], [3], [25], [6], [24], [10], [25], [6], [24], [10], [25], [6], [24], [11], [12],

[2], [30], [7], [28], [31], [31], [5], [8], [29], [8], [29], [1], [4]]

Cycles: R , {{5, 10, 12}, {3, 4, 6, 8, 11}}, B , {{1, 2, 6, 7, 10, 11}, {9, 12}}

β({1, 2}) = 19/606
β({1, 3}) = 13/1212
β({1, 6}) = 13/808
β({1, 9}) = 7/202
β({1, 11}) = 13/404
β({2, 7}) = 13/303
β({2, 10}) = 27/1616
β({2, 12}) = 55/1616
β({3, 5}) = 47/2424
β({3, 7}) = 85/2424
β({3, 10}) = 127/4848
β({3, 12}) = 163/4848
β({4, 5}) = 7/202
β({4, 7}) = 13/808
β({4, 10}) = 13/303
β({4, 12}) = 19/606
β({5, 6}) = 19/1212
β({5, 8}) = 41/1212
β({5, 11}) = 13/606
β({6, 7}) = 17/808
β({6, 10}) = 27/808
β({6, 12}) = 47/1212
β({7, 8}) = 17/808
β({7, 9}) = 5/101
β({7, 11}) = 13/202
β({8, 10}) = 59/1212
β({8, 12}) = 13/606
β({9, 10}) = 47/2424
β({9, 12}) = 13/606
β({10, 11}) = 19/303
β({11, 12}) = 7/101

Partitions
α([{1, 5, 7, 10, 12}, {2, 3, 4, 6, 8, 9, 11}]) = 1/1

b1 = {1, 5, 7, 10, 12} ` , ` b2 = {2, 3, 4, 6, 8, 9, 11}

Action of R and B on the blocks of the partitions: = [1, 2] [2, 1]
with invariant measure [1, 1]

N by blocks, check: true . ` See partition graph.

` ` See level-2 partition graph.

`

Right Group	
Coloring	{2, 3, 6, 7, 8, 11}
Rank	2
R,B	[7, 8, 8, 6, A, 3, A, B, B, C, 4, 5], [6, 7, 7, 7, 3, A, B, C, C, 2, 1, 9]

π_2	[152, 52, 0, 0, 78, 0, 0, 168, 0, 156, 0, 0, 0, 0, 0, 208, 0, 0, 81, 0, 165, 0, 94, 0, 170, 0, 0, 127, 0, 163, 168, 0, 78, 0, 0, 208, 0, 152, 76, 0, 164, 0, 0, 104, 0, 102, 0, 0, 162, 0, 188, 102, 240, 0, 312, 0, 0, 236, 0, 104, 94, 0, 104, 304, 0, 336]
u_2	[1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 0, 1] (dim 1)
wpp	[5, 7, 7, 7, 5, 7, 5, 7, 7, 5, 7, 5]

1119 . Coloring, {2, 3, 6, 7, 8, 12}

R: [7, 8, 8, 6, A, 3, A, B, B, C, 1, 9]
B: [6, 7, 7, 7, 3, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 2\,y_1 - 3\,y_3, y_2, 2\,y_5, y_3, y_4, 0, 0, y_5, y_6, 2\,y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

1120 . Coloring, {2, 3, 6, 7, 9, 10}

R: [7, 8, 8, 6, A, 3, A, C, C, 2, 1, 5]
B: [6, 7, 7, 7, 3, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[4\,y_4 - 2\,y_2,\ y_5,\ y_4,\ 0,\ y_1,\ 2\,y_4 - y_2,\ y_2,\ y_3,\ 0,\ y_6,\ 0,\ y_7]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ 0,\ y_2,\ y_1,\ 0,\ y_2,\ y_6,\ 0,\ y_7,\ y_3,\ y_4,\ y_5]$$

$p = -s^5 + s^8$

1121 . Coloring, {2, 3, 6, 7, 9, 11}

R: [7, 8, 8, 6, A, 3, A, C, C, C, 4, 5]
B: [6, 7, 7, 7, 3, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0,\ 0,\ y_7,\ 2\,y_4,\ y_6,\ y_5,\ y_4,\ y_3,\ 0,\ y_2,\ 0,\ y_1]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1 - y_3 + y_2 - y_4 - y_5 + y_6,\ y_1,\ y_3,\ 0,\ 0,\ y_2,\ y_4,\ 0,\ 2\,y_3,\ y_5,\ y_6,\ 0]$$

$p = -s^2 + s^8$ $p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1122 . Coloring, {2, 3, 6, 7, 9, 12}

R: [7, 8, 8, 6, A, 3, A, C, C, C, 1, 9]
B: [6, 7, 7, 7, 3, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_4,\ 0,\ y_5,\ 0,\ 0,\ y_4,\ 2\,y_5 - y_4,\ y_3,\ y_2,\ -y_5 + 2\,y_3,\ 0,\ y_1]$$

$p' = s^5 - s^7$ $p' = s^4 - s^6$ $p = s^4 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_1,\ -y_3 + 2\,y_5,\ y_2,\ 2\,y_3,\ y_3,\ y_4,\ 0,\ 0,\ y_5,\ y_6,\ 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1123 . Coloring, {2, 3, 6, 7, 10, 11}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, A, C, B, 2, 4, 5]
B: [6, 7, 7, 7, 3, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 10	9 *vs* 10	9 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0,\ y_1,\ y_5,\ y_4,\ y_3,\ y_2,\ y_8,\ y_6,\ 0,\ y_9,\ y_8,\ y_7]$$

$p = -s^5 + s^{10}$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1 + y_2 - y_3 - y_4 - y_7 + y_5 + y_6,\ 0,\ y_1,\ 0,\ 0,\ y_2,\ y_3,\ 0,\ y_4,\ y_7,\ y_5,\ y_6]$$

$p = -s^7 + s^8$

» SYNC'D !RANK'D

1124 . Coloring, {2, 3, 6, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, A, C, B, 2, 1, 9]
B: [6, 7, 7, 7, 3, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$[y_1, y_2, y_3, 0, 0, y_4, y_{10}, y_5, y_6, y_7, y_8, y_9]$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, 0, y_8, y_7, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$

1125 . Coloring, {2, 3, 6, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, A, C, B, C, 4, 9]
B: [6, 7, 7, 7, 3, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_4, y_5, 0, y_1, y_2, y_3, y_7, y_8, y_9, y_6]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 + y_4 - y_5 - y_6 + y_7 + y_8, y_1, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

1126 . Coloring, {2, 3, 6, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, B, B, C, 2, 1, 5]
B: [6, 7, 7, 7, 3, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_4, y_3, y_2, 0, y_2 + y_6, y_6, y_1, y_8, 0, y_7, y_5, y_6]$$

$p' = -s^6 + s^9$ $p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2 - y_3 - y_4 + y_5 + y_6, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p' = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$ $p = s^2 - s^8$

1127 . Coloring, {2, 3, 6, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, B, B, C, C, 4, 5]
B: [6, 7, 7, 7, 3, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -3\,y_6 + 5\,y_5 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 5\,y_1 - 3\,y_7 + 5\,y_8, 3\,y_6, 3\,y_5, 3\,y_2, 3\,y_3, 3\,y_4, 0, 3\,y_1, 3\,y_7, 3\,y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_4, y_5, 0, 0, y_3, y_2, 0, y_8, y_7, y_6, y_5]$$

$p = -s^6 + s^9$

1128 . Coloring, {2, 3, 6, 8, 9, 12}

Ωp(Δ)=0: $p = 2s^2 - s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, B, B, C, C, 1, 9]
B: [6, 7, 7, 7, 3, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, 0, -3\,y_1 + 7\,y_6 - 3\,y_5 - 3\,y_4 + 10\,y_3 - 3\,y_2, 0, 0, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_6, 3\,y_2, 3\,y_6 + 3\,y_3]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_2, y_1, y_3, y_3, y_6, y_5, 0, 0, y_4, y_6, y_6]$$

$p' = -s^4 + s^7 \quad p = s^4 - s^7 \quad p' = -s^5 + s^8$

1129 . Coloring, {2, 3, 6, 8, 10, 11}

R: [7, 8, 8, 6, A, 3, B, B, B, 2, 4, 5]
B: [6, 7, 7, 7, 3, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	4 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_8, y_7, y_6, 2\,y_4, y_5, y_4, y_3, 0, y_2, y_1, 0]$$

$p = s^4 - s^9$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_4, 0, y_4, 0, 0, -5\,y_4 + 2\,y_1, y_1, 0, -8\,y_4 + 3\,y_1 - y_3 + y_2, y_3, 0, y_2]$$

$p' = s^4 - s^6 \quad p' = s^5 - s^6 \quad p = s^4 - s^7$

1130 . Coloring, {2, 3, 6, 8, 10, 12}

R: [7, 8, 8, 6, A, 3, B, B, B, 2, 1, 9]
B: [6, 7, 7, 7, 3, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2 + y_5, y_2, 0, 0, y_5, y_3, y_4, 2\,y_5, y_5, y_6, 0]$$

$p' = -s^4 + s^7$ $p' = -s^5 + s^8$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_6, 2\,y_4, y_5, y_4, y_3, 0, 0, y_2, 0, y_1]$$

$p = -s^2 + s^7$

1131 . Coloring, {2, 3, 6, 8, 11, 12}

R: [7, 8, 8, 6, A, 3, B, B, B, C, 4, 9]
B: [6, 7, 7, 7, 3, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_2, y_3, 0, y_1, y_8, y_6, y_7, y_8, y_4, y_5]$$

$p = s^4 - s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2\,y_3 - 2\,y_4, y_1, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, 0, 2\,y_3 - 2\,y_4]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

1132 . Coloring, {2, 3, 6, 9, 10, 11}

R: [7, 8, 8, 6, A, 3, B, C, C, 2, 4, 5]
B: [6, 7, 7, 7, 3, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 10

See Matrix

$$[0, y_1, y_5, y_6, y_7, y_2, y_3, y_4, 0, y_8, y_9, y_{10}]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[-y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$$

1133 . Coloring, {2, 3, 6, 9, 10, 12}

R: [7, 8, 8, 6, A, 3, B, C, C, 2, 1, 9]
B: [6, 7, 7, 7, 3, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[5\,y_1, 5\,y_7 + 5\,y_3, 5\,y_7, 0, 0, 5\,y_3, 5\,y_4, 5\,y_5, 5\,y_6, 5\,y_3, 5\,y_2, 11\,y_1 - 10\,y_7 - 15\,y_3 + 11\,y_4 - 5\,y_5 - 5\,y_6 + 11\,y_2]$$

$$p = -s^4 - s^5 + s^7 + s^8 \quad p = s^4 - s^6 - s^7 + s^9 \quad p = -s^4 + s^{10}$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, y_6, 2\,y_4, y_7]$$

$$p = -s^3 + s^8$$

1134 . Coloring, {2, 3, 6, 9, 11, 12}

R: [7, 8, 8, 6, A, 3, B, C, C, C, 4, 9]
B: [6, 7, 7, 7, 3, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_6, y_7, 0, y_3, y_4, y_5, y_1, y_4, y_2, -y_6 - y_7 + y_3 + y_5 + y_1 + y_2]$$

$p = s^7 - s^8$ $p' = -s^7 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6, y_5, y_4, 0, 2y_6 - 2y_4, y_3, y_2, 0, 0, y_1, 2y_6 - 2y_4, 0]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

1135 . Coloring, {2, 3, 6, 10, 11, 12}

Ωp(Δ)=0: $p = 2s^2 - 7s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, B, C, B, 2, 4, 9]
B: [6, 7, 7, 7, 3, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	9 *vs* 10	8 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_1, y_4, y_2, 0, y_3, y_7, y_5, y_6, y_7, y_8, y_9]$$

$p = -s^3 + s^{10}$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_8, 0, y_7, 0, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

1136 . Coloring, {2, 3, 7, 8, 9, 10}

R: [7, 8, 8, 6, A, A, A, B, C, 2, 1, 5]
B: [6, 7, 7, 7, 3, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	5 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, y_3, y_6, y_4, y_5, 0, y_7, y_8, y_6]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 0, y_2, y_1, 0, y_5, y_4, 0, 3\,y_2 - 4\,y_5, 0, y_3, 3\,y_5]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$

1137 . Coloring, {2, 3, 7, 8, 9, 11}

R: [7, 8, 8, 6, A, A, A, B, C, C, 4, 5]
B: [6, 7, 7, 7, 3, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_4, 2\,y_4, 0, y_5, y_6, y_7]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 2\,y_6, y_2, 0, 0, y_3, y_4, 0, y_5, 0, y_7, y_6]$$

$p = -s^3 + s^8$

1138 . Coloring, {2, 3, 7, 8, 9, 12}

R: [7, 8, 8, 6, A, A, A, B, C, C, 1, 9]
B: [6, 7, 7, 7, 3, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, y_3, 2\,y_2, y_4, y_5, y_6, y_7]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_5, y_3, y_2, y_1, y_5, y_4, 0, 0, 0, y_6, y_5]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

1139 . Coloring, {2, 3, 7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 - 7s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, A, B, B, 2, 4, 5]
B: [6, 7, 7, 7, 3, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, 0, y_4, 2\,y_1, -y_3 + y_4 - 3\,y_1 + y_2 + y_5 - y_6, y_1, y_2, 0, y_5, y_6, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_5 - 3\,y_4 + 5\,y_3 - 3\,y_2 + 5\,y_6, 0, 3\,y_1, 0, 0, 3\,y_5, 3\,y_4, 0, 3\,y_3, 0, 3\,y_2, 3\,y_6]$$

$p = -s - s^2 + s^6 + s^7$

» SYNC'D !RANK'D

1140 . Coloring, {2, 3, 7, 8, 10, 12}

Ωp(Δ)=0: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, A, B, B, 2, 1, 9]
B: [6, 7, 7, 7, 3, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_2, y_3, 0, 0, 0, y_1, y_6, y_7, 2\,y_1, y_4, y_5, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_6, 0, 0, 0, y_5, 4\, y_4]$$

$p = -s^4 + s^7$

» SYNC'D !RANK'D

1141 . Coloring, {2, 3, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, A, B, B, C, 4, 9]
B: [6, 7, 7, 7, 3, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, 0, y_2, y_1, 2\, y_1, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_7, y_2, 0, y_3, y_4, y_5, 0, 0, 0, y_6, y_7]$$

$p = -s^3 + s^8$

1142 . Coloring, {2, 3, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = -2s^2 - s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, A, C, C, 2, 4, 5]
B: [6, 7, 7, 7, 3, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, 2\,y_6, y_4, y_5, y_6, y_2, 0, y_3, 0, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_2, 0, y_3, 0, 0, y_1, y_6, 0, y_7, 0, y_4, y_5]$$

1143 . Coloring, {2, 3, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, A, C, C, 2, 1, 9]
B: [6, 7, 7, 7, 3, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_2, y_1, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, 0, 0, 0, y_6, 2\,y_4]$$

$p = -s^4 + s^7$

1144 . Coloring, {2, 3, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, A, C, C, C, 4, 9]
B: [6, 7, 7, 7, 3, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$[0, 0, 0, 2\,y_2, 0, y_1, y_2, 2\,y_2, y_3, y_4, 0, y_5]$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$[y_1, y_3, y_2, 0, y_3, y_4, y_5, 0, 0, 0, y_6, 0]$

$p = -s^2 + s^7$

» SYNC'D !RANK'D

1145 . Coloring, {2, 3, 7, 10, 11, 12}

R: [7, 8, 8, 6, A, A, A, C, B, 2, 4, 9]
B: [6, 7, 7, 7, 3, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_4, 0, y_3, 0, y_2, y_1, y_6, y_5, y_9, y_8, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_3, 0, 0, 0, y_2, y_1]$$

1146 . Coloring, {2, 3, 8, 9, 10, 11}

R: [7, 8, 8, 6, A, A, B, B, C, 2, 4, 5]
B: [6, 7, 7, 7, 3, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 - y_2 - y_3 + 2\,y_7 + y_4 + y_5 - y_6, 0, y_1, y_2, y_3, y_7, y_4, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^9$ $p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_1 - y_5 + y_4, 0, 0, y_1 + y_4 - y_2, y_1 + y_4 - y_3, 0, y_5, y_4, y_3, y_2]$$

$p' = -s + s^2 - s^5 + s^6$ $p' = -s + s^3 - s^5 + s^7$ $p = s - s^2 + s^5 - s^6$

1147 . Coloring, {2, 3, 8, 9, 10, 12}

R: [7, 8, 8, 6, A, A, B, B, C, 2, 1, 9]
B: [6, 7, 7, 7, 3, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8,\ 3\,y_1,\ 0,\ 0,\ 0,\ 3\,y_2,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0,\ 0,\ y_1,\ y_2,\ y_3,\ y_6,\ y_4,\ 0,\ 0,\ y_5,\ y_6,\ y_7]$$

$p = -s^3 + s^8$

1148 . Coloring, {2, 3, 8, 9, 11, 12}

R: [7, 8, 8, 6, A, A, B, B, C, C, 4, 9]
B: [6, 7, 7, 7, 3, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0,\ 0,\ 0,\ y_1,\ 0,\ y_2,\ y_3,\ 2\,y_3,\ y_6,\ y_5,\ y_4,\ y_7]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3,\ y_1,\ y_2,\ 0,\ y_3,\ y_4,\ y_5,\ 0,\ 0,\ y_6,\ y_7,\ y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

1149 . Coloring, {2, 3, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, B, B, B, 2, 4, 9]
B: [6, 7, 7, 7, 3, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, y_3, y_4, y_5, 2\, y_4, y_7, y_6, 0]$$

$p = s^2 - s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_4, y_5, y_3, 0, 0, y_6, 0, y_7]$$

1150 . Coloring, {2, 3, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, A, B, C, C, 2, 4, 9]
B: [6, 7, 7, 7, 3, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_4, 0, y_3, 0, y_1, y_2, y_8, y_7, y_5, y_6, y_9]$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_5, 0, y_4, 0, y_3, y_2, y_1, 0, 0, y_6, y_7, y_8]$$

1151 . Coloring, {2, 4, 5, 6, 7, 8}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, A, B, B, C, 1, 5]
B: [6, 7, 8, 6, A, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_6, 0, 3\,y_5, 0, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_1, 8\,y_6 - 3\,y_5 + 8\,y_4 - 3\,y_3 - 11\,y_2 - 11\,y_1 + 8\,y_7, 3\,y_7, 5\,y_6 + 5\,y_4 - 8\,y_2 - 8\,y_1 + 5\,y_7]$$

$p' = s^2 - s^8$ $p = s^2 - s^8$

1152 . Coloring, {2, 4, 5, 6, 7, 9}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, A, C, C, C, 1, 5]
B: [6, 7, 8, 6, A, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[2\,y_6, 0, y_1, 0, y_3, 0, y_2, y_6, 0, y_5, 0, y_4]$$

$p = -s^2 + s^7$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_5 - y_1 + y_2 + 3\,y_3 + y_4 - y_6, 0, y_5, 0, y_1, y_2, y_3, 2\,y_3, y_4, y_6, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$ $p = -s^2 + s^8$

1153 . Coloring, {2, 4, 5, 6, 7, 10}

R: [7, 8, 7, 7, 3, 3, A, C, B, 2, 1, 5]
B: [6, 7, 8, 6, A, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_1, y_2, y_3, 0, y_4, 0, y_5, y_9, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_6 - 2\,y_5 - y_4 - y_3 + y_2 + y_1, 0, y_6, y_5, y_5, y_4, y_3, y_2, y_1]$$

$p = s^6 - s^7$ $p' = -s^6 + s^7$

1154 . Coloring, {2, 4, 5, 6, 7, 11}

R: [7, 8, 7, 7, 3, 3, A, C, B, C, 4, 5]
B: [6, 7, 8, 6, A, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_6, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 + 5\,y_4 - 3\,y_5 + 8\,y_7, -3\,y_3 + 8\,y_4 - 3\,y_6 + 5\,y_7, 0, 0, 0, 3\,y_3, 3\,y_1, 3\,y_2, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

1155 . Coloring, {2, 4, 5, 6, 7, 12}

R: [7, 8, 7, 7, 3, 3, A, C, B, C, 1, 9]
B: [6, 7, 8, 6, A, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 2\,y_3, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, y_4, y_5, y_7, 0, y_8, y_6, y_7]$$

$p = -s^3 + s^9$

1156 . Coloring, {2, 4, 5, 6, 8, 9}

R: [7, 8, 7, 7, 3, 3, B, B, C, C, 1, 5]
B: [6, 7, 8, 6, A, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, y_4, 0, y_3, y_2, 0, 0, y_1, 3\, y_2]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

1157 . Coloring, {2, 4, 5, 6, 8, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, B, B, B, 2, 1, 5]
B: [6, 7, 8, 6, A, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, 2\, y_2 - 2\, y_4, y_2, 0, 2\, y_2 - 2\, y_4, 0, y_3, y_4, 0, 0, y_5, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, 2\,y_3, 0, y_1, y_3, y_3, y_4, y_2, 0, y_5]$$

$p = s^4 - s^6$ $p' = s^4 - s^6$

1158 . Coloring, {2, 4, 5, 6, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, B, B, B, C, 4, 5]
B: [6, 7, 8, 6, A, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, 0, y_6, 2\,y_5]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[10\,y_1 + 10\,y_2 + 10\,y_3 - 22\,y_4 + 10\,y_5 - 22\,y_6, y_1, 0, 0, 0, y_2, y_3, 5\,y_1 + 5\,y_2 + 5\,y_3 - 11\,y_4 + 5\,y_5 - 11\,y_6, y_4, y_5, 0, y_6]$$

$p = s^3 + s^4 - s^6 - s^7$ $p' = -s^3 - s^4 + s^6 + s^7$

1159 . Coloring, {2, 4, 5, 6, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, B, B, B, C, 1, 9]
B: [6, 7, 8, 6, A, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, 0, 2\,y_2, 0, 0, 0, y_3, y_2, y_4, 0, y_5, 2\,y_2]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_3, 0, 2\,y_6, y_2, -2\,y_6 + 2\,y_4, y_1, y_6, 0, y_5, 0, y_4]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

1160 . Coloring, {2, 4, 5, 6, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, B, C, C, 2, 1, 5]
B: [6, 7, 8, 6, A, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_5, 0, y_3, 0, y_4, y_6, 0, 0, y_7, y_8]$$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

1161 . Coloring, {2, 4, 5, 6, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, B, C, C, C, 4, 5]
B: [6, 7, 8, 6, A, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, 0, y_1, y_3, y_2, 0, y_6, y_7, 0, 0, y_4, y_5]$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$[y_1, y_2, 0, 0, 0, y_3, y_4, y_5, 2\,y_5, y_6, y_7, 0]$

$p = -s^5 + s^8$

1162 . Coloring, {2, 4, 5, 6, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, B, C, C, C, 1, 9]
B: [6, 7, 8, 6, A, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$[5\,y_1, 0, -14\,y_1 - 14\,y_4 + 18\,y_3 - 14\,y_2 + 18\,y_5, 0, 0, 0, 5\,y_4, -7\,y_1 - 7\,y_4 + 9\,y_3 - 7\,y_2 + 9\,y_5, 5\,y_3, 0, 5\,y_2, 5\,y_5]$

$p = -s^2 - s^3 + s^5 + s^6$ $p = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$[0, y_5, 0, y_4, 2\,y_3, y_1, y_2, y_3, 0, y_7, y_6, 0]$

$p = s^5 - s^8$

1163 . Coloring, {2, 4, 5, 6, 10, 11}

R: [7, 8, 7, 7, 3, 3, B, C, B, 2, 4, 5]
B: [6, 7, 8, 6, A, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, y_1, y_2, y_3, y_4, 0, y_7, y_8, 0, 0, y_5, y_6]$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$[y_1, 0, 0, 0, 0, y_2, y_7, y_7, y_3, y_4, y_5, y_6]$

$p = -s^6 + s^8$

1164 . Coloring, {2, 4, 5, 6, 10, 12}

R: [7, 8, 7, 7, 3, 3, B, C, B, 2, 1, 9]
B: [6, 7, 8, 6, A, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_2, 0, 0, 0, y_6, y_7, y_4, 0, y_5, y_3]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, y_2, y_1, y_3, y_3, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

1165 . Coloring, {2, 4, 5, 6, 11, 12}

R: [7, 8, 7, 7, 3, 3, B, C, B, C, 4, 9]
B: [6, 7, 8, 6, A, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 2\,y_5, y_1, 0, 0, y_6, y_5, y_4, 0, y_3, y_2]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_6 + y_7, y_4, y_3, y_7, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

1166 . Coloring, {2, 4, 5, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, A, B, C, C, 1, 5]
B: [6, 7, 8, 6, A, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, y_8, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_4, y_3, y_2, 0, y_1, y_6, y_7, y_5, y_9, y_{10}, y_8]$$

1167 . Coloring, {2, 4, 5, 7, 8, 10}

R: [7, 8, 7, 7, 3, A, A, B, B, 2, 1, 5]
B: [6, 7, 8, 6, A, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_4, 0, y_5, y_6, 0, y_7, y_8, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_7, y_6, 0, y_5, y_4, y_3, y_2, y_4, y_1, -y_7 - y_6 + y_5 + y_3 + y_2 + y_1]$$

$p' = s^7 - s^8$ $p = s^7 - s^9$

1168 . Coloring, {2, 4, 5, 7, 8, 11}

R: [7, 8, 7, 7, 3, A, A, B, B, C, 4, 5]
B: [6, 7, 8, 6, A, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_3, y_1, y_2, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}} order: 10

See Matrix

$$[y_2, y_3, y_1, 0, 0, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

1169 . Coloring, {2, 4, 5, 7, 8, 12}

R: [7, 8, 7, 7, 3, A, A, B, B, C, 1, 9]
B: [6, 7, 8, 6, A, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, 0, 0, y_2, y_3, y_7, y_5, y_6, y_4]$$

$p = s^2 - s^8$

Omega Rank for B : cycles: {{2, 3, 4, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[0, y_1, y_3, y_2, y_7, y_6, y_5, y_4, 0, y_9, y_8, y_{10}]$$

1170 . Coloring, {2, 4, 5, 7, 9, 10}

R: [7, 8, 7, 7, 3, A, A, C, C, 2, 1, 5]
B: [6, 7, 8, 6, A, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_1, y_2, y_3, 0, y_4, 0, y_5, y_6, 0, y_7, 0, y_8]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_6, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

1171 . Coloring, {2, 4, 5, 7, 9, 11}

R: [7, 8, 7, 7, 3, A, A, C, C, C, 4, 5]
B: [6, 7, 8, 6, A, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, 2\,y_4, y_6, 0, y_5, y_4, 0, y_3, 0, y_2]$$

$p = -s^2 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, 2\,y_7, y_7, y_8, 0]$$

$p = -s^4 + s^9$

1172 . Coloring, {2, 4, 5, 7, 9, 12}

R: [7, 8, 7, 7, 3, A, A, C, C, C, 1, 9]
B: [6, 7, 8, 6, A, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_2, 0, y_2, 0, 0, 0, y_1, y_2, y_3, y_4, 0, y_5]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, y_9, 0]$$

1173 . Coloring, {2, 4, 5, 7, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, A, C, B, 2, 4, 5]
B: [6, 7, 8, 6, A, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_1, y_2, y_3, y_4, 0, y_5, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 8, 11}} order: 10

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_4 - 3\,y_3 - 3\,y_6 + 10\,y_5, 0, 3\,y_1, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, -3\,y_3 + 3\,y_5, 3\,y_3, 3\,y_6, 3\,y_5]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

1174 . Coloring, {2, 4, 5, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, A, C, B, 2, 1, 9]
B: [6, 7, 8, 6, A, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_2, y_1, y_7, 0, 0, 0, y_6, y_3, y_4, y_5, y_9, y_8]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -3\,y_3 + 5\,y_4 - 3\,y_1 - 3\,y_2 - 3\,y_6 + 5\,y_5 - 3\,y_7 + 5\,y_8, 3\,y_3, 3\,y_4, 3\,y_1, 3\,y_2, 3\,y_6, 0, 3\,y_5, 3\,y_7, 3\,y_8]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

1175 . Coloring, {2, 4, 5, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, A, C, B, C, 4, 9]
B: [6, 7, 8, 6, A, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_7, y_6, 0, 0, y_5, y_7, y_4, y_3, y_2, y_1]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 10

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

1176 . Coloring, {2, 4, 5, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, B, B, C, 2, 1, 5]
B: [6, 7, 8, 6, A, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_4, 0, y_2, 0, y_3, y_4, 0, y_6, y_5, y_6]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_4, y_3, 0, y_2, y_1, y_9, y_8, y_7, y_6, y_5]$$

1177 . Coloring, {2, 4, 5, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, B, B, C, C, 4, 5]
B: [6, 7, 8, 6, A, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, y_5, y_6, y_7]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}, {2, 7, 10}}

See Matrix

$$[5\,y_1 - 3\,y_2 - 3\,y_3 + 5\,y_7 - 3\,y_6 - 3\,y_5 + 5\,y_4 - 3\,y_8 - 3\,y_9, 3\,y_1, 3\,y_2, 0, 0, 3\,y_3, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_8, 3\,y_9]$$

$p = - s - s^2 - s^3 + s^8 + s^9 + s^{10}$

1178 . Coloring, {2, 4, 5, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = - 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, B, B, C, C, 1, 9]
B: [6, 7, 8, 6, A, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-6\,y_2 - 3\,y_1 + 10\,y_4 - 3\,y_3, 0, 3\,y_2, 0, 0, 0, 3\,y_1, 3\,y_2, -3\,y_2 + 3\,y_4, 3\,y_2, 3\,y_3, 3\,y_4]$$

$p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = s^2 - s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_{10}, y_9, y_8, y_7, y_6, y_5, y_4, 0, y_3, y_2, y_1]$$

1179 . Coloring, {2, 4, 5, 8, 10, 11}

R: [7, 8, 7, 7, 3, A, B, B, B, 2, 4, 5]
B: [6, 7, 8, 6, A, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, 2\,y_2 - 3\,y_4, y_1, 2\,y_4, 0, y_6, y_5, 0, y_4, y_3, 0]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_1, 0, -7\,y_1 + y_2 + y_3 + 3\,y_4 - y_5, 0, 0, -4\,y_1 + 2\,y_4, y_1, y_2, y_3, y_4, 0, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$ $p = -s^5 + s^8$

1180 . Coloring, {2, 4, 5, 8, 10, 12}

R: [7, 8, 7, 7, 3, A, B, B, B, 2, 1, 9]
B: [6, 7, 8, 6, A, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, y_2, y_5, 0, 0, 0, y_3, y_6, 2\,y_5, y_5, y_4, 0]$

$p' = -s^4 + s^7 \quad p = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, y_3, 2\,y_4, y_1, y_2, y_4, y_5, 0, y_6, 0, y_7]$

$p = s^5 - s^8$

1181 . Coloring, {2, 4, 5, 8, 11, 12}

R: [7, 8, 7, 7, 3, A, B, B, B, C, 4, 9]
B: [6, 7, 8, 6, A, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, 0, y_3, y_1, 0, 0, y_6, y_3, y_2, y_3, y_4, y_5]$

$p = s^4 - s^7 \quad p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, 0, y_9]$

1182 . Coloring, {2, 4, 5, 9, 10, 11}

R: [7, 8, 7, 7, 3, A, B, C, C, 2, 4, 5]
B: [6, 7, 8, 6, A, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, y_4, 0, y_5, y_6, 0, y_9, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

1183 . Coloring, {2, 4, 5, 9, 10, 12}

R: [7, 8, 7, 7, 3, A, B, C, C, 2, 1, 9]
B: [6, 7, 8, 6, A, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[y_4 - y_1 + 2\,y_2 + 2\,y_3 - y_5, y_4 + y_2 + y_3 - y_6, y_4, 0, 0, 0, y_1, y_2, y_3, y_4, y_5, y_6]$$

$p' = s^5 - s^8$ $p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -y_1 + y_2 - y_3 + y_4 - y_5 + y_6 - y_7 + y_8, y_1, y_2, y_3, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

1184 . Coloring, {2, 4, 5, 9, 11, 12}

R: [7, 8, 7, 7, 3, A, B, C, C, C, 4, 9]
B: [6, 7, 8, 6, A, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, y_2, -y_2 - y_1 + 2\,y_4 - y_3, 0, 0, y_1, y_2, -2\,y_2 + y_4, y_2, y_3, y_4]$$

$p = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[y_1 - y_2 + y_5 - y_6 + y_4 - y_3 + y_7 - y_8, y_1, y_2, 0, y_5, y_6, y_4, y_3, 0, y_7, y_8, 0]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

1185 . Coloring, {2, 4, 5, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, B, C, B, 2, 4, 9]
B: [6, 7, 8, 6, A, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, y_6, y_1, 0, 0, y_3, y_4, y_5, y_6, y_8, y_7]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[3\,y_6, 0, 3\,y_5, 0, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_1, 0, 3\,y_4 + 3\,y_2, -3\,y_6 - 3\,y_5 + 7\,y_4 - 3\,y_3 + 7\,y_2 - 3\,y_1, 3\,y_4 + 3\,y_2]$$

$p' = s^2 - s^7$ $p = s^2 - s^7$ $p' = s^3 - s^8$

1186 . Coloring, {2, 4, 6, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, 3, A, B, C, C, 1, 5]
B: [6, 7, 8, 6, 3, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_2, 0, y_4, 0, y_1, 0, y_3, y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_3, y_1, y_2, 0, y_9, y_{10}, y_8, y_6, y_7, y_5, y_4]$$

1187 . Coloring, {2, 4, 6, 7, 8, 10}

R: [7, 8, 7, 7, A, 3, A, B, B, 2, 1, 5]
B: [6, 7, 8, 6, 3, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_3, y_2, 0, 2\,y_2, 0, y_6, y_7, 0, y_4, y_5, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_4, y_6, 0, y_7, -y_1 + y_4, y_1, y_2, y_3, y_4, y_5]$$

$p' = s^6 - s^8$ $p = -s^6 + s^8$

1188 . Coloring, {2, 4, 6, 7, 8, 11}

R: [7, 8, 7, 7, A, 3, A, B, B, C, 4, 5]
B: [6, 7, 8, 6, 3, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_1, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[3\,y_3, 3\,y_2, 3\,y_8 + 3\,y_7 - 3\,y_4, 0, 0, 3\,y_1, -3\,y_3 - 3\,y_2 - 3\,y_1 + 10\,y_8 + 10\,y_7 - 3\,y_6 - 3\,y_5, 3\,y_8, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4]$$

$p' = s^3 - s^9$ $p = s^3 - s^9$

1189 . Coloring, {2, 4, 6, 7, 8, 12}

R: [7, 8, 7, 7, A, 3, A, B, B, C, 1, 9]
B: [6, 7, 8, 6, 3, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, 0, y_3, y_2, y_7, y_6, y_5, y_4]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 3y_1, 3y_2 + 3y_4 - 3y_8, -3y_1 + 10y_2 - 3y_5 - 3y_3 + 10y_4 - 3y_6 - 3y_7, 3y_2, 3y_5, 3y_3, 3y_4, 0, 3y_6, 3y_7, 3y_8]$$

$p = -s - s^3 + s^7 + s^9$ $p' = -s - s^3 + s^7 + s^9$

1190 . Coloring, {2, 4, 6, 7, 9, 10}

R: [7, 8, 7, 7, A, 3, A, C, C, 2, 1, 5]
B: [6, 7, 8, 6, 3, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[2y_3, y_2, y_3, 0, y_1, 0, y_6, y_7, 0, y_5, 0, y_4]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_1, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^3 + s^9$

1191 . Coloring, {2, 4, 6, 7, 9, 11}

R: [7, 8, 7, 7, A, 3, A, C, C, C, 4, 5]
B: [6, 7, 8, 6, 3, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, y_3, 2\,y_3, y_1, 0, y_2, y_3, 0, y_4, 0, y_5]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, 2\,y_3, y_7, y_8, 0]$$

$p = -s^3 + s^9$

1192 . Coloring, {2, 4, 6, 7, 9, 12}

R: [7, 8, 7, 7, A, 3, A, C, C, C, 1, 9]
B: [6, 7, 8, 6, 3, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_2, 0, y_2, 0, 0, 0, y_1, y_2, y_3, y_4, 0, y_5]$$

$p' = -s^4 + s^6$ $p = -s^4 + s^6$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_6, y_7, y_8, 0, y_5, y_9, 0]$$

1193 . Coloring, {2, 4, 6, 7, 10, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, 3, A, C, B, 2, 4, 5]
B: [6, 7, 8, 6, 3, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_2, y_8, y_1, y_3, 0, y_6, y_4, 0, y_5, y_8, y_7]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_3, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = s^7 - s^9$

1194 . Coloring, {2, 4, 6, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, A, C, B, 2, 1, 9]
B: [6, 7, 8, 6, 3, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, 0, y_4, y_7, y_5, y_6, y_8, y_9]$$

Omega Rank for B : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_4, y_2, y_3, y_1, y_5, y_6, 0, y_7, y_8, y_9]$$

1195 . Coloring, {2, 4, 6, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, A, C, B, C, 4, 9]
B: [6, 7, 8, 6, 3, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_3, 0, 0, y_2, y_4, y_1, y_6, y_5, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_{10}, y_9]$$

1196 . Coloring, {2, 4, 6, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, B, C, 2, 1, 5]
B: [6, 7, 8, 6, 3, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_8, 0, y_3, 0, y_5, y_4, 0, y_6, y_7, y_8]$$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_1 + 2\,y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

1197 . Coloring, {2, 4, 6, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, B, C, C, 4, 5]
B: [6, 7, 8, 6, 3, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, y_1, -7\,y_1 - 6\,y_2 + 4\,y_4 + 5\,y_3, 5\,y_1 + 5\,y_2 - 2\,y_4 - 4\,y_3, 0, y_2, y_1, 0, -8\,y_1 - 8\,y_2 + 5\,y_4 + 6\,y_3, y_4, y_3]$$

$p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p' = s^2 - s^5$ $p = s^2 - s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_8, y_9, y_7, y_{10}, y_5, y_6]$$

1198 . Coloring, {2, 4, 6, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, B, C, C, 1, 9]
B: [6, 7, 8, 6, 3, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[3\,y_4, 0, 3\,y_3, 0, 0, 0, 3\,y_2, 3\,y_3, 3\,y_1, 3\,y_3, -3\,y_4 + 4\,y_3 - 3\,y_2 + 10\,y_1, 3\,y_3 + 3\,y_1]$$

$p' = -s^3 + s^6$ $p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[0, 11\,y_6 - 5\,y_4 + 11\,y_5 - 5\,y_3 - 5\,y_1 + 11\,y_2 - 5\,y_8 - 5\,y_9 + 11\,y_7, 5\,y_6, 5\,y_4, 5\,y_5, 5\,y_3, 5\,y_1, 5\,y_2, 0, 5\,y_8, 5\,y_9, 5\,y_7]$$

$p = -s^4 - s^5 - s^6 + s^8 + s^9 + s^{10}$

1199 . Coloring, {2, 4, 6, 8, 10, 11}

R: [7, 8, 7, 7, A, 3, B, B, B, 2, 4, 5]
B: [6, 7, 8, 6, 3, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	4 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_4, y_5, y_6, 2\,y_5, 0, y_7, y_1, 0, y_2, y_3, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_3, 0, y_3, 0, 0, 2\,y_2, y_3, y_2, y_1, y_2 - y_1 + y_4, 0, y_4]$$

$p' = s^4 - s^6$ $p = s^4 - s^7$ $p' = -s^6 + s^7$ $p' = s^5 - s^6$

1200 . Coloring, {2, 4, 6, 8, 10, 12}

R: [7, 8, 7, 7, A, 3, B, B, B, 2, 1, 9]
B: [6, 7, 8, 6, 3, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	4 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_1, y_4, 0, 0, 0, y_6, y_5, 2\,y_4, y_4, y_3, 0]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, -y_1 + y_3 - y_2, 2\,y_1, -2\,y_1 + y_3, y_2, y_1, y_3 - y_4, 0, y_4, 0, y_3]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$ $p = -s^4 + s^7$ $p = -s^4 + s^8$

1201 . Coloring, {2, 4, 6, 8, 11, 12}

R: [7, 8, 7, 7, A, 3, B, B, B, C, 4, 9]
B: [6, 7, 8, 6, 3, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_4, y_1, 0, 0, y_2, y_4, y_3, y_4, y_5, y_6]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[-3y_1 + 10y_2 - 3y_3 - 3y_4 + 10y_5 - 3y_6, 3y_1, 3y_2 + 3y_5 - 3y_7, 0, 3y_2, 3y_3, 3y_4, 3y_5, 0, 3y_6, 0, 3y_7]$$

$p = -s^3 - s^5 + s^6 + s^8$ $p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

1202 . Coloring, {2, 4, 6, 9, 10, 11}

Ωp(Δ)=0: $p = s^4 - 16s^8$ $p' = s^4 - 8s^7$ $p' = s^5 - 4s^7$ $p' = s^6 - 2s^7$

R: [7, 8, 7, 7, A, 3, B, C, C, 2, 4, 5]
B: [6, 7, 8, 6, 3, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {2, 5, 8, 10, 12}}

See Matrix

$$[0, y_1 + y_2 - y_6 + y_5 - y_3 - y_4 + y_8 - y_7, y_1, y_2, y_6, 0, y_5, y_3, 0, y_4, y_8, y_7]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[2\,y_5 + y_7 - y_6 - y_4 - y_2 + y_3 + y_1, 0, y_5, 0, 0, y_7, y_5, y_6, y_4, y_2, y_3, y_1]$$

$p = s^3 - s^9$ $p' = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1203 . Coloring, {2, 4, 6, 9, 10, 12}

R: [7, 8, 7, 7, A, 3, B, C, C, 2, 1, 9]
B: [6, 7, 8, 6, 3, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[y_4 - y_1 + 2\,y_2 + 2\,y_3 - y_5, y_4 + y_2 + y_3 - y_6, y_4, 0, 0, 0, y_1, y_2, y_3, y_4, y_5, y_6]$$

$p' = -s^5 + s^8$ $p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_5 + y_6 - y_2 - y_3, -y_1 + y_5 + y_6, y_1, y_2, y_3, -y_4 + y_5 + y_6, 0, y_4, y_5, y_6]$$

$p' = s^3 - s^4 + s^7 - s^8$ $p' = s^2 - s^4 + s^6 - s^8$ $p = s^2 - s^5 + s^6 - s^9$

1204 . Coloring, {2, 4, 6, 9, 11, 12}

R: [7, 8, 7, 7, A, 3, B, C, C, C, 4, 9]
B: [6, 7, 8, 6, 3, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, y_2, -y_2 - y_1 - y_3 + 2\,y_4, 0, 0, y_1, y_2, -2\,y_2 + y_4, y_2, y_3, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, 0]$$

1205 . Coloring, {2, 4, 6, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, C, B, 2, 4, 9]
B: [6, 7, 8, 6, 3, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, y_5, y_1, 0, 0, y_8, y_7, y_6, y_5, y_4, y_3]$$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[-y_3 + y_4 + y_5, 0, y_2, 0, y_3, y_1, y_4 + y_5 - y_2 - y_1, y_4 + y_5 - y_6, 0, y_6, y_4, y_5]$$

$p = -s^2 + s^4 - s^6 + s^8$ $p = -s^2 + s^5 - s^6 + s^9$ $p = -s^2 + s^3 - s^6 + s^7$

1206 . Coloring, {2, 4, 7, 8, 9, 10}

R: [7, 8, 7, 7, A, A, A, B, C, 2, 1, 5]
B: [6, 7, 8, 6, 3, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 + y_3 - y_5 - y_4 + y_6 - y_7, y_1, 0, 0, y_2, 0, y_3, y_5, 0, y_4, y_6, y_7]$$

$$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_1, y_2, 0, y_8, y_5, y_6, y_7, 0, y_4, y_3]$$

1207 . Coloring, {2, 4, 7, 8, 9, 11}

R: [7, 8, 7, 7, A, A, A, B, C, C, 4, 5]
B: [6, 7, 8, 6, 3, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$[y_9, y_8, y_7, 0, 0, y_6, y_5, y_4, y_3, 0, y_2, y_1]$

1208 . Coloring, {2, 4, 7, 8, 9, 12}

R: [7, 8, 7, 7, A, A, A, B, C, C, 1, 9]
B: [6, 7, 8, 6, 3, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$[y_1, 0, 0, 0, 0, 0, y_3, y_2, y_7, y_6, y_4, y_5]$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$[0, y_1, y_2, y_7, y_3, y_4, y_5, y_6, 0, 0, y_9, y_8]$

1209 . Coloring, {2, 4, 7, 8, 10, 11}

$\Omega p(\Delta)=0: \quad p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, A, B, B, 2, 4, 5]
B: [6, 7, 8, 6, 3, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$[0, y_1, 0, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, 0]$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_7, 0, 0, y_8, y_6, y_2, y_3, 0, y_4, y_5]$$

1210 . Coloring, {2, 4, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, A, B, B, 2, 1, 9]
B: [6, 7, 8, 6, 3, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, 0]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_6, y_5, y_4, y_3, y_2, y_1, 0, 0, y_8, y_7]$$

1211 . Coloring, {2, 4, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, A, B, B, C, 4, 9]
B: [6, 7, 8, 6, 3, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, y_6, y_4, y_5, y_7, 0, 0, y_8, y_9]$$

1212 . Coloring, {2, 4, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, A, C, C, 2, 4, 5]
B: [6, 7, 8, 6, 3, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_2, y_3, 0, y_4, y_5, 0, y_6, 0, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, 0, y_7, 2\,y_4]$$

$p = s^3 - s^8$

1213 . Coloring, {2, 4, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, A, C, C, 2, 1, 9]
B: [6, 7, 8, 6, 3, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	8 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, 0, y_3, y_4, y_5, y_6, 0, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, 0, y_7, 2\, y_5]$$

$p = -s^3 + s^8$

1214 . Coloring, {2, 4, 7, 9, 11, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, A, C, C, C, 4, 9]
B: [6, 7, 8, 6, 3, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, 2\, y_3, 0, 0, y_5, y_3, y_4, y_2, 0, y_1]$$

$p = s^4 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_4, y_2, 0, y_4, y_5, y_6, y_7, 0, 0, y_3, 0]$$

$p = -s^3 + s^8$

1215 . Coloring, {2, 4, 7, 10, 11, 12}

R: [7, 8, 7, 7, A, A, A, C, B, 2, 4, 9]
B: [6, 7, 8, 6, 3, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_7, y_4, y_5, 0, 0, y_6, 3\, y_4]$$

$p = -s^3 + s^8$

1216 . Coloring, {2, 4, 8, 9, 10, 11}

R: [7, 8, 7, 7, A, A, B, B, C, 2, 4, 5]
B: [6, 7, 8, 6, 3, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_6, y_7, 0, y_8, y_5, 0, y_4, y_3, y_2]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

1217 . Coloring, {2, 4, 8, 9, 10, 12}

R: [7, 8, 7, 7, A, A, B, B, C, 2, 1, 9]
B: [6, 7, 8, 6, 3, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_7, 3\,y_6, 0, 0, 0, 0, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, -3\,y_7 - 3\,y_6 - 3\,y_5 - 3\,y_4 + 13\,y_3 - 3\,y_2 + 13\,y_1, 3\,y_1]$$

$p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_6, y_5, y_4, y_3, y_1, y_2, 0, y_5, y_1, -y_6 + y_4 + y_3 + y_2]$$

$p' = -s^4 + s^8$ $p' = -s^4 + s^5 - s^6 + s^7$ $p = s^4 - s^5 + s^6 - s^7$

1218 . Coloring, {2, 4, 8, 9, 11, 12}

R: [7, 8, 7, 7, A, A, B, B, C, C, 4, 9]
B: [6, 7, 8, 6, 3, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, 7\,y_5, 0, 0, 7\,y_4, 7\,y_3, 7\,y_2, 14\,y_3, -7\,y_5 - 7\,y_4 + 11\,y_3 + 9\,y_2 + 9\,y_1, 7\,y_1]$$

$p = s^2 - s^4 - s^5 + s^7 \quad p' = s^2 + s^3 - s^5 - s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$[5\,y_5, 5\,y_4, 5\,y_3, 0, 5\,y_2, -5\,y_5 + 11\,y_4 - 5\,y_3 - 5\,y_2 + 11\,y_1 - 5\,y_9 + 11\,y_8 - 5\,y_7 - 5\,y_6, 5\,y_1, 5\,y_9, 0, 5\,y_8, 5\,y_7, 5\,y_6]$

$p = s^4 + s^5 + s^6 - s^8 - s^9 - s^{10}$

1219 . Coloring, {2, 4, 8, 10, 11, 12}

$\Omega p(\Delta)=0: \quad p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, A, B, B, B, 2, 4, 9]
B: [6, 7, 8, 6, 3, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, y_2, 0, y_1, 0, 0, y_4, y_5, y_6, y_6, y_3, 0]$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$[2\,y_3, 0, y_1, 0, y_2, -2\,y_3 + 2\,y_5, y_3, y_4, 0, y_5, 0, y_6]$

$p' = -s^3 + s^7 \quad p = -s^3 + s^7$

1220 . Coloring, {2, 4, 9, 10, 11, 12}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, B, C, C, 2, 4, 9]
B: [6, 7, 8, 6, 3, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 9\,y_1 + 9\,y_3 - 7\,y_2 - 7\,y_4 - 7\,y_5 + 9\,y_6 - 7\,y_7, 0, 7\,y_1, 0, 0, 7\,y_3, 7\,y_2, 7\,y_4, 7\,y_5, 7\,y_6, 7\,y_7]$$

$p = s^4 + s^5 - s^7 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_4, y_3, y_5, y_6, 0, y_7, y_8, y_9]$$

1221 . Coloring, {2, 5, 6, 7, 8, 9}

R: [7, 8, 7, 6, 3, 3, A, B, C, C, 1, 5]
B: [6, 7, 8, 7, A, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_8, 0, y_7, 0, y_6, y_4, y_5, y_4, 0, y_3, y_2, y_1]$$

$p = s^4 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, -y_4 + 2\,y_6 + y_3, 0, y_1, 0, y_4 - y_6, y_2, y_4 - y_6, y_3, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

1222 . Coloring, {2, 5, 6, 7, 8, 10}

R: [7, 8, 7, 6, 3, 3, A, B, B, 2, 1, 5]
B: [6, 7, 8, 7, A, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	3 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 2\,y_4, y_4, y_5, y_6, 0, y_7, y_8, 0]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, 2\,y_2, 0, 5\,y_2 - 2\,y_3, 2\,y_2, 5\,y_2 - 2\,y_3, 2\,y_1, -2\,y_1 + 2\,y_3, 2\,y_2, 2\,y_3]$$

$p = -s^3 + s^6$ $p = -s^3 + s^8$ $p = -s^3 + s^7$ $p = -s^3 + s^4$ $p = -s^3 + s^5$

1223 . Coloring, {2, 5, 6, 7, 8, 11}

R: [7, 8, 7, 6, 3, 3, A, B, B, C, 4, 5]
B: [6, 7, 8, 7, A, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[3\,y_1,\ 8\,y_1 - 3\,y_2 + 8\,y_3 - 11\,y_4 - 11\,y_5 + 8\,y_6 - 3\,y_7,\ 0,\ 0,\ 0,\ 3\,y_2,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 5\,y_1 + 5\,y_3 - 8\,y_4 - 8\,y_5 + 5\,y_6]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

1224 . Coloring, {2, 5, 6, 7, 8, 12}

R: [7, 8, 7, 6, 3, 3, A, B, B, C, 1, 9]
B: [6, 7, 8, 7, A, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1,\ 0,\ y_2,\ 0,\ 0,\ y_4,\ y_3,\ y_4,\ y_5,\ y_6,\ y_7,\ y_8]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_1,\ 0,\ y_8,\ y_7,\ y_6,\ y_5,\ y_6,\ 0,\ y_4,\ y_3,\ y_2]$$

$p = -s^6 + s^9$

1225 . Coloring, {2, 5, 6, 7, 9, 10}

R: [7, 8, 7, 6, 3, 3, A, C, C, 2, 1, 5]
B: [6, 7, 8, 7, A, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[2\ y_3, y_1, y_5, 0, y_2, y_3, y_4, y_6, 0, y_8, 0, y_7]$$

$p = -s^2 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_5, 0, y_3, y_4, y_3, y_2, y_1, y_6, y_7]$$

$p = s^5 - s^8$

1226 . Coloring, {2, 5, 6, 7, 9, 11}

R: [7, 8, 7, 6, 3, 3, A, C, C, C, 4, 5]
B: [6, 7, 8, 7, A, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_6, 2\ y_4, y_1, y_2, y_3, y_4, 0, y_5, 0, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_4, y_3, 0, 0, 0, y_2, y_1, y_7, 2\ y_7, y_6, y_5, 0]$$

$p = -s^2 + s^8$

1227 . Coloring, {2, 5, 6, 7, 9, 12}

R: [7, 8, 7, 6, 3, 3, A, C, C, C, 1, 9]
B: [6, 7, 8, 7, A, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_6, 0, y_1, 0, 0, y_6, y_5, y_6, y_3, y_4, 0, y_2]$$

$p = -s^5 + s^7$ $p' = -s^5 + s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_1, 2\,y_6, y_6, y_5, y_6, 0, y_4, y_3, 0]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

1228 . Coloring, {2, 5, 6, 7, 10, 11}

Ωp(Δ)=0: $p = s - s^2 - 3s^4 + 4s^5 + 8s^7 - 16s^8$

R: [7, 8, 7, 6, 3, 3, A, C, B, 2, 4, 5]
B: [6, 7, 8, 7, A, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_{10}, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_5, 2\,y_4, y_4, y_3, y_2, y_7, y_6]$$

$p = -s^6 + s^8$

1229 . Coloring, {2, 5, 6, 7, 10, 12}

R: [7, 8, 7, 6, 3, 3, A, C, B, 2, 1, 9]
B: [6, 7, 8, 7, A, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	4 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$[y_3, y_2, y_1, 0, 0, y_{10}, y_9, y_8, y_7, y_6, y_5, y_4]$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$[0, 0, 0, y_2, -y_1 + y_3, y_1, -y_1 + y_4, y_1, 0, y_2, y_3, y_4]$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$

1230 . Coloring, {2, 5, 6, 7, 11, 12}

R: [7, 8, 7, 6, 3, 3, A, C, B, C, 4, 9]
B: [6, 7, 8, 7, A, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$[0, 0, y_1, y_5, 0, y_4, y_2, y_3, y_6, y_7, y_8, y_9]$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 + y_3 - y_4 - 2\,y_7 - y_5 + y_6, y_1, 0, 0, y_2, y_3, y_4, y_7, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8 \quad p = -s^3 + s^9$

1231 . Coloring, {2, 5, 6, 8, 9, 10}

R: [7, 8, 7, 6, 3, 3, B, B, C, 2, 1, 5]
B: [6, 7, 8, 7, A, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_4, 2\,y_5, y_3, 0, y_2, y_5, y_1, 2\,y_2 - 3\,y_5, 0, 0, y_6, y_5]$$

$p' = -s^5 + s^8 \quad p = -s^4 + s^7 \quad p' = s^4 - s^7$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_7, y_2, y_3, y_4, y_5, y_6]$$

$p = -s^2 + s^8$

1232 . Coloring, {2, 5, 6, 8, 9, 11}

R: [7, 8, 7, 6, 3, 3, B, B, C, C, 4, 5]
B: [6, 7, 8, 7, A, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_5, y_6, y_7, 0, 0, y_4, 3\, y_7]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_2, y_1, 0, 0, 0, y_6, y_5, y_4, y_3, y_9, y_8, y_7]$$

1233 . Coloring, {2, 5, 6, 8, 9, 12}

R: [7, 8, 7, 6, 3, 3, B, B, C, C, 1, 9]
B: [6, 7, 8, 7, A, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-5\, y_2 - 10\, y_6 - 5\, y_1 + 11\, y_5 - 5\, y_3 + 11\, y_4, 0, 5\, y_2, 0, 0, 5\, y_6, 5\, y_1, 5\, y_6, 5\, y_5, 0, 5\, y_3, 5\, y_4]$$

$p' = s^3 + s^4 - s^6 - s^7$ $p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_3, 0, y_5 + y_4, y_2, y_5, y_1, y_5, 0, y_6, y_5, y_4]$$

$p = -s^4 + s^7$ $p' = s^5 - s^8$ $p' = -s^4 + s^7$

1234 . Coloring, {2, 5, 6, 8, 10, 11}

R: [7, 8, 7, 6, 3, 3, B, B, B, 2, 4, 5]
B: [6, 7, 8, 7, A, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_7, y_6, y_5, y_7, y_4, y_3, y_2, 0, 0, y_1, 0]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_1, 0, 0, 0, 0, y_2, 2\,y_1, y_1, y_3, y_4, 0, y_5]$$

$p' = -s^4 + s^6$ $p = -s^4 + s^6$

1235 . Coloring, {2, 5, 6, 8, 10, 12}

R: [7, 8, 7, 6, 3, 3, B, B, B, 2, 1, 9]
B: [6, 7, 8, 7, A, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_2, 2\,y_4, y_1, 0, 0, y_4, y_3, 2\,y_1 - 3\,y_4, 2\,y_4, 0, y_5, 0]$$

$p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_3, y_1, y_3, y_2, y_3, 0, y_4, 0, y_5]$$

$p' = s^3 - s^6$ $p = -s^3 + s^6$

1236 . Coloring, {2, 5, 6, 8, 11, 12}

R: [7, 8, 7, 6, 3, 3, B, B, B, C, 4, 9]
B: [6, 7, 8, 7, A, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_7, y_6, 0, y_5, y_4, y_3, y_2, 0, y_1, 2\, y_3]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2\, y_3, y_1, 0, 0, y_2, -3\, y_3 + 2\, y_4, y_5, y_3, 0, y_6, 0, y_4]$$

$p = s^4 - s^7$ $p' = -s^4 + s^7$

1237 . Coloring, {2, 5, 6, 9, 10, 11}

R: [7, 8, 7, 6, 3, 3, B, C, C, 2, 4, 5]
B: [6, 7, 8, 7, A, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_5, y_4, y_3, y_1, y_2, y_6, y_7, 0, 0, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, 2\,y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

1238 . Coloring, {2, 5, 6, 9, 10, 12}

R: [7, 8, 7, 6, 3, 3, B, C, C, 2, 1, 9]
B: [6, 7, 8, 7, A, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[11\,y_1 - 16\,y_2 - 7\,y_3 + 9\,y_4 - 7\,y_5 + 9\,y_6, 14\,y_2, 7\,y_1, 0, 0, 7\,y_2, 7\,y_3, 14\,y_1 - 21\,y_2, 7\,y_4, 0, 7\,y_5, 7\,y_6]$$

$p = s^3 - s^9$ $p' = s^4 + s^5 - s^7 - s^8$ $p' = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, y_3, y_2, y_1, y_2, 0, y_6, y_7, y_5]$$

$p = -s^5 + s^8$

1239 . Coloring, {2, 5, 6, 9, 11, 12}

R: [7, 8, 7, 6, 3, 3, B, C, C, C, 4, 9]
B: [6, 7, 8, 7, A, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, 0, -7\,y_1 - 7\,y_2 - 7\,y_5 + 9\,y_4 + 9\,y_3 - 7\,y_6 + 9\,y_7, 7\,y_1, 0, 7\,y_2, 7\,y_5, 7\,y_4, 7\,y_3, 0, 7\,y_6, 7\,y_7]$$

$p = -s^2 - s^3 + s^7 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 2\,y_5, y_3, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^5 + s^8$

1240 . Coloring, {2, 5, 6, 10, 11, 12}

R: [7, 8, 7, 6, 3, 3, B, C, B, 2, 4, 9]
B: [6, 7, 8, 7, A, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_5, 0, y_4, y_3, y_8, y_9, 0, y_6, y_7]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_4, 0, 0, 0, y_2, y_3, 2\,y_1, y_1, 0, y_5, y_6, y_7]$$

$p = s^5 - s^8$

1241 . Coloring, {2, 5, 7, 8, 9, 10}

R: [7, 8, 7, 6, 3, A, A, B, C, 2, 1, 5]
B: [6, 7, 8, 7, A, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_2, y_1, -y_2 + y_1 + y_6 + y_5 - y_4 - y_3 + y_8, 0, y_6, y_7, y_5, y_4, 0, y_3, y_8, y_7]$$

$p = s^4 - s^{10}$ $p' = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_4, y_3, 0, y_5, y_2, y_1, y_6, y_5, y_8, y_7]$$

$p = -s^6 + s^9$

1242 . Coloring, {2, 5, 7, 8, 9, 11}

R: [7, 8, 7, 6, 3, A, A, B, C, C, 4, 5]
B: [6, 7, 8, 7, A, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_9, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_5, y_3, y_4, 0, 0, y_2, y_1, y_9, y_{10}, y_8, y_6, y_7]$$

1243 . Coloring, {2, 5, 7, 8, 9, 12}

R: [7, 8, 7, 6, 3, A, A, B, C, C, 1, 9]

B: [6, 7, 8, 7, A, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, 0, y_5, y_4, y_5, y_2, y_3, y_6, y_7]$$

$p' = s^6 - s^8$ $p = -s^6 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

1244 . Coloring, {2, 5, 7, 8, 10, 11}

R: [7, 8, 7, 6, 3, A, A, B, B, 2, 4, 5]
B: [6, 7, 8, 7, A, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, y_9, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_7, 0, y_8, 0, 0, y_6, 2\,y_2, y_4, y_5, y_2, y_3, y_1]$$

$p = s^7 - s^9$

1245 . Coloring, {2, 5, 7, 8, 10, 12}

R: [7, 8, 7, 6, 3, A, A, B, B, 2, 1, 9]
B: [6, 7, 8, 7, A, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_5, y_4, y_3, 0, 0, y_3, y_2, y_1, 2\, y_3, y_7, y_6, 0]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 5\, y_5 - y_1 - y_2 - y_3 - y_4 - y_6, y_5, y_1, y_2, y_5, y_3, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

1246 . Coloring, {2, 5, 7, 8, 11, 12}

R: [7, 8, 7, 6, 3, A, A, B, B, C, 4, 9]
B: [6, 7, 8, 7, A, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_1, 0, y_7, y_8, y_6, y_5, y_2, y_3, y_4]$$

$p = s^3 - s^9$

Omega Rank for B : cycles: {{1, 2, 3, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[y_1 - y_2 + y_6 + y_5 - y_3 + y_4 - y_7 + y_8 - y_9, y_1, y_2, 0, y_6, y_5, y_3, y_4, 0, y_7, y_8, y_9]$$

$$p = - s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$$

1247 . Coloring, {2, 5, 7, 9, 10, 11}

R: [7, 8, 7, 6, 3, A, A, C, C, 2, 4, 5]
B: [6, 7, 8, 7, A, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_9, y_8, y_7, y_6, y_5, y_4, y_3, 0, y_2, 0, y_1]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_8, 2\, y_5, y_7, y_6, y_5, y_4, y_3]$$

$$p = s^4 - s^9$$

1248 . Coloring, {2, 5, 7, 9, 10, 12}

R: [7, 8, 7, 6, 3, A, A, C, C, 2, 1, 9]
B: [6, 7, 8, 7, A, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_6, y_1, y_6, 0, 0, y_6, y_5, y_2, y_3, y_4, 0, y_7]$$

$p = -s^6 + s^8$ $p' = -s^6 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 6

See Matrix

$$[0, 0, 3\,y_2, -3\,y_2 - 7\,y_1 - 7\,y_5 + 14\,y_4 + 8\,y_3, -5\,y_1 - 5\,y_5 + 7\,y_4 + 7\,y_3, 3\,y_6, 3\,y_1, 3\,y_5, 0, 3\,y_4, -3\,y_6 - 7\,y_1 - 7\,y_5 + 8\,y_4 + 14\,y_3, 3\,y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

1249 . Coloring, {2, 5, 7, 9, 11, 12}

R: [7, 8, 7, 6, 3, A, A, C, C, C, 4, 9]
B: [6, 7, 8, 7, A, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_5, 2\,y_5, 0, -3\,y_5 + 2\,y_4, y_4, y_5, y_3, y_2, 0, y_1]$$

$p' = -s^5 + s^7$ $p' = s^4 - s^6$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, 0]$$

1250 . Coloring, {2, 5, 7, 10, 11, 12}

R: [7, 8, 7, 6, 3, A, A, C, B, 2, 4, 9]
B: [6, 7, 8, 7, A, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_7, y_8, y_9, 0, y_{10}, y_1, y_2, y_3, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 8, 11}}

See Matrix

$$[3\,y_5, 0, -3\,y_5 + 5\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 5\,y_8 - 3\,y_6 + 5\,y_7, 0, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 0, 3\,y_8, 3\,y_6, 3\,y_7]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

1251 . Coloring, {2, 5, 8, 9, 10, 11}

R: [7, 8, 7, 6, 3, A, B, B, C, 2, 4, 5]
B: [6, 7, 8, 7, A, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_5, y_4, y_3, y_2, y_1, y_5 + y_4 - y_3 - y_2 + y_1 - y_9 - y_8 + y_7 + y_6, y_9, 0, y_8, y_7, y_6]$$

$$p = -s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

1252 . Coloring, {2, 5, 8, 9, 10, 12}

R: [7, 8, 7, 6, 3, A, B, B, C, 2, 1, 9]
B: [6, 7, 8, 7, A, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, -3\,y_1 - 6\,y_3 - 3\,y_4 - 3\,y_2 + 13\,y_6 - 3\,y_7 - 3\,y_5 + 13\,y_8, 3\,y_3, 0, 0, 3\,y_3, 3\,y_4, 3\,y_2, 3\,y_6, 3\,y_7, 3\,y_5, 3\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$ $p' = -s^5 - s^6 + s^8 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_2 + y_4, y_1, y_4, y_2 + y_6, y_6, 0, y_5, y_4, y_3]$$

$p = -s^4 + s^7$ $p' = -s^5 + s^8$ $p' = -s^4 + s^7$

1253 . Coloring, {2, 5, 8, 9, 11, 12}

R: [7, 8, 7, 6, 3, A, B, B, C, C, 4, 9]
B: [6, 7, 8, 7, A, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_3, y_4, 0, y_5, -y_4 + y_5 - y_1 - y_2 + y_6 + y_7, y_3, y_1, y_2, y_6, y_7]$$

$p = -s^7 + s^8$ $p = -s^7 + s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_{10}, 0, y_6, y_7, y_8, y_9, 0, y_5, y_3, y_4]$$

1254 . Coloring, {2, 5, 8, 10, 11, 12}

R: [7, 8, 7, 6, 3, A, B, B, B, 2, 4, 9]
B: [6, 7, 8, 7, A, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_7, y_6, y_5, 0, y_4, y_3, y_2, 2\,y_6, y_1, -y_7 + y_6 + y_5 - y_4 + y_3 + y_2 + y_1, 0]$$

$p' = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8 \quad p = s^3 - s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_7, y_3, 0, y_2, 0, y_1]$$

$p = s^5 - s^8$

1255 . Coloring, {2, 5, 9, 10, 11, 12}

R: [7, 8, 7, 6, 3, A, B, C, C, 2, 4, 9]
B: [6, 7, 8, 7, A, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 10

See Matrix

$$[0, -y_6 + y_7 - y_4 + y_5 + y_3 + y_1 + y_2 - y_9 - y_8, y_6, y_7, 0, y_4, y_5, y_3, y_1, y_2, y_9, y_8]$$

$p = -s^9 + s^{10}$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[7\,y_1, 0, 7\,y_2, 0, 9\,y_1 + 9\,y_2 + 9\,y_4 - 7\,y_5 + 9\,y_3 - 7\,y_6 + 9\,y_7 - 7\,y_8, 7\,y_4, 7\,y_5, 7\,y_3, 0, 7\,y_6, 7\,y_7, 7\,y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

1256 . Coloring, {2, 6, 7, 8, 9, 10}

R: [7, 8, 7, 6, A, 3, A, B, C, 2, 1, 5]
B: [6, 7, 8, 7, 3, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_7 + y_3 - y_4 - y_5 + y_6, y_1, y_2 - y_7, 0, y_2, y_7, y_3, y_4, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$ $p' = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_5, y_1, 0, y_5, y_2, y_4, y_3, y_4, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

1257 . Coloring, {2, 6, 7, 8, 9, 11}

Ωp(Δ)=0: $p = s^4 + 4s^5 - 8s^6 - 8s^7 - 16s^8$

R: [7, 8, 7, 6, A, 3, A, B, C, C, 4, 5]
B: [6, 7, 8, 7, 3, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_2, y_1, y_7, y_3, y_4, y_5, 0, y_6, y_9, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 + y_3 - y_4 - y_5 - y_6 - y_7 + y_8 + y_9, y_1, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

$p = - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$

1258 . Coloring, {2, 6, 7, 8, 9, 12}

R: [7, 8, 7, 6, A, 3, A, B, C, C, 1, 9]
B: [6, 7, 8, 7, 3, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, y_6, 0, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = - s^6 + s^8$ $p' = - s^6 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 11 y_1 - 5 y_2 + 11 y_3 - 5 y_6 - 5 y_4 + 11 y_5 - 5 y_7 - 5 y_8 + 11 y_9, 5 y_1, 5 y_2, 5 y_3, 5 y_6, 5 y_4, 5 y_5, 0, 5 y_7, 5 y_8, 5 y_9]$$

$p = s^4 + s^5 + s^6 - s^8 - s^9 - s^{10}$

1259 . Coloring, {2, 6, 7, 8, 10, 11}

R: [7, 8, 7, 6, A, 3, A, B, B, 2, 4, 5]
B: [6, 7, 8, 7, 3, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, y_9, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[-y_1 + y_2 + y_3 - y_4 - y_5 + y_6, 0, y_1, 0, 0, y_2, 2\,y_1, y_3, y_4, y_5, 2\,y_3, y_6]$$

$p = -s^6 + s^8$ $p = -s^6 + s^9$ $p = -s^6 + s^7$

1260 . Coloring, {2, 6, 7, 8, 10, 12}

R: [7, 8, 7, 6, A, 3, A, B, B, 2, 1, 9]
B: [6, 7, 8, 7, 3, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, 2\,y_4, y_7, y_8, 0]$$

$p = s^3 - s^9$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 0, y_6, y_5, y_4, y_3, y_5, y_2, 0, y_1, y_5, -y_6 - y_4 - y_3 - y_2 - y_1 + 5\, y_5]$$

$p' = s^4 - s^8$ $p' = -s^3 + s^7$ $p = s^3 - s^7$

1261 . Coloring, {2, 6, 7, 8, 11, 12}

R: [7, 8, 7, 6, A, 3, A, B, B, C, 4, 9]
B: [6, 7, 8, 7, 3, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_9, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[3\, y_3, 5\, y_1 - 3\, y_2 + 5\, y_4 - 3\, y_6, 3\, y_1 + 3\, y_4 - 3\, y_7, 0, 3\, y_1, 3\, y_2, -3\, y_3 + 5\, y_1 + 5\, y_4 - 3\, y_5, 3\, y_4, 0, 3\, y_5, 3\, y_6, 3\, y_7]$$

$p = s + s^3 - s^7 - s^9$ $p' = s - s^2 + 2s^3 - 2s^4 + 2s^5 - 2s^6 + s^7 - s^8$ $p' = -s^2 + s^3 - 2s^4 + 2s^5 - 2s^6 + 2s^7 - s^8 + s^9$

1262 . Coloring, {2, 6, 7, 9, 10, 11}

R: [7, 8, 7, 6, A, 3, A, C, C, 2, 4, 5]
B: [6, 7, 8, 7, 3, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_9, y_7, y_8, y_6, y_4, y_5, y_3, 0, y_2, 0, y_1]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[-y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, 0, y_2, 2\,y_1, y_3, y_4, y_5, y_6, y_7]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = -s^3 + s^9$

1263 . Coloring, {2, 6, 7, 9, 10, 12}

R: [7, 8, 7, 6, A, 3, A, C, C, 2, 1, 9]
B: [6, 7, 8, 7, 3, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[2\,y_8, y_1, y_2, 0, 0, y_8, y_3, y_4, y_5, y_6, 0, y_7]$$

$p = -s^7 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

1264 . Coloring, {2, 6, 7, 9, 11, 12}

Ωp(Δ)=0: $p = s + s^2 + s^4 + 4s^5 - 8s^7 - 16s^8$

R: [7, 8, 7, 6, A, 3, A, C, C, C, 4, 9]
B: [6, 7, 8, 7, 3, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_4, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_1 - y_2 + y_6 - y_5 + y_3 + y_4 + y_7 - y_8, 0, y_6, y_5, y_3, y_4, 0, y_7, y_8, 0]$$

$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

1265 . Coloring, {2, 6, 7, 10, 11, 12}

R: [7, 8, 7, 6, A, 3, A, C, B, 2, 4, 9]
B: [6, 7, 8, 7, 3, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 3, 4, 6, 7, 8, 9, 10, 11, 12}} order: 10

See Matrix

$$[0, y_2, y_1, y_4, 0, y_3, y_9, y_{10}, y_8, y_6, y_7, y_5]$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1 - y_2 + y_3 - y_4 - y_5 - y_6 + y_7 + y_8, 0, y_1, 0, y_2, y_3, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

1266 . Coloring, {2, 6, 8, 9, 10, 11}

R: [7, 8, 7, 6, A, 3, B, B, C, 2, 4, 5]
B: [6, 7, 8, 7, 3, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_5, 0, y_6, 0, 0, y_5 - 3\,y_6 + y_1 + y_2 + y_3 - y_4 - y_7, 2\,y_6, y_1, y_2, y_3, y_4, y_7]$$

$p = s^3 - s^9$ $p' = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1267 . Coloring, {2, 6, 8, 9, 10, 12}

R: [7, 8, 7, 6, A, 3, B, B, C, 2, 1, 9]
B: [6, 7, 8, 7, 3, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	5 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_7, 3\,y_6, 3\,y_5, 0, 0, 3\,y_6 - 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_6 - 3\,y_5, -3\,y_7 - 9\,y_6 + 3\,y_5 - 3\,y_4 - 3\,y_3 + 13\,y_2 + 13\,y_1, 3\,y_1]$$

$p = -s^4 + s^{10}$ $p = -s^4 - s^5 + s^7 + s^8$ $p' = s^4 + s^5 - s^7 - s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_5 - y_2, -y_1 + y_4 + y_5, y_1, y_4, y_2, -y_3 + y_4 + y_5, 0, y_3, y_4, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$ $p = -s^5 + s^8$ $p = -s^5 + s^9$

1268 . Coloring, {2, 6, 8, 9, 11, 12}

R: [7, 8, 7, 6, A, 3, B, B, C, C, 4, 9]
B: [6, 7, 8, 7, 3, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, -3 y_1 - 3 y_2 - 3 y_3 - 3 y_5 + 10 y_6 - 3 y_4, 3 y_1, 0, 3 y_2, 3 y_3, 3 y_5, -3 y_5 + 3 y_6, 3 y_5, 3 y_4, 3 y_6]$$

$p = s^2 - s^7$ $p' = s^2 - s^7$ $p' = s^3 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[5 y_3, -5 y_3 + 11 y_2 + 11 y_1 - 5 y_9 - 5 y_8 + 11 y_7 - 5 y_6 - 5 y_5 + 11 y_4, 5 y_2, 0, 5 y_1, 5 y_9, 5 y_8, 5 y_7, 0, 5 y_6, 5 y_5, 5 y_4]$$

$p = s^4 + s^5 + s^6 - s^8 - s^9 - s^{10}$

1269 . Coloring, {2, 6, 8, 10, 11, 12}

R: [7, 8, 7, 6, A, 3, B, B, B, 2, 4, 9]
B: [6, 7, 8, 7, 3, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, 2\,y_7, y_7, y_8, 0]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[-y_2 + y_4, 0, -y_3 + y_2, 0, y_2, y_3, -y_2 + y_4, y_1, 0, -y_1 + y_4, 0, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$ $p = -s^4 + s^7$ $p = -s^4 + s^8$

1270 . Coloring, {2, 6, 9, 10, 11, 12}

R: [7, 8, 7, 6, A, 3, B, C, C, 2, 4, 9]
B: [6, 7, 8, 7, 3, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, y_4 + y_5 + y_7 - y_8, y_1, -y_1 - y_3 - y_2 + 2\,y_4 + 2\,y_5 + 2\,y_7 - y_6, 0, y_3, y_2, y_4, y_5, y_7, y_6, y_8]$$

$p = -s^4 + s^9$ $p' = -s^4 + s^9$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[-y_1 + y_5 + y_6, 0, y_5 + y_6 - y_3 - y_2, 0, y_1, y_3, y_2, -y_4 + y_5 + y_6, 0, y_4, y_5, y_6]$$

$p = s^2 - s^5 + s^6 - s^9$ $p' = s^3 - s^4 + s^7 - s^8$ $p' = s^2 - s^4 + s^6 - s^8$

1271 . Coloring, {2, 7, 8, 9, 10, 11}

R: [7, 8, 7, 6, A, A, A, B, C, 2, 4, 5]
B: [6, 7, 8, 7, 3, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_1 + y_2 + y_3 - y_4 - y_7 + y_5 + y_6, y_2, y_3, 2\,y_6, y_4, 0, y_7, y_5, y_6]$$

$p = -s^3 + s^9$ $p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_5, 0, y_4, 0, 0, y_3, y_1, y_2, y_8, 0, y_7, y_6]$$

1272 . Coloring, {2, 7, 8, 9, 10, 12}

R: [7, 8, 7, 6, A, A, A, B, C, 2, 1, 9]
B: [6, 7, 8, 7, 3, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 + 8\,y_3 - 3\,y_5 + 5\,y_7, 3\,y_4, 0, 0, 0, -3\,y_4 - 3\,y_2 + 5\,y_3 - 3\,y_6 + 8\,y_7, 3\,y_2, 3\,y_1, 3\,y_3, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 0, 7\,y_2, 7\,y_1, -7\,y_2 + 9\,y_1 - 7\,y_7 + 9\,y_6 - 7\,y_5 + 9\,y_4 - 7\,y_3, 7\,y_7, 7\,y_6, 7\,y_5, 0, 0, 7\,y_4, 7\,y_3]$$

$p = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$

1273 . Coloring, {2, 7, 8, 9, 11, 12}

R: [7, 8, 7, 6, A, A, A, B, C, C, 4, 9]
B: [6, 7, 8, 7, 3, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, 2\,y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1, y_3, y_2, 0, y_7, y_4, y_5, y_6, 0, 0, y_9, y_8]$$

1274 . Coloring, {2, 7, 8, 10, 11, 12}

R: [7, 8, 7, 6, A, A, A, B, B, 2, 4, 9]
B: [6, 7, 8, 7, 3, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_6, 0, y_7, 0, y_5, y_2, y_1, y_2, y_3, y_4, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_4, y_5, y_6, y_7, 0, 0, y_3, y_8]$$

1275 . Coloring, {2, 7, 9, 10, 11, 12}

R: [7, 8, 7, 6, A, A, A, C, C, 2, 4, 9]
B: [6, 7, 8, 7, 3, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, 0, y_3, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_3, 0, y_2, 0, y_1, y_7, y_6, y_5, 0, 0, y_4, y_6]$$

$p = s^3 - s^8$

1276 . Coloring, {2, 8, 9, 10, 11, 12}

R: [7, 8, 7, 6, A, A, B, B, C, 2, 4, 9]
B: [6, 7, 8, 7, 3, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, 3y_3, 0, 3y_4, 0, -3y_3 + 5y_2 - 3y_6 + 8y_7, -3y_4 - 3y_1 + 8y_2 - 3y_5 + 5y_7, 3y_1, 3y_2, 3y_5, 3y_6, 3y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_3, 0, y_2, 0, y_1, y_4, 2y_7, y_5, 0, 2y_3 - 2y_7, y_7, y_6]$$

$p' = s^4 - s^8$ $p = s^4 - s^8$

1277 . Coloring, {3, 4, 5, 6, 7, 8}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, A, B, B, C, 1, 5]
B: [6, 8, 7, 6, A, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_1 - y_8 + y_6 + y_7 + y_4 + y_5 - y_2 - y_3, 0, y_1, 0, y_8, y_6, y_7, y_4, y_5, y_2, y_3]$$

$p = s^8 - s^9$

1278 . Coloring, {3, 4, 5, 6, 7, 9}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, A, C, C, C, 1, 5]
B: [6, 8, 7, 6, A, A, B, B, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	8 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_1, 0, y_5, 0, y_4, 0, y_3, y_2, 0, y_6, 0, y_7]$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3 - y_2 + 3\,y_1 + y_4 + y_5 - y_6, 0, y_3, 0, y_2, y_1, y_4, 2\,y_1, y_5, y_6, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$ $p = -s^2 + s^8$

1279 . Coloring, {3, 4, 5, 6, 7, 10}

R: [7, 7, 8, 7, 3, 3, A, C, B, 2, 1, 5]
B: [6, 8, 7, 6, A, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[3\,y_5, 3\,y_4, 3\,y_3, 0, 3\,y_2, 0, 3\,y_1, 3\,y_3 - 3\,y_2 + 3\,y_6, 0, -3\,y_5 - 3\,y_4 + 10\,y_3 - 3\,y_1 - 3\,y_7 + 10\,y_6, 3\,y_7, 3\,y_6]$$

$p' = -s^3 - s^5 + s^6 + s^8$ $p = s^3 + s^5 - s^6 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_6, 0, y_5, y_4, y_4, y_3, y_2, y_1, y_6 - y_5 + 2\,y_4 + y_3 + y_2 - y_1]$$

$p = -s^6 + s^8$ $p = -s^6 + s^7$

1280 . Coloring, {3, 4, 5, 6, 7, 11}

R: [7, 7, 8, 7, 3, 3, A, C, B, C, 4, 5]
B: [6, 8, 7, 6, A, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_3, y_4, y_2, 0, y_1, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[3\,y_7, 3\,y_6, 0, 0, 0, -3\,y_6 + 8\,y_1 - 3\,y_5 + 5\,y_4, -3\,y_7 - 3\,y_3 + 5\,y_1 - 3\,y_2 + 8\,y_4, 3\,y_3, 3\,y_1, 3\,y_2, 3\,y_5, 3\,y_4]$$

$p' = -s^2 + s^8 \quad p = s^2 - s^8$

1281 . Coloring, {3, 4, 5, 6, 7, 12}

R: [7, 7, 8, 7, 3, 3, A, C, B, C, 1, 9]
B: [6, 8, 7, 6, A, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, 0, 0, y_5, y_3, y_4, y_8, y_6, y_7]$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, y_4, y_8, y_5, 0, y_6, y_7, y_8]$$

$p = -s^3 + s^9$

1282 . Coloring, {3, 4, 5, 6, 8, 9}

R: [7, 7, 8, 7, 3, 3, B, B, C, C, 1, 5]
B: [6, 8, 7, 6, A, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, 0, y_6, y_7]$

Omega Rank for B : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$[0, y_1, 0, y_2, 0, y_7, y_3, y_4, y_5, y_6, y_8, y_9]$

1283 . Coloring, {3, 4, 5, 6, 8, 10}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, B, B, B, 2, 1, 5]
B: [6, 8, 7, 6, A, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_2, y_3, y_1, 0, y_3, 0, y_4, y_5, 0, 0, y_6, 0]$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, 2\,y_4, 0, y_1, y_4, y_4, y_2, y_3, 0, y_5]$$

$p' = -s^4 + s^6$ $p = s^4 - s^6$

1284 . Coloring, {3, 4, 5, 6, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, B, B, B, C, 4, 5]
B: [6, 8, 7, 6, A, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, 0, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_2, y_3, 0, 0, 0, y_1, y_2, y_7, y_5, y_6, 0, y_4]$$

$p = -s^6 + s^8$

1285 . Coloring, {3, 4, 5, 6, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, B, B, B, C, 1, 9]
B: [6, 8, 7, 6, A, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_5, 0, -2\,y_3 + 2\,y_2, 0, 0, 0, y_4, y_3, y_2, 0, y_1, -2\,y_3 + 2\,y_2]$$

$p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, 2\,y_5, y_3, y_4, y_5, y_2, 0, y_6, 0, y_7]$$

$p = s^3 - s^8$

1286 . Coloring, {3, 4, 5, 6, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, B, C, C, 2, 1, 5]
B: [6, 8, 7, 6, A, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[-7\,y_2 + 9\,y_1 + 9\,y_5 - 7\,y_3 + 9\,y_4 - 7\,y_6 + 9\,y_7, 7\,y_2, 7\,y_1, 0, 7\,y_5, 0, 7\,y_3, 7\,y_4, 0, 0, 7\,y_6, 7\,y_7]$$

$p = s^2 + s^3 + s^4 - s^6 - s^7 - s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = s^2 - s^8$

1287 . Coloring, {3, 4, 5, 6, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, B, C, C, C, 4, 5]
B: [6, 8, 7, 6, A, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 0, 7\,y_2, 7\,y_1, -7\,y_2 + 9\,y_1 + 9\,y_3 - 7\,y_5 + 9\,y_4 - 7\,y_6, 0, 7\,y_3, 7\,y_5, 0, 0, 7\,y_4, 7\,y_6]$$

$p = -s - s^2 - s^3 + s^5 + s^6 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_7, y_5, y_6, 2\,y_5, y_4, y_3, 0]$$

$p = -s^2 + s^8$

1288 . Coloring, {3, 4, 5, 6, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, B, C, C, C, 1, 9]
B: [6, 8, 7, 6, A, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[7\,y_1,\ 0,\ 9\,y_1 + 9\,y_2 - 7\,y_3 - 7\,y_6 + 9\,y_4 - 7\,y_5,\ 0,\ 0,\ 0,\ 7\,y_2,\ 7\,y_3,\ 7\,y_6,\ 0,\ 7\,y_4,\ 7\,y_5]$$

$p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0,\ y_5,\ 0,\ y_4,\ 2\,y_2,\ y_1,\ y_2,\ y_3,\ 0,\ y_6,\ y_7,\ 0]$$

$p = -s^2 + s^8$

1289 . Coloring, {3, 4, 5, 6, 10, 11}

R: [7, 7, 8, 7, 3, 3, B, C, B, 2, 4, 5]
B: [6, 8, 7, 6, A, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0,\ 3\,y_6,\ 3\,y_5,\ 3\,y_4,\ 3\,y_3,\ 0,\ 3\,y_2,\ 3\,y_1,\ 0,\ 0,\ -3\,y_6 - 3\,y_4 - 3\,y_2 + 10\,y_3 + 10\,y_1,\ -3\,y_5 + 3\,y_3 + 3\,y_1]$$

$p = s^2 + s^4 - s^5 - s^7$ $p' = s^2 + s^4 - s^5 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1,\ 0,\ 0,\ 0,\ 0,\ y_2,\ y_4,\ y_4,\ y_3,\ y_5,\ y_6,\ y_7]$$

$p = -s^6 + s^8$

1290 . Coloring, {3, 4, 5, 6, 10, 12}

R: [7, 7, 8, 7, 3, 3, B, C, B, 2, 1, 9]
B: [6, 8, 7, 6, A, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_2, 0, 0, 0, y_6, y_7, y_5, 0, y_3, y_4]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_6, y_6, 0, y_4, y_5, y_7]$$

$p = s^5 - s^8$

1291 . Coloring, {3, 4, 5, 6, 11, 12}

R: [7, 7, 8, 7, 3, 3, B, C, B, C, 4, 9]
B: [6, 8, 7, 6, A, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_5, y_6, 0, 0, y_7, y_4, y_3, 0, y_2, y_1]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_1 - y_2 - y_3 + y_4 + y_5 - y_6, 0, 0, y_2, y_3, y_7, y_4, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^9$ $p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1292 . Coloring, {3, 4, 5, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, A, B, C, C, 1, 5]
B: [6, 8, 7, 6, A, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_4 + y_5 - y_1, 0, -y_2 + y_4 + y_5, 0, y_1, 0, y_2, -y_3 + y_4 + y_5, 0, y_3, y_4, y_5]$$

$p = s - s^2 + s^5 - s^6$ $p' = -s + s^2 - s^5 + s^6$ $p' = -s + s^3 - s^5 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

1293 . Coloring, {3, 4, 5, 7, 8, 10}

R: [7, 7, 8, 7, 3, A, A, B, B, 2, 1, 5]
B: [6, 8, 7, 6, A, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_4, y_5, 0, y_6, 0, y_1, y_2, 0, y_7, y_8, 0]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, -y_1 - y_2 - y_3 - y_4 + 2\,y_5 + 4\,y_6, y_1, 0, y_2, y_3, y_6, y_5, y_6, y_4, y_5 + 2\,y_6]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

1294 . Coloring, {3, 4, 5, 7, 8, 11}

R: [7, 7, 8, 7, 3, A, A, B, B, C, 4, 5]
B: [6, 8, 7, 6, A, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_5, y_4, y_3, 0, -y_5 + y_4 + y_3, y_2, 0, y_4 + y_3 - y_2, y_1, y_4 + y_3 - y_1]$$

$p = -s + s^4 - s^5 + s^8$ $p = -s + s^3 - s^5 + s^7$ $p = -s + s^2 - s^5 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[-y_1 - y_2 - y_3 + 2\,y_4 + 2\,y_5 + 2\,y_6 - y_7, y_4 + y_5 + y_6 - y_8, y_1, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p' = -s^4 + s^9$ $p = s^4 - s^9$

1295 . Coloring, {3, 4, 5, 7, 8, 12}

R: [7, 7, 8, 7, 3, A, A, B, B, C, 1, 9]
B: [6, 8, 7, 6, A, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	5 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_1 - y_2 + y_3 + y_4 + y_5 - y_6 - y_7, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1 + y_2 - y_3, y_2 + y_1 - y_5, -y_2 + y_3 + y_4, y_1 - y_5 + y_4, y_1, y_2, y_3 - y_5 + y_4, 0, y_3, y_4, y_5]$$

$p' = s - s^6$ $p' = s^2 - s^7$ $p' = s^4 - s^9$ $p = s - s^6$ $p' = s^3 - s^8$

1296 . Coloring, {3, 4, 5, 7, 9, 10}

R: [7, 7, 8, 7, 3, A, A, C, C, 2, 1, 5]
B: [6, 8, 7, 6, A, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[-3y_1 + 10y_2 - 3y_3 + 10y_4 - 3y_5, 3y_1, 3y_2 + 3y_4 - 3y_6, 0, 3y_2, 0, 3y_3, 3y_4, 0, 3y_5, 0, 3y_6]$$

$p = -s^2 - s^4 + s^5 + s^7$ $p' = -s^2 - s^4 + s^5 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_2, y_1, 0, y_3, y_4, y_6, y_5, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

1297 . Coloring, {3, 4, 5, 7, 9, 11}

R: [7, 7, 8, 7, 3, A, A, C, C, C, 4, 5]
B: [6, 8, 7, 6, A, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_4 - y_2, -y_1 + y_4, y_1, 0, y_2, y_4 - y_3, 0, y_3, 0, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_8, 2\,y_6, y_6, y_7, 0]$$

$p = -s^4 + s^9$

1298 . Coloring, {3, 4, 5, 7, 9, 12}

R: [7, 7, 8, 7, 3, A, A, C, C, C, 1, 9]
B: [6, 8, 7, 6, A, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_1 - 4\,y_2 - 4\,y_3 + 4\,y_4, 0, y_1 - 2\,y_2 - 2\,y_3 + 2\,y_4, 0, 0, 0, y_1, y_2 + y_3 - y_4, y_2, y_3, 0, y_4]$$

$p = -s^4 + s^6$ $p = -s^4 + s^5$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, y_9, 0]$$

1299 . Coloring, {3, 4, 5, 7, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, A, C, B, 2, 4, 5]
B: [6, 8, 7, 6, A, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 5y_2, 5y_1, -5y_2 + 11y_1 + 11y_5 - 5y_4 + 11y_3 - 5y_7 - 5y_6 + 11y_8, 5y_5, 0, 5y_4, 5y_3, 0, 5y_7, 5y_6, 5y_8]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[-3y_1 - 3y_3 - 3y_2 + 3y_5 + 7y_6 - 3y_4, 0, 3y_1, 0, 0, 3y_3, 3y_2, -3y_5 + 3y_6, 3y_5, -3y_5 + 3y_6, 3y_4, 3y_6]$$

$p' = -s^2 + s^7$ $p' = -s^3 + s^8$ $p = -s^2 + s^7$

1300 . Coloring, {3, 4, 5, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, A, C, B, 2, 1, 9]
B: [6, 8, 7, 6, A, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, 0, 0, y_7, y_8, y_9, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8, 0, 3\,y_2, -3\,y_3 - 3\,y_4 + 5\,y_5 - 3\,y_6 - 3\,y_7 - 3\,y_8 + 5\,y_2 + 5\,y_1, 3\,y_1]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

1301 . Coloring, {3, 4, 5, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, A, C, B, C, 4, 9]
B: [6, 8, 7, 6, A, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_7, y_6, 0, 0, y_5, y_4, y_3, y_2, y_1, -y_7 + y_6 - y_5 + y_4 + y_3 + y_2 - y_1]$$

$$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 10

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_{10}, y_9, y_8, 0, y_6, y_7, y_5]$$

1302 . Coloring, {3, 4, 5, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, B, B, C, 2, 1, 5]
B: [6, 8, 7, 6, A, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_3, y_2, 0, y_3, 0, y_4, y_6, 0, y_7, y_5, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_8, y_7, 0, y_5, y_4, y_6, y_3, y_2, y_9, y_1]$$

1303 . Coloring, {3, 4, 5, 8, 9, 11}

Ωp(Δ)=0: $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, B, B, C, C, 4, 5]
B: [6, 8, 7, 6, A, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_6, 0, y_5, y_4, 0, y_3, y_8, y_7]$$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 9, 10, 11, 12}} order: 10

See Matrix

$$[y_3, y_2, y_1, 0, 0, y_{10}, y_9, y_8, y_7, y_6, y_5, y_4]$$

1304 . Coloring, {3, 4, 5, 8, 9, 12}

Ωp(Δ)=0: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, B, B, C, C, 1, 9]
B: [6, 8, 7, 6, A, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_2,\ 0,\ 3\,y_5,\ 0,\ 0,\ 0,\ 3\,y_1,\ -3\,y_2 - 3\,y_5 - 3\,y_1 + 10\,y_3 - 3\,y_4,\ -3\,y_5 + 3\,y_3,\ 3\,y_5,\ 3\,y_4,\ 3\,y_3]$$

$p' = -s^4 + s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 10

See Matrix

$$[0,\ y_1,\ y_2,\ y_3,\ y_4,\ y_5,\ y_6,\ y_8,\ 0,\ y_7,\ y_9,\ y_{10}]$$

1305 . Coloring, {3, 4, 5, 8, 10, 11}

R: [7, 7, 8, 7, 3, A, B, B, B, 2, 4, 5]
B: [6, 8, 7, 6, A, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_4,\ 2\,y_4 - 3\,y_5,\ y_3,\ 2\,y_5,\ 0,\ y_1,\ y_2,\ 0,\ y_5,\ y_6,\ 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_1, 0, y_4, 0, 0, y_2, y_3, y_1, y_7, y_6, 0, y_5]$$

$p = -s^6 + s^8$

1306 . Coloring, {3, 4, 5, 8, 10, 12}

R: [7, 7, 8, 7, 3, A, B, B, B, 2, 1, 9]
B: [6, 8, 7, 6, A, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, y_4 + y_3, y_4, 0, 0, 0, y_2, y_3, 2\,y_4, y_4, y_5, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_4, y_6, y_7, y_5, y_4, 0, y_3, 0, y_2]$$

$p = -s^5 + s^8$

1307 . Coloring, {3, 4, 5, 8, 11, 12}

R: [7, 7, 8, 7, 3, A, B, B, B, C, 4, 9]
B: [6, 8, 7, 6, A, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, -y_5 + y_2, y_3, 0, 0, y_4, y_5, y_6, -y_5 + y_2, y_1, y_2]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_4, y_2, 0, y_3, y_8, y_9, y_7, 0, y_6, 0, y_5]$$

1308 . Coloring, {3, 4, 5, 9, 10, 11}

R: [7, 7, 8, 7, 3, A, B, C, C, 2, 4, 5]
B: [6, 8, 7, 6, A, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, -3y_4 - 3y_6 + 10y_3 + 10y_7 - 3y_1 - 3y_2, 3y_3, 3y_4, 3y_5, 0, 3y_6, 3y_3 - 3y_5 + 3y_7, 0, 3y_1, 3y_2, 3y_7]$$

$p = -s^3 - s^5 + s^6 + s^8$ $p' = s^3 + s^5 - s^6 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, y_8, y_3, y_4, y_5, y_6, y_7, y_9]$$

1309 . Coloring, {3, 4, 5, 9, 10, 12}

R: [7, 7, 8, 7, 3, A, B, C, C, 2, 1, 9]
B: [6, 8, 7, 6, A, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[y_1, 6\,y_1 - 7\,y_2 - 13\,y_5 + 6\,y_3 + 6\,y_4, 3\,y_1 - 3\,y_2 - 7\,y_5 + 3\,y_3 + 3\,y_4, 0, 0, 0, y_3, 3\,y_1 - 4\,y_2 - 6\,y_5 + 3\,y_3 + 3\,y_4, y_2, 3\,y_1 - 3\,y_2 - 7\,y_5 + 3\,y_3 + 3\,y_4, y_4, y_5]$$

$p = -s^3 + s^9$ $p' = -s^4 + s^7$ $p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

1310 . Coloring, {3, 4, 5, 9, 11, 12}

R: [7, 7, 8, 7, 3, A, B, C, C, C, 4, 9]
B: [6, 8, 7, 6, A, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 7\,y_3, 7\,y_6, 0, 0, 7\,y_5, 7\,y_4, 7\,y_2, 7\,y_3, 7\,y_1, -14\,y_3 + 9\,y_6 + 9\,y_5 - 7\,y_4 - 7\,y_2 + 9\,y_1]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{1, 2, 3, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, y_7, y_6, y_4, y_5, 0, y_9, y_8, 0]$$

1311 . Coloring, {3, 4, 5, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, B, C, B, 2, 4, 9]
B: [6, 8, 7, 6, A, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_5 + y_3, y_5, y_1, 0, 0, y_2, y_3, y_4, y_5, y_7, y_6]$$

$p = s^5 - s^8$ $p' = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_4, 0, y_3, 0, y_2, y_1, y_5, y_6, 0, y_8, y_9, y_7]$$

1312 . Coloring, {3, 4, 6, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, A, B, C, C, 1, 5]
B: [6, 8, 7, 6, 3, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_4, 0, y_3, y_5, 0, y_7, y_8, y_6]$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, 0, y_5, y_4, y_6, y_7, y_8, y_9, y_{10}]$$

1313 . Coloring, {3, 4, 6, 7, 8, 10}

R: [7, 7, 8, 7, A, 3, A, B, B, 2, 1, 5]
B: [6, 8, 7, 6, 3, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 2\,y_3, 0, y_4, y_5, 0, y_6, y_7, 0]$$

$$p = -s^5 + s^8$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_4, y_1, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$$p = -s^7 + s^9$$

1314 . Coloring, {3, 4, 6, 7, 8, 11}

R: [7, 7, 8, 7, A, 3, A, B, B, C, 4, 5]
B: [6, 8, 7, 6, 3, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_5, y_4, 0, y_3, y_2, 0, y_1, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}} order: 10

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

1315 . Coloring, {3, 4, 6, 7, 8, 12}

R: [7, 7, 8, 7, A, 3, A, B, B, C, 1, 9]
B: [6, 8, 7, 6, 3, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$$

Omega Rank for B : cycles: {{2, 3, 4, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

1316 . Coloring, {3, 4, 6, 7, 9, 10}

R: [7, 7, 8, 7, A, 3, A, C, C, 2, 1, 5]
B: [6, 8, 7, 6, 3, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2\,y_1, y_2, y_1, 0, y_3, 0, y_4, y_5, 0, y_7, 0, y_6]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_1, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^3 + s^9$

1317 . Coloring, {3, 4, 6, 7, 9, 11}

R: [7, 7, 8, 7, A, 3, A, C, C, C, 4, 5]
B: [6, 8, 7, 6, 3, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, y_3, 2\,y_3, y_1, 0, y_3 + 2\,y_2, y_2, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_5, y_6, y_4, 2\,y_3, y_7, y_8, 0]$$

$p = -s^3 + s^9$

1318 . Coloring, {3, 4, 6, 7, 9, 12}

R: [7, 7, 8, 7, A, 3, A, C, C, C, 1, 9]
B: [6, 8, 7, 6, 3, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_1 - 4\,y_2 - 4\,y_3 + 4\,y_4,\ 0,\ y_1 - 2\,y_2 - 2\,y_3 + 2\,y_4,\ 0,\ 0,\ 0,\ y_1,\ y_2 + y_3 - y_4,\ y_2,\ y_3,\ 0,\ y_4]$$

$p = -s^4 + s^7$ $p = -s^4 + s^5$ $p = -s^4 + s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0,\ y_1,\ y_2,\ y_6,\ y_3,\ y_4,\ y_5,\ y_9,\ 0,\ y_7,\ y_8,\ 0]$$

1319 . Coloring, {3, 4, 6, 7, 10, 11}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, A, C, B, 2, 4, 5]
B: [6, 8, 7, 6, 3, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0,\ y_1,\ y_6,\ y_6 + y_3,\ y_5,\ 0,\ y_4,\ y_3,\ 0,\ y_2,\ y_6,\ y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_7,\ 0,\ y_6,\ 0,\ 0,\ y_5,\ y_4,\ y_6,\ y_3,\ y_1,\ y_2,\ y_8]$$

$p = s^7 - s^9$

1320 . Coloring, {3, 4, 6, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, A, C, B, 2, 1, 9]
B: [6, 8, 7, 6, 3, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$[y_5, y_4, y_3, 0, 0, 0, y_2, y_1, y_9, y_8, y_7, y_6]$

Omega Rank for B : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$[0, 0, y_3, y_1, y_2, y_4, y_5, y_6, 0, y_8, y_9, y_7]$

1321 . Coloring, {3, 4, 6, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, A, C, B, C, 4, 9]
B: [6, 8, 7, 6, 3, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$[0, 0, y_1 - y_2 + y_3 + y_4 + y_5 - y_6 - y_7, y_1, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_2, y_3, y_1, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

1322 . Coloring, {3, 4, 6, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, B, B, C, 2, 1, 5]
B: [6, 8, 7, 6, 3, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_1, y_3, 0, y_5 + y_3, 0, y_7, y_5, 0, y_6, y_4, y_3]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_7, 0, y_1, y_2, y_3, y_4, y_5, y_6, y_8]$$

$p = -s^3 + s^9$

1323 . Coloring, {3, 4, 6, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, B, B, C, C, 4, 5]
B: [6, 8, 7, 6, 3, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_5, 4\,y_1 + 4\,y_2 + 5\,y_3 - y_5 - 6\,y_4, 0, -2\,y_1 - 2\,y_2 - 4\,y_3 + 5\,y_4, y_4, 5\,y_1 + 5\,y_2 + 6\,y_3 - 8\,y_4]$$

$p = -s^3 + s^6$ $p' = s^4 - s^7$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

1324 . Coloring, {3, 4, 6, 8, 9, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, B, B, C, C, 1, 9]
B: [6, 8, 7, 6, 3, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_3 - 3\,y_1 - 3\,y_2 + 10\,y_5 - 3\,y_4, 0, 3\,y_3, 0, 0, 0, 3\,y_1, 3\,y_2, -3\,y_3 + 3\,y_5, 3\,y_3, 3\,y_4, 3\,y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_4, y_5, y_6, y_7, y_8, y_9, y_1, 0, y_{10}, y_2, y_3]$$

1325 . Coloring, {3, 4, 6, 8, 10, 11}

R: [7, 7, 8, 7, A, 3, B, B, B, 2, 4, 5]
B: [6, 8, 7, 6, 3, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, 2\,y_5 - y_4, y_1, 4\,y_5 - 2\,y_4, 0, y_6, y_5, 0, y_4, y_3, 0\,]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_2, 0, y_2, 0, 0, 2\,y_1, y_1, y_2, y_5, y_4, 0, y_3]$$

$p' = -s^4 + s^6$ $p = -s^4 + s^6$ $p = -s^4 + s^8$

1326 . Coloring, {3, 4, 6, 8, 10, 12}

R: [7, 7, 8, 7, A, 3, B, B, B, 2, 1, 9]
B: [6, 8, 7, 6, 3, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, y_4 + y_3, y_4, 0, 0, 0, y_2, y_3, 2\,y_4, y_4, y_5, 0]$$

$p' = s^4 - s^7$ $p = s^3 - s^6$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, 2\,y_5, y_2, y_3, y_4, y_5, 0, y_6, 0, y_7]$$

$p = -s^3 + s^8$

1327 . Coloring, {3, 4, 6, 8, 11, 12}

R: [7, 7, 8, 7, A, 3, B, B, B, C, 4, 9]
B: [6, 8, 7, 6, 3, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_4, y_1, 0, 0, y_6, y_5, y_3, y_4, y_2, y_4 + y_5]$$

$p = -s^4 + s^7 \quad p' = s^4 - s^7$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_3, y_2, y_1, 0, y_4, y_6, y_5, y_7, 0, y_8, 0, y_9]$$

1328 . Coloring, {3, 4, 6, 9, 10, 11}

R: [7, 7, 8, 7, A, 3, B, C, C, 2, 4, 5]
B: [6, 8, 7, 6, 3, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_3, y_2, y_1, y_5, 0, y_4, y_9, 0, y_8, y_7, y_6]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, y_5, y_6, y_4, y_2, y_3, y_8, y_7]$$

$p = s^3 - s^9$

1329 . Coloring, {3, 4, 6, 9, 10, 12}

R: [7, 7, 8, 7, A, 3, B, C, C, 2, 1, 9]
B: [6, 8, 7, 6, 3, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[y_1, 6\,y_1 - 7\,y_3 - 13\,y_5 + 6\,y_2 + 6\,y_4, 3\,y_1 - 3\,y_3 - 7\,y_5 + 3\,y_2 + 3\,y_4, 0, 0, 0, y_2, 3\,y_1 - 4\,y_3 - 6\,y_5 + 3\,y_2 + 3\,y_4, y_3, 3\,y_1 - 3\,y_3 - 7\,y_5 + 3\,y_2 + 3\,y_4, y_4, y_5]$$

$p = -s^3 + s^9$ $p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_8, y_4, y_5, 0, y_6, y_7, y_9]$$

1330 . Coloring, {3, 4, 6, 9, 11, 12}

R: [7, 7, 8, 7, A, 3, B, C, C, C, 4, 9]
B: [6, 8, 7, 6, 3, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

See Matrix

$$[0, 0, 7\,y_6, 7\,y_5, 0, 0, 7\,y_4, 7\,y_3, 7\,y_2, 7\,y_6, 7\,y_1, -14\,y_6 + 9\,y_5 + 9\,y_4 - 7\,y_3 - 7\,y_2 + 9\,y_1]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_9, y_8, y_7, 0, y_6, y_5, y_4, y_3, 0, y_2, y_1, 0]$$

1331 . Coloring, {3, 4, 6, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, B, C, B, 2, 4, 9]
B: [6, 8, 7, 6, 3, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_4 + y_2, y_4, y_1, 0, 0, y_7, y_2, y_3, y_4, y_5, y_6]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_3, 0, y_4, 0, y_1, y_2, y_8, y_9, 0, y_5, y_6, y_7]$$

1332 . Coloring, {3, 4, 7, 8, 9, 10}

R: [7, 7, 8, 7, A, A, A, B, C, 2, 1, 5]
B: [6, 8, 7, 6, 3, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_5 + y_6, 0, y_3, y_6, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_2, y_1, 0, y_3, y_6, y_5, y_4, 0, y_7, y_8]$$

1333 . Coloring, {3, 4, 7, 8, 9, 11}

R: [7, 7, 8, 7, A, A, A, B, C, C, 4, 5]
B: [6, 8, 7, 6, 3, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, y_8, 0, y_9, y_7]$$

1334 . Coloring, {3, 4, 7, 8, 9, 12}

R: [7, 7, 8, 7, A, A, A, B, C, C, 1, 9]
B: [6, 8, 7, 6, 3, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_4, y_3, y_9, y_6, y_7, 0, 0, y_8, y_5]$$

1335 . Coloring, {3, 4, 7, 8, 10, 11}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, A, B, B, 2, 4, 5]
B: [6, 8, 7, 6, 3, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 2\,y_4, 0, y_3, y_4, 0, y_5, y_6, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}, {1, 3, 6, 7, 11}} order: 10

See Matrix

$$[-7\,y_1 - 7\,y_3 - 7\,y_4 + 9\,y_2 + 9\,y_5 - 7\,y_7 + 9\,y_6, 0, 7\,y_1, 0, 0, 7\,y_3, 7\,y_4, 7\,y_2, 7\,y_5, 0, 7\,y_7, 7\,y_6]$$

$p = -s^2 - s^3 + s^7 + s^8$

1336 . Coloring, {3, 4, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, A, B, B, 2, 1, 9]
B: [6, 8, 7, 6, 3, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$[y_2, y_1, 0, 0, 0, 0, y_6, y_5, 2\,y_5, y_4, y_3, 0]$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, 0, y_7, y_8]$

1337 . Coloring, {3, 4, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, A, B, B, C, 4, 9]
B: [6, 8, 7, 6, 3, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$[0, 0, 0, y_1, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, 0, y_8, y_9]$$

1338 . Coloring, {3, 4, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, A, C, C, 2, 4, 5]
B: [6, 8, 7, 6, 3, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_4, 0, 2\,y_1, y_3, 0, y_2, y_1, 0, y_6, 0, y_5]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, 0, y_4, y_5, y_6, y_7, 0, y_3, 2\,y_6]$$

$p = -s^3 + s^8$

1339 . Coloring, {3, 4, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, A, C, C, 2, 1, 9]
B: [6, 8, 7, 6, 3, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	8 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[10\,y_3 + 10\,y_2 - 22\,y_1 + 10\,y_5 - 22\,y_4, y_3, 0, 0, 0, 0, y_2, 5\,y_3 + 5\,y_2 - 11\,y_1 + 5\,y_5 - 11\,y_4, y_1, y_5, 0, y_4]$$

$p = -s^2 - s^3 + s^5 + s^6$ $p = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_5, y_3, y_4, y_2, y_6, 0, 0, y_7, 2\,y_6]$$

$p = -s^3 + s^8$

1340 . Coloring, {3, 4, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, A, C, C, C, 4, 9]
B: [6, 8, 7, 6, 3, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, 2\,y_2, 0, 0, y_1, y_2, y_3, y_4, 0, y_5]$$

$p = s^4 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_7, y_6, y_5, 0, y_6, y_4, y_3, y_2, 0, 0, y_1, 0]$$

$p = -s^3 + s^8$

1341 . Coloring, {3, 4, 7, 10, 11, 12}

R: [7, 7, 8, 7, A, A, A, C, B, 2, 4, 9]
B: [6, 8, 7, 6, 3, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_7, 0, 0, y_5, y_6, y_2, y_3, y_4, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_6, 0, y_4, y_5, y_2, y_3, 0, 0, y_7, 3\ y_3]$$

$p = -s^3 + s^8$

1342 . Coloring, {3, 4, 8, 9, 10, 11}

R: [7, 7, 8, 7, A, A, B, B, C, 2, 4, 5]
B: [6, 8, 7, 6, 3, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_4, y_3, 0, y_2, y_5, 0, y_6, y_7, y_5]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

1343 . Coloring, {3, 4, 8, 9, 10, 12}

R: [7, 7, 8, 7, A, A, B, B, C, 2, 1, 9]
B: [6, 8, 7, 6, 3, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, -3\,y_1 - 3\,y_3 - 9\,y_2 + 13\,y_6 - 3\,y_5 + 13\,y_4, 0, 0, 0, 0, 3\,y_3, 3\,y_2, 3\,y_6, 6\,y_2, 3\,y_5, 3\,y_4]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p' = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_7, y_6, y_5, y_4, y_3, y_2, 0, y_1, y_2, y_8]$$

$p = s^4 - s^9$

1344 . Coloring, {3, 4, 8, 9, 11, 12}

R: [7, 7, 8, 7, A, A, B, B, C, C, 4, 9]
B: [6, 8, 7, 6, 3, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, -7\,y_1 + 11\,y_2 + 9\,y_3 - 7\,y_4 + 9\,y_5, 0, 0, 7\,y_1, 7\,y_2, 7\,y_3, 14\,y_2, 7\,y_4, 7\,y_5]$$

$p = -s^2 - s^3 + s^5 + s^6 \quad p = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

1345 . Coloring, {3, 4, 8, 10, 11, 12}

$\Omega p(\Delta)=0: \quad p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, A, B, B, B, 2, 4, 9]
B: [6, 8, 7, 6, 3, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_1, 0, y_2, 0, 0, y_3, y_4, 2\,y_4, 2\,y_4, y_5, 0]$$

$p = -s^3 + s^6 \quad p' = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[2\,y_5, 0, y_1, 0, y_2, y_3, y_4, y_5, 0, y_7, 0, y_6]$$

$p = -s^3 + s^8$

1346 . Coloring, {3, 4, 9, 10, 11, 12}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, B, C, C, 2, 4, 9]
B: [6, 8, 7, 6, 3, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, y_6, 0, y_5, 0, 0, y_4, 5\,y_6 + 5\,y_5 + 5\,y_4 - 11\,y_2 + 5\,y_3 - 11\,y_1, y_2, 10\,y_6 + 10\,y_5 + 10\,y_4 - 22\,y_2 + 10\,y_3 - 22\,y_1, y_3, y_1]$$

$p = s^3 + s^4 - s^6 - s^7$ $p' = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, y_4, y_3, y_8, y_7, 0, y_6, y_5, y_9]$$

1347 . Coloring, {3, 5, 6, 7, 8, 9}

R: [7, 7, 8, 6, 3, 3, A, B, C, C, 1, 5]
B: [6, 8, 7, 7, A, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_8, 0, y_7, 0, y_6, y_5, y_4, y_3, 0, y_2, y_1, y_8 - y_7 + y_6 + y_5 - y_4 + y_3 + y_2 - y_1]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_2, 0, y_1, 0, y_5, y_6, y_3, y_4, y_7, y_8, y_9]$$

1348 . Coloring, {3, 5, 6, 7, 8, 10}

R: [7, 7, 8, 6, 3, 3, A, B, B, 2, 1, 5]
B: [6, 8, 7, 7, A, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	3 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 2\,y_4, y_4, y_5, y_6, 0, y_7, y_8, 0]$$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 0, 2\,y_2, 0, 5\,y_2 - 2\,y_3, 2\,y_2, 5\,y_2 - 2\,y_3, -2\,y_1 + 2\,y_3, 2\,y_1, 2\,y_2, 2\,y_3]$$

$p' = s^6 - s^7$ $p' = s^5 - s^7$ $p' = s^4 - s^7$ $p' = s^3 - s^7$ $p = s^3 - s^8$

1349 . Coloring, {3, 5, 6, 7, 8, 11}

R: [7, 7, 8, 6, 3, 3, A, B, B, C, 4, 5]
B: [6, 8, 7, 7, A, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

1350 . Coloring, {3, 5, 6, 7, 8, 12}

R: [7, 7, 8, 6, 3, 3, A, B, B, C, 1, 9]
B: [6, 8, 7, 7, A, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_1 + y_3 - y_2 + y_4 + y_5 + y_6 - y_8 - y_7, 0, 0, y_3, y_2, y_4, y_5, y_6, y_8, y_7]$$

$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}, {4, 7, 11}}

See Matrix

$$[0, 5\,y_5 - y_1 - y_2 - y_3 - y_4 - y_6, 0, y_5, y_1, y_2, y_5, y_3, 0, y_4, y_5, y_6]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

1351 . Coloring, {3, 5, 6, 7, 9, 10}

R: [7, 7, 8, 6, 3, 3, A, C, C, 2, 1, 5]
B: [6, 8, 7, 7, A, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[2\,y_1,\ 2\,y_3 + 2\,y_4 - y_2 - y_5,\ y_3 + y_1 + y_4 - y_6,\ 0,\ y_3,\ y_1,\ y_2,\ y_4,\ 0,\ y_5,\ 0,\ y_6]$$

$p' = s^2 + s^4 - s^5 - s^7$ $p' = -s^3 - s^5 + s^6 + s^8$ $p = s^2 + s^4 - s^5 - s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ 0,\ 0,\ y_7,\ 0,\ y_6,\ y_5,\ y_6,\ y_4,\ y_3,\ y_2,\ y_1]$$

$p = s^5 - s^8$

1352 . Coloring, {3, 5, 6, 7, 9, 11}

R: [7, 7, 8, 6, 3, 3, A, C, C, C, 4, 5]
B: [6, 8, 7, 7, A, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0,\ 0,\ y_3,\ -2\,y_2 + 2\,y_4,\ y_1,\ y_2,\ -2\,y_2 + 2\,y_4,\ y_5,\ 0,\ y_4,\ 0,\ y_6]$$

$p = -s^3 + s^7$ $p' = -s^3 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1,\ y_2,\ 0,\ 0,\ 0,\ y_3,\ y_5,\ y_4,\ y_5,\ y_6,\ y_7,\ 0]$$

$p = s^2 - s^8$

1353 . Coloring, {3, 5, 6, 7, 9, 12}

R: [7, 7, 8, 6, 3, 3, A, C, C, C, 1, 9]
B: [6, 8, 7, 7, A, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_2,\ 0,\ y_1,\ 0,\ 0,\ y_2,\ 2\,y_1 - 2\,y_2,\ y_3,\ 5\,y_1 - 9\,y_2 - 3\,y_3 + y_4,\ -2\,y_1 + 4\,y_2 + 2\,y_3,\ 0,\ y_4]$$

$p = s^4 - s^8$ $p' = s^6 - s^7$ $p' = s^5 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_1,\ 0,\ y_2,\ 2\,y_4,\ y_4,\ y_3,\ y_5,\ 0,\ y_6,\ y_7,\ 0]$$

$p = -s^5 + s^8$

1354 . Coloring, {3, 5, 6, 7, 10, 11}

R: [7, 7, 8, 6, 3, 3, A, C, B, 2, 4, 5]
B: [6, 8, 7, 7, A, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {2, 7, 10}} order: 12

See Matrix

$$[0,\ 2\,y_4,\ 2\,y_2,\ 5\,y_4 - 2\,y_2 - 2\,y_5,\ 5\,y_4 - 2\,y_1 - 2\,y_3 - 2\,y_6,\ 2\,y_1,\ 2\,y_4,\ 2\,y_3,\ 0,\ 2\,y_4,\ 2\,y_6,\ 2\,y_5]$$

$p' = -s^5 + s^9$ $p = -s^4 - s^6 + s^7 + s^9$ $p = -s^4 + s^5 - s^6 + s^7$ $p = -s^4 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1,\ 0,\ 0,\ 0,\ 0,\ y_7,\ 2\,y_6,\ y_6,\ y_5,\ y_4,\ y_3,\ y_2]$$

$p = s^6 - s^8$

1355 . Coloring, {3, 5, 6, 7, 10, 12}

R: [7, 7, 8, 6, 3, 3, A, C, B, 2, 1, 9]
B: [6, 8, 7, 7, A, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	4 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_{10}, y_9, y_8, 0, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_2, -y_1 + y_3, y_1, -y_1 + y_4, y_1, 0, y_2, y_3, y_4]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^5$

1356 . Coloring, {3, 5, 6, 7, 11, 12}

R: [7, 7, 8, 6, 3, 3, A, C, B, C, 4, 9]
B: [6, 8, 7, 7, A, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_1, y_8, 0, y_9, y_5, y_6, y_7, y_2, y_3, y_4]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 + y_3 - y_4 - y_5 + y_6 - 3\,y_7, y_1, 0, 0, y_2, y_3, 2\,y_7, y_4, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

1357 . Coloring, {3, 5, 6, 8, 9, 10}

R: [7, 7, 8, 6, 3, 3, B, B, C, 2, 1, 5]
B: [6, 8, 7, 7, A, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_6, y_2, 0, y_3, y_6, y_5, y_4, 0, 0, y_7, y_6]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_4, y_6, y_4, y_5, y_2, y_3, y_7]$$

$p = -s^2 + s^8$

1358 . Coloring, {3, 5, 6, 8, 9, 11}

R: [7, 7, 8, 6, 3, 3, B, B, C, C, 4, 5]
B: [6, 8, 7, 7, A, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, 2\,y_3, 2\,y_2, 2\,y_1, 2\,y_4, 2\,y_5, 2\,y_6, 0, 0, 2\,y_7, 3\,y_5]$$

$$p = -s^3 + s^8$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, 0, 0, 0, y_4, y_3, y_9, y_5, y_6, y_7, y_8]$$

1359 . Coloring, {3, 5, 6, 8, 9, 12}

R: [7, 7, 8, 6, 3, 3, B, B, C, C, 1, 9]
B: [6, 8, 7, 7, A, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[5\,y_6, 0, 5\,y_5, 0, 0, 5\,y_4, 5\,y_2, 5\,y_3, 5\,y_1, 0, -5\,y_6 - 5\,y_5 - 5\,y_4 - 5\,y_2 - 5\,y_3 + 11\,y_1 + 11\,y_7, 5\,y_7]$$

$$p = -s^4 - s^5 + s^7 + s^8$$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_2, y_3, y_7, y_4, y_5, 0, y_6, y_7, y_8]$$

$$p = -s^4 + s^9$$

1360 . Coloring, {3, 5, 6, 8, 10, 11}

R: [7, 7, 8, 6, 3, 3, B, B, B, 2, 4, 5]
B: [6, 8, 7, 7, A, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_3, y_1, y_2, y_3, y_4, y_5, y_6, 0, 0, y_7, 0]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_2, 0, 0, 0, 0, y_1, 2\,y_2, y_2, y_3, y_4, 0, y_5]$$

$p' = s^4 - s^6$ $p = s^4 - s^6$

1361 . Coloring, {3, 5, 6, 8, 10, 12}

R: [7, 7, 8, 6, 3, 3, B, B, B, 2, 1, 9]
B: [6, 8, 7, 7, A, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_3, y_2, 0, 0, y_3, y_4, y_5, 2\,y_3, 0, y_6, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_3, y_2, y_3, y_1, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

1362 . Coloring, {3, 5, 6, 8, 11, 12}

R: [7, 7, 8, 6, 3, 3, B, B, B, C, 4, 9]
B: [6, 8, 7, 7, A, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_2, y_3, 0, y_1, y_6, y_4, y_5, 0, y_7, y_6]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_3, y_4, 0, 0, y_1, y_2, y_3, y_5, 0, y_6, 0, y_7]$$

$p = s^3 - s^8$

1363 . Coloring, {3, 5, 6, 9, 10, 11}

R: [7, 7, 8, 6, 3, 3, B, C, C, 2, 4, 5]
B: [6, 8, 7, 7, A, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_2, y_2 - y_1 + y_8 + y_5 - y_6 + y_7 + y_3 - y_4, y_1, y_8, y_5, y_6, y_7, 0, 0, y_3, y_4]$$

$p = -s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, 2\,y_3, y_3, y_6, y_5, y_4, y_7]$$

$p = -s^2 + s^8$

1364 . Coloring, {3, 5, 6, 9, 10, 12}

R: [7, 7, 8, 6, 3, 3, B, C, C, 2, 1, 9]
B: [6, 8, 7, 7, A, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-y_2 + 2\,y_3 + 2\,y_6 - y_4, 2\,y_1, y_1 + y_3 + y_6 - y_5, 0, 0, y_1, y_2, y_3, y_6, 0, y_4, y_5]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$ $p' = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, y_1, y_3, y_4, y_3, 0, y_7, y_5, y_6]$$

$p = s^5 - s^8$

1365 . Coloring, {3, 5, 6, 9, 11, 12}

R: [7, 7, 8, 6, 3, 3, B, C, C, C, 4, 9]
B: [6, 8, 7, 7, A, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_7, y_6, 0, y_5, y_3, y_2, y_4, 0, y_1, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_7, y_6, 0, 0, y_5, y_4, y_5, y_2, 0, y_3, y_1, 0]$$

$p = s^2 - s^8$

1366 . Coloring, {3, 5, 6, 10, 11, 12}

R: [7, 7, 8, 6, 3, 3, B, C, B, 2, 4, 9]
B: [6, 8, 7, 7, A, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_2, y_1, y_3, 0, y_7, y_6, y_5, y_4, 0, y_8, y_9]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_5, y_3, 2\,y_4, y_4, 0, y_2, y_6, y_7]$$

$p = -s^5 + s^8$

1367 . Coloring, {3, 5, 7, 8, 9, 10}

R: [7, 7, 8, 6, 3, A, A, B, C, 2, 1, 5]
B: [6, 8, 7, 7, A, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_7, y_5, y_6, 0, y_8, y_9, y_7]$$

$p = s^7 - s^{10}$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, -2\,y_1 + y_6, y_3, -2\,y_1 + y_6, y_4, -2\,y_1 + y_6, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

1368 . Coloring, {3, 5, 7, 8, 9, 11}

R: [7, 7, 8, 6, 3, A, A, B, C, C, 4, 5]
B: [6, 8, 7, 7, A, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_4 + y_6 - y_1 - y_2, y_3, -y_3 + y_4 + y_6, y_1, y_2, y_5, 0, -y_5 + y_4 + y_6, y_4, y_6]$$

$p' = -s^2 + s^4 - s^6 + s^8$ $p = s^2 - s^3 + s^6 - s^7$ $p' = -s^2 + s^3 - s^6 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 10

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_{10}, y_7, y_8, y_9, y_4, y_5, y_6]$$

1369 . Coloring, {3, 5, 7, 8, 9, 12}

R: [7, 7, 8, 6, 3, A, A, B, C, C, 1, 9]
B: [6, 8, 7, 7, A, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[2\,y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, 0, y_1, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p' = s^7 - s^8 \quad p = s^7 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {2, 5, 8, 10, 12}}

See Matrix

$$[0, 7\,y_1, 9\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4 - 7\,y_5 + 9\,y_6 + 9\,y_8 - 7\,y_7 + 9\,y_9, 7\,y_2, 7\,y_3, 7\,y_4, 7\,y_5, 7\,y_6, 0, 7\,y_8, 7\,y_7, 7\,y_9]$$

$p = -s^3 - s^4 - s^5 + s^8 + s^9 + s^{10}$

1370 . Coloring, {3, 5, 7, 8, 10, 11}

R: [7, 7, 8, 6, 3, A, A, B, B, 2, 4, 5]
B: [6, 8, 7, 7, A, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, y_9, 0]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[-y_6 - y_5 - y_3 + 4\,y_4 + 2\,y_2 - y_1, 0, y_6, 0, 0, y_5, y_3, y_4, y_2, y_4, y_1, 2\,y_4 + y_2]$$

$p' = -s^3 + s^8$ $p' = -s^2 + s^7$ $p = -s^2 + s^7$

1371 . Coloring, {3, 5, 7, 8, 10, 12}

R: [7, 7, 8, 6, 3, A, A, B, B, 2, 1, 9]
B: [6, 8, 7, 7, A, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_3, y_4, y_7, 2\,y_3, y_5, y_6, 0]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, -y_1 + y_2 - y_3 + y_4, y_1, -2\,y_3 + 2\,y_4 - y_5 + 2\,y_2, y_3 - 2\,y_4 + y_5, y_2, y_3 - 2\,y_4 + y_5, 0, y_3, y_4, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = -s^3 + s^9$

1372 . Coloring, {3, 5, 7, 8, 11, 12}

R: [7, 7, 8, 6, 3, A, A, B, B, C, 4, 9]
B: [6, 8, 7, 7, A, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 10

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_7, y_6, 0, -3\,y_7 + y_6 + y_1 + y_5 + y_4 - y_2 - y_3, 2\,y_7, y_1, y_5, y_4, y_2, y_3]$$

$p = -s^3 + s^9$ $p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1 - y_4 + y_3, y_1 - y_2 + y_5, y_4 + y_5 - y_3, 0, y_1 + y_3 - y_2, y_1, y_4 - y_2 + y_5, y_4, 0, y_2, y_3, y_5]$$

$p' = -s^2 + s^7$ $p' = -s^3 + s^8$ $p' = -s^4 + s^9$ $p = -s + s^6$ $p' = -s + s^6$

1373 . Coloring, {3, 5, 7, 9, 10, 11}

R: [7, 7, 8, 6, 3, A, A, C, C, 2, 4, 5]
B: [6, 8, 7, 7, A, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, -3\,y_1 + 10\,y_2 - 3\,y_3 - 3\,y_4 + 10\,y_5 - 3\,y_6, 3\,y_2 + 3\,y_5 - 3\,y_7, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 0, 3\,y_6, 0, 3\,y_7]$$

$p' = s^3 + s^5 - s^6 - s^8$ $p = s^3 + s^4 + s^5 - s^7 - s^8 - s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_3, 0, 0, y_2, y_4, y_6, y_5, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

1374 . Coloring, {3, 5, 7, 9, 10, 12}

R: [7, 7, 8, 6, 3, A, A, C, C, 2, 1, 9]
B: [6, 8, 7, 7, A, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[6\,y_1 + 6\,y_4 - 20\,y_5 + 6\,y_2,\ y_1,\ 3\,y_1 + 3\,y_4 - 10\,y_5 + 3\,y_2,\ 0,\ 0,\ 3\,y_1 + 3\,y_4 - 10\,y_5 + 3\,y_2,\ y_4,\ y_3,\ 3\,y_1 + 3\,y_4 - 9\,y_5 + 3\,y_2 - y_3,\ y_2,\ 0,\ y_5]$$

$$p = -s^3 + s^9 \quad p' = -s^4 + s^7 \quad p' = -s^3 + s^6 \quad p = -s^3 + s^6$$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0,\ 0,\ -3\,y_1 - 7\,y_3 - 7\,y_2 + 14\,y_4 + 8\,y_5,\ 3\,y_1,\ -5\,y_3 - 5\,y_2 + 7\,y_4 + 7\,y_5,\ 3\,y_3,\ 3\,y_2,\ 3\,y_3,\ 0,\ 3\,y_4,\ -10\,y_3 - 7\,y_2 + 8\,y_4 + 14\,y_5,\ 3\,y_5]$$

$$p' = -s^4 + s^7 \quad p = -s^3 + s^9 \quad p = -s^3 + s^6 \quad p' = -s^3 + s^6$$

1375 . Coloring, {3, 5, 7, 9, 11, 12}

R: [7, 7, 8, 6, 3, A, A, C, C, C, 4, 9]
B: [6, 8, 7, 7, A, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0,\ 0,\ -y_1 + 2\,y_2 + 2\,y_3 - 2\,y_4,\ -2\,y_1 + 4\,y_2 + 4\,y_3 - 4\,y_4,\ 0,\ y_1,\ -2\,y_1 + 4\,y_2 + 4\,y_3 - 4\,y_4,\ y_2 + y_3 - y_4,\ y_2,\ y_3,\ 0,\ y_4]$$

$$p = -s^4 + s^6 \quad p = -s^4 + s^7 \quad p = -s^4 + s^8 \quad p = -s^4 + s^5$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1,\ y_2,\ y_3,\ 0,\ y_4,\ y_5,\ y_6,\ y_7,\ 0,\ y_8,\ y_9,\ 0]$$

1376 . Coloring, {3, 5, 7, 10, 11, 12}

R: [7, 7, 8, 6, 3, A, A, C, B, 2, 4, 9]
B: [6, 8, 7, 7, A, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_4, 0, y_5, y_3, y_6, y_7, y_8, y_{10}, y_9]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[-3\,y_8 + 5\,y_1 - 3\,y_7 - 3\,y_5 - 3\,y_6 + 5\,y_3 - 3\,y_2 + 5\,y_4, 0, 3\,y_8, 0, 3\,y_1, 3\,y_7, 3\,y_5, 3\,y_6, 0, 3\,y_3, 3\,y_2, 3\,y_4]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

1377 . Coloring, {3, 5, 8, 9, 10, 11}

R: [7, 7, 8, 6, 3, A, B, B, C, 2, 4, 5]
B: [6, 8, 7, 7, A, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, -y_1 + y_2 + y_3 - y_4 + y_5 + y_6 + y_7 - y_8 - y_9, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

$$p = -s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, y_6, y_7, y_8, y_9, y_3, y_4, y_5]$$

1378 . Coloring, {3, 5, 8, 9, 10, 12}

R: [7, 7, 8, 6, 3, A, B, B, C, 2, 1, 9]
B: [6, 8, 7, 7, A, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, -3\,y_1 - 6\,y_7 - 3\,y_6 + 13\,y_4 - 6\,y_5 - 3\,y_3 + 13\,y_2, 3\,y_7, 0, 0, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_5, 3\,y_3, 3\,y_2]$$

$p = -s^4 + s^{10}$ $p = s^4 - s^6 - s^7 + s^9$ $p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1 - y_4, y_1, y_6, y_4, y_5, y_4, 0, y_3, y_4, y_2]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

1379 . Coloring, {3, 5, 8, 9, 11, 12}

R: [7, 7, 8, 6, 3, A, B, B, C, C, 4, 9]
B: [6, 8, 7, 7, A, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, -y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, y_1, 0, y_2, -2\,y_1 + 2\,y_2 - 2\,y_3 - 2\,y_4 - 2\,y_5 + 2\,y_6 + 2\,y_7, y_3, y_4, y_5, y_6, y_7]$$

$p' = s^7 - s^8 \quad p = s^7 - s^9$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 10

See Matrix

$$[y_2, y_1, y_3, 0, y_4, y_7, y_6, y_5, 0, y_{10}, y_9, y_8]$$

1380 . Coloring, {3, 5, 8, 10, 11, 12}

$\Omega p(\Delta)=0: \quad p = -s + s^2 + 2s^3 - 3s^4 + 4s^5 + 8s^6 - 8s^7 + 16s^8$

R: [7, 7, 8, 6, 3, A, B, B, B, 2, 4, 9]
B: [6, 8, 7, 7, A, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1 + y_5 - y_2 + y_4 + y_3 + y_6 - y_7, y_1, y_5, 0, y_2, y_4, y_3, 2\,y_1, y_6, y_7, 0]$$

$p' = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8 \quad p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\,y_5, 0, y_1, 0, y_2, y_3, y_4, y_5, 0, y_6, 0, y_7]$$

$p = -s^5 + s^8$

1381 . Coloring, {3, 5, 9, 10, 11, 12}

$\Omega p(\Delta)=0: \quad p = -s + s^2 + 2s^3 + 3s^4 - 8s^5 + 8s^7 - 16s^8$

R: [7, 7, 8, 6, 3, A, B, C, C, 2, 4, 9]
B: [6, 8, 7, 7, A, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, 5\,y_3 + 5\,y_1 - 3\,y_4 - 3\,y_7, 3\,y_3 + 3\,y_1 - 3\,y_6, 5\,y_3 + 5\,y_1 - 3\,y_5 - 3\,y_2, 0, 3\,y_4, 3\,y_5, 3\,y_3, 3\,y_1, 3\,y_2, 3\,y_7, 3\,y_6]$$

$p' = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p' = -s^3 + s^9$ $p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, y_8, y_7, y_9]$$

1382 . Coloring, {3, 6, 7, 8, 9, 10}

R: [7, 7, 8, 6, A, 3, A, B, C, 2, 1, 5]
B: [6, 8, 7, 7, 3, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_3 + y_7, y_7, y_8, y_6, 0, y_4, y_5, y_7]$$

$p' = -s^6 + s^9$ $p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_3, y_1, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

1383 . Coloring, {3, 6, 7, 8, 9, 11}

R: [7, 7, 8, 6, A, 3, A, B, C, C, 4, 5]
B: [6, 8, 7, 7, 3, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}, {3, 4, 6, 8, 11}}

See Matrix

$$[0, 0, 3\,y_1, 3\,y_2, 5\,y_1 + 5\,y_2 + 5\,y_3 - 3\,y_4 + 5\,y_6 - 3\,y_5 + 5\,y_7 - 3\,y_8, 3\,y_3, 3\,y_4, 3\,y_6, 0, 3\,y_5, 3\,y_7, 3\,y_8]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_2, y_1, y_2 - y_1 - y_3 + y_4 + y_7 + y_6 + y_5 - y_9 - y_8, 0, 0, y_3, y_4, y_7, y_6, y_5, y_9, y_8]$$

$$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$$

1384 . Coloring, {3, 6, 7, 8, 9, 12}

R: [7, 7, 8, 6, A, 3, A, B, C, C, 1, 9]
B: [6, 8, 7, 7, 3, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, y_6, y_7, y_8, y_9, y_5, y_3, y_4]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 9

See Matrix

$$[0, y_1, y_4, y_5, y_2, y_8, y_3, y_7, 0, y_{10}, y_6, y_9]$$

1385 . Coloring, {3, 6, 7, 8, 10, 11}

R: [7, 7, 8, 6, A, 3, A, B, B, 2, 4, 5]
B: [6, 8, 7, 7, 3, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {3, 4, 6, 8, 11}}

See Matrix

$$[0, 9\,y_1 + 9\,y_7 - 7\,y_6 + 9\,y_3 - 7\,y_4 + 9\,y_5 - 7\,y_2 + 9\,y_8, 7\,y_1, 7\,y_7, 7\,y_6, 7\,y_3, 7\,y_4, 7\,y_5, 0, 7\,y_2, 7\,y_8, 0]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_2, 0, y_5, 0, 0, y_2 + y_1 + y_6 + y_7 - y_3 - y_4, y_1, y_5, y_6, y_7, y_3, y_4]$$

$p = -s^7 + s^8$ $p = -s^7 + s^9$

1386 . Coloring, {3, 6, 7, 8, 10, 12}

R: [7, 7, 8, 6, A, 3, A, B, B, 2, 1, 9]
B: [6, 8, 7, 7, 3, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_6, y_4, y_5, 2\,y_6, y_7, y_8, 0]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_6, y_4, 0, y_5, y_7, y_8]$$

$p = -s^6 + s^9$

1387 . Coloring, {3, 6, 7, 8, 11, 12}

R: [7, 7, 8, 6, A, 3, A, B, B, C, 4, 9]
B: [6, 8, 7, 7, 3, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_3, 0, y_2, y_4, y_5, y_6, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 2, 3, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[y_3, y_2, y_1, 0, -y_3 + y_2 + y_1 + y_7 - y_8 - y_6 - y_4 + y_5 + y_9, y_7, y_8, y_6, 0, y_4, y_5, y_9]$$

$p = s - s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9 - s^{10}$

1388 . Coloring, {3, 6, 7, 9, 10, 11}

R: [7, 7, 8, 6, A, 3, A, C, C, 2, 4, 5]
B: [6, 8, 7, 7, 3, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, y_5, y_4, y_6, y_7, 0, y_9, 0, y_8]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_3 - y_1 - y_6 - y_4 + y_5 + y_7, 0, y_2, 0, 0, y_3, y_1, y_2, y_6, y_4, y_5, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

1389 . Coloring, {3, 6, 7, 9, 10, 12}

R: [7, 7, 8, 6, A, 3, A, C, C, 2, 1, 9]
B: [6, 8, 7, 7, 3, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[-14 y_1 + 18 y_2 - 14 y_3 + 18 y_4 + 18 y_5 - 14 y_6 + 18 y_7, 5 y_1, 5 y_2, 0, 0, -7 y_1 + 9 y_2 - 7 y_3 + 9 y_4 + 9 y_5 - 7 y_6 + 9 y_7,$$
$$5 y_3, 5 y_4, 5 y_5, 5 y_6, 0, 5 y_7]$$

$p = s^4 - s^6 - s^7 + s^9$ $p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_5, y_4, y_2, y_3, y_1, y_3, 0, y_8, y_6, y_7]$$

$p = -s^6 + s^9$

1390 . Coloring, {3, 6, 7, 9, 11, 12}

R: [7, 7, 8, 6, A, 3, A, C, C, C, 4, 9]
B: [6, 8, 7, 7, 3, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_3, 0, -y_3 + y_6, y_3, y_2, y_1, y_6, 0, y_5]$$

$p' = -s^5 + s^7$ $p = -s^5 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 + y_6 - y_4 - y_5 - y_7 + y_8, y_1, y_2, 0, y_3, y_6, y_4, y_5, 0, y_7, y_8, 0]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

1391 . Coloring, {3, 6, 7, 10, 11, 12}

R: [7, 7, 8, 6, A, 3, A, C, B, 2, 4, 9]
B: [6, 8, 7, 7, 3, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {3, 4, 6, 8, 9, 11, 12}}

See Matrix

$$[0, 7y_1, 9y_1 - 7y_2 - 7y_3 + 9y_8 - 7y_4 - 7y_5 + 9y_6 - 7y_7 - 7y_9, 7y_2, 0, 7y_3, 7y_8, 7y_4, 7y_5, 7y_6, 7y_7, 7y_9]$$

$p = -s - s^2 - s^3 + s^8 + s^9 + s^{10}$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1 - y_2 + y_3 - y_4 - y_5 - y_6 + y_7 + y_8, 0, y_1, 0, y_2, y_3, y_4, y_5, 0, y_6, y_7, y_8]$$

$$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9$$

1392 . Coloring, {3, 6, 8, 9, 10, 11}

R: [7, 7, 8, 6, A, 3, B, B, C, 2, 4, 5]
B: [6, 8, 7, 7, 3, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$$p = -s^3 + s^9$$

1393 . Coloring, {3, 6, 8, 9, 10, 12}

Ωp(Δ)=0: $p = 3s^4 - 4s^5 - 8s^7 + 16s^8$

R: [7, 7, 8, 6, A, 3, B, B, C, 2, 1, 9]
B: [6, 8, 7, 7, 3, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_7,\ 3\,y_6,\ 3\,y_5,\ 0,\ 0,\ 3\,y_6 - 3\,y_5,\ 3\,y_4,\ 3\,y_3,\ 3\,y_2,\ 3\,y_6 - 3\,y_5,\ -3\,y_7 - 9\,y_6 + 3\,y_5 - 3\,y_4 - 3\,y_3 + 13\,y_2 + 13\,y_1,\ 3\,y_1]$$

$$p = s^4 + s^5 - s^7 - s^8 \quad p' = s^4 - s^6 - s^7 + s^9 \quad p' = -s^4 - s^5 + s^7 + s^8$$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0,\ 0,\ y_1,\ y_3,\ y_4,\ y_6,\ y_2,\ y_6,\ 0,\ y_7,\ y_6,\ y_5]$$

$$p' = -s^3 + s^8 \quad p = -s^3 + s^8$$

1394 . Coloring, {3, 6, 8, 9, 11, 12}

R: [7, 7, 8, 6, A, 3, B, B, C, C, 4, 9]
B: [6, 8, 7, 7, 3, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0,\ 0,\ -3\,y_1 - 3\,y_2 - 3\,y_3 - 6\,y_4 + 10\,y_6 - 3\,y_5,\ 3\,y_1,\ 0,\ 3\,y_2,\ 6\,y_4,\ 3\,y_3,\ -3\,y_4 + 3\,y_6,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6]$$

$$p = -s^2 + s^7 \quad p' = -s^2 + s^7 \quad p' = -s^3 + s^8$$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_1,\ y_2,\ y_3,\ 0,\ y_4,\ y_5,\ y_6,\ y_7,\ 0,\ y_8,\ y_9,\ y_{10}]$$

1395 . Coloring, {3, 6, 8, 10, 11, 12}

R: [7, 7, 8, 6, A, 3, B, B, B, 2, 4, 9]
B: [6, 8, 7, 7, 3, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_7, 2\,y_6, y_6, y_8, 0]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[2\,y_5, 0, y_7, 0, y_6, y_3, y_4, y_5, 0, y_1, 0, y_2]$$

$p = -s^3 + s^8$

1396 . Coloring, {3, 6, 9, 10, 11, 12}

R: [7, 7, 8, 6, A, 3, B, C, C, 2, 4, 9]
B: [6, 8, 7, 7, 3, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 10

See Matrix

$$[0, y_1, y_1 - y_2 + y_3 - y_4 + y_5 + y_6 - y_7 + y_8 - y_9, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

$p = -s^9 + s^{10}$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_3, y_2, 0, y_1, y_9, y_8]$$

1397 . Coloring, {3, 7, 8, 9, 10, 11}

R: [7, 7, 8, 6, A, A, A, B, C, 2, 4, 5]
B: [6, 8, 7, 7, 3, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_7 + y_4, y_5, y_6, y_7, 0, y_3, y_4, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_4, 0, y_1, 0, 0, y_2, y_3, y_5, y_6, 0, y_8, y_7]$$

1398 . Coloring, {3, 7, 8, 9, 10, 12}

R: [7, 7, 8, 6, A, A, A, B, C, 2, 1, 9]
B: [6, 8, 7, 7, 3, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[3 y_1, -3 y_1 - 6 y_7 - 3 y_6 + 13 y_5 - 3 y_4 - 3 y_2 + 13 y_3, 0, 0, 0, 3 y_7, 3 y_6, 3 y_7, 3 y_5, 3 y_4, 3 y_2, 3 y_3]$$

$p = -s^4 - s^5 + s^7 + s^8$ $p' = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_7, y_6, y_5, y_4, y_3, y_4, 0, 0, y_2, y_1]$$

$p = s^5 - s^8$

1399 . Coloring, {3, 7, 8, 9, 11, 12}

R: [7, 7, 8, 6, A, A, A, B, C, C, 4, 9]
B: [6, 8, 7, 7, 3, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_5, 2\,y_6, y_6, y_7, y_4, y_2, y_3]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, 0, y_8, y_9]$$

1400 . Coloring, {3, 7, 8, 10, 11, 12}

R: [7, 7, 8, 6, A, A, A, B, B, 2, 4, 9]
B: [6, 8, 7, 7, 3, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_5, 0, y_4, 0, y_3, y_1, y_2, 2\,y_2, y_6, y_7, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_8, y_6, y_7, y_5, 0, 0, y_4, y_3]$$

1401 . Coloring, {3, 7, 9, 10, 11, 12}

R: [7, 7, 8, 6, A, A, A, C, C, 2, 4, 9]
B: [6, 8, 7, 7, 3, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, y_1, 0, 10\,y_1 + 10\,y_2 + 10\,y_3 - 22\,y_4 + 10\,y_5 - 22\,y_6, 0, y_2, y_3, 5\,y_1 + 5\,y_2 + 5\,y_3 - 11\,y_4 + 5\,y_5 - 11\,y_6, y_4, y_5, 0, y_6]$$

$p = s^3 + s^4 - s^6 - s^7$ $p' = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, y_5, y_6, y_4, y_3, 0, 0, y_7, 2\,y_3]$$

$p = -s^3 + s^8$

1402 . Coloring, {3, 8, 9, 10, 11, 12}

R: [7, 7, 8, 6, A, A, B, B, C, 2, 4, 9]
B: [6, 8, 7, 7, 3, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_7, 0, 3\,y_6, 0, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, -3\,y_6 - 3\,y_4 - 3\,y_3 + 8\,y_2 + 5\,y_1, -3\,y_7 - 3\,y_5 + 5\,y_2 + 8\,y_1, 3\,y_1]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_7, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

1403 . Coloring, {4, 5, 6, 7, 8, 9}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, A, B, C, C, 1, 5]
B: [6, 8, 8, 6, A, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, 0, y_1 + y_2 - y_5 - y_3 - y_4 + y_7 + y_6, 0, y_2, 0, y_5, y_3, y_4, y_7, y_6]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1404 . Coloring, {4, 5, 6, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = 3s^2 - 14s^3 + 24s^5 + 32s^6 + 32s^7 - 128s^8$ $p' = -3s^2 + 2s^3 + 8s^4 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, 3, A, B, B, 2, 1, 5]
B: [6, 8, 8, 6, A, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_1, y_2, y_1, 0, y_5, 0, y_3, 0, 0, y_4, y_5, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, 0, y_5, 0, y_3, y_1, y_2, y_3, y_4 - y_5 + y_1 + y_2]$$

$p' = -s^5 + s^6$ $p = s^5 - s^6$

1405 . Coloring, {4, 5, 6, 7, 8, 11}

$\Omega p(\Delta)=0$: $p' = 3s^2 + 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = 3s^2 + 14s^3 - 24s^5 + 32s^6 - 32s^7 - 128s^8$

R: [7, 7, 7, 7, 3, 3, A, B, B, C, 4, 5]
B: [6, 8, 8, 6, A, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1 + y_2 - y_3 - y_5 - y_6 + y_4 + y_7, y_1, 0, 0, 0, y_2, 0, y_3, y_5, y_6, y_4, y_7]$$

$p = -s^7 + s^8$

1406 . Coloring, {4, 5, 6, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = -9s^2 + 4s^4 - 24s^5 + 16s^6 - 96s^7 + 64s^8$ $p = 3s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, 3, A, B, B, C, 1, 9]
B: [6, 8, 8, 6, A, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, 0, 0, y_4, 0, y_3, y_2, y_1, y_6 + y_5 - y_4 + y_3 + y_2 - y_1]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_3, 0, y_1, y_2, y_6, 0, y_7, 0, y_4, y_5, y_8]$$

1407 . Coloring, {4, 5, 6, 7, 9, 10}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$ $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$

R: [7, 7, 7, 7, 3, 3, A, C, C, 2, 1, 5]
B: [6, 8, 8, 6, A, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6, y_1, y_2, 0, y_3, 0, y_4, 0, 0, y_5, 0, y_6]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2 - y_1 - y_3 - y_4 + y_6 + y_5, 0, y_2, 0, y_1, y_3, y_4, y_6, y_5]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

1408 . Coloring, {4, 5, 6, 7, 9, 11}

Ωp(Δ)=0: $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, 3, A, C, C, C, 4, 5]
B: [6, 8, 8, 6, A, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_2, y_1, y_6, 0, y_5, 0, 0, y_4, 0, y_3]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 - y_4 - y_3 - y_5 + y_6, y_1, 0, 0, 0, y_2, 0, y_4, y_3, y_5, y_6, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1409 . Coloring, {4, 5, 6, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, 3, A, C, C, C, 1, 9]
B: [6, 8, 8, 6, A, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[y_1, 0, y_1, 0, 0, 0, 2\,y_1 + y_2 + y_3 - y_4, 0, y_2, y_3, 0, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, 0, y_4, y_2, y_1, 0, y_7, 0, y_6, y_5, 0]$$

1410 . Coloring, {4, 5, 6, 7, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, A, C, B, 2, 4, 5]
B: [6, 8, 8, 6, A, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_3, 0, y_4, 0, 0, y_5, y_6, y_6]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_1 + y_2 + y_3 + y_4 - y_5 - y_6, 0, y_2, y_3, y_4, y_5, y_6]$$

$p = -s^6 + s^7$

1411 . Coloring, {4, 5, 6, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, A, C, B, 2, 1, 9]
B: [6, 8, 8, 6, A, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 2\,y_7, 0, 0, 0, y_3, 0, y_6, y_4, y_5, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, 0, y_4, 0, y_5, y_6, y_7]$$

1412 . Coloring, {4, 5, 6, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, A, C, B, C, 4, 9]
B: [6, 8, 8, 6, A, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, -y_3 + y_1 - y_2 - y_5 + y_6 + y_4, y_3, 0, 0, y_1, 0, y_2, y_5, y_6, y_4]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, y_3, y_6, 0, y_4, 0, y_5, y_8, y_7]$$

1413 . Coloring, {4, 5, 6, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, B, B, C, 2, 1, 5]
B: [6, 8, 8, 6, A, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_4, 2\,y_5, y_3, 0, y_2, 0, y_1, 0, 0, 0, y_6, y_5]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, 0, y_3, y_6, y_7, y_4, y_5]$$

1414 . Coloring, {4, 5, 6, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, B, B, C, C, 4, 5]
B: [6, 8, 8, 6, A, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_3, y_2, 0, y_4, 0, 0, 0, y_6, y_5]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, 0, y_4, y_5, y_6, y_7, y_8]$$

1415 . Coloring, {4, 5, 6, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, B, B, C, C, 1, 9]
B: [6, 8, 8, 6, A, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[5\,y_1, 0, -5\,y_1 - 5\,y_5 + 11\,y_4 - 5\,y_2 + 11\,y_3, 0, 0, 0, 5\,y_5, 0, 5\,y_4, 0, 5\,y_2, 5\,y_3]$$

$p = -s^2 - s^3 + s^5 + s^6$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_2, 0, y_1, y_3, y_8, 0, y_4, 0, y_6, y_7, y_5]$$

1416 . Coloring, {4, 5, 6, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, 3, B, B, B, 2, 4, 5]
B: [6, 8, 8, 6, A, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	5 *vs* 6

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_3, y_1, y_2, y_3, 0, y_4, 0, 0, 0, y_5, 0]$$

$p = s^3 - s^6$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[y_2, 0, 0, 0, 0, y_1, 0, y_2, y_4, y_5, 0, y_3]$$

$p = s^4 - s^6$

1417 . Coloring, {4, 5, 6, 8, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 7, 7, 7, 3, 3, B, B, B, 2, 1, 9]
B: [6, 8, 8, 6, A, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 6	5 *vs* 6

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, y_4, y_4, 0, 0, 0, y_2, 0, y_4, 0, y_3, 0]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, y_3, y_1, y_2, 0, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$

1418 . Coloring, {4, 5, 6, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, 3, B, B, B, C, 4, 9]
B: [6, 8, 8, 6, A, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 0, y_3, y_2, 0, 0, y_1, 0, y_5, 0, y_4, y_3]$$

$p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_4, 0, y_5, 0, y_6, 0, y_7]$$

1419 . Coloring, {4, 5, 6, 9, 10, 11}

Ωp(Δ)=0: $p = s^2 - 4s^4 - 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, 3, B, C, C, 2, 4, 5]
B: [6, 8, 8, 6, A, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, y_5, y_4, y_3, y_2, 0, y_1, 0, 0, 0, y_6, y_5]$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$[y_1, 0, 0, 0, 0, y_5, 0, y_2, y_3, y_4, y_6, y_7]$

1420 . Coloring, {4, 5, 6, 9, 10, 12}

Ωp(Δ)=0: $p = s^2 + 4s^4 + 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, 3, B, C, C, 2, 1, 9]
B: [6, 8, 8, 6, A, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$[-2\,y_1 - y_3 + 6\,y_4 - y_2, y_1, y_1, 0, 0, 0, y_3, 0, y_4, 0, y_2, y_4]$

$p' = s^3 - s^6$ $p' = -s^2 + s^5$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_7, y_6, 0, y_5, 0, y_4, y_3, y_2]$$

1421 . Coloring, {4, 5, 6, 9, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^4 + 8s^5 - 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, 3, 3, B, C, C, C, 4, 9]
B: [6, 8, 8, 6, A, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, -3y_1 - 3y_2 + 5y_3 - 3y_4 + 5y_5, 3y_1, 0, 0, 3y_2, 0, 3y_3, 0, 3y_4, 3y_5]$$

$p = s^2 + s^3 - s^5 - s^6$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 + y_3 - y_4 - y_5 + y_6, y_1, 0, 0, y_2, y_3, 0, y_4, 0, y_5, y_6, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1422 . Coloring, {4, 5, 6, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, B, C, B, 2, 4, 9]
B: [6, 8, 8, 6, A, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 2\,y_5, 2\,y_5, y_1, 0, 0, y_2, 0, y_3, 0, y_4, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_3, y_4, 0, y_2, 0, y_6, y_7, y_5]$$

1423 . Coloring, {4, 5, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 - 8s^4 + 8s^5 + 32s^7$ $p = s^2 - 12s^4 - 8s^5 + 16s^6 + 32s^7 + 64s^8$

R: [7, 7, 7, 7, 3, A, A, B, C, 2, 1, 5]
B: [6, 8, 8, 6, A, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_4, y_3, y_2, 0, y_4, 0, y_1, 0, 0, y_6, y_5, y_5]$$

$p = -s^4 + s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, 0, y_4, y_5, y_6, y_7, y_8]$$

1424 . Coloring, {4, 5, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 + 8s^5 + 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, A, A, B, C, C, 4, 5]
B: [6, 8, 8, 6, A, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_4, y_2, y_3, 0, y_1, 0, 0, y_6, y_7, y_5]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_7, 0, y_4, y_5, y_6, y_8, y_9]$$

1425 . Coloring, {4, 5, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 + 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, A, B, C, C, 1, 9]
B: [6, 8, 8, 6, A, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_5 - y_4 - y_3 + y_2, 0, y_1, 0, 0, 0, y_5, 0, y_4, y_3, y_1, y_2]$$

$p = -s^5 + s^7$ $p = -s^5 + s^6$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, y_6, y_7, y_8, y_4, 0, y_5, 0, y_2, y_3, y_9]$$

1426 . Coloring, {4, 5, 7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, A, B, B, 2, 4, 5]
B: [6, 8, 8, 6, A, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, y_2, y_3, -2y_2 + 2y_3, 0, y_4, 0, 0, y_5, -2y_2 + 2y_3, 0]$$

$p' = s^3 - s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, 0, y_4, y_6, y_5, 2y_5, y_7]$$

$p = -s^6 + s^8$

1427 . Coloring, {4, 5, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, A, B, B, 2, 1, 9]
B: [6, 8, 8, 6, A, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, y_3, 0, 0, 0, y_4, 0, 2\,y_3, y_5, y_6, 0]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

1428 . Coloring, {4, 5, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, A, B, B, C, 4, 9]
B: [6, 8, 8, 6, A, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_2 - y_3 - y_4 + y_5 + y_6, y_1, 0, 0, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, 0, y_7, y_8, y_9]$$

1429 . Coloring, {4, 5, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, A, C, C, 2, 4, 5]
B: [6, 8, 8, 6, A, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_6, y_1, y_5, y_2, 0, y_3, 0, 0, y_4, 0, y_5]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, 0, y_4, y_5, y_6, y_8, y_7]$$

1430 . Coloring, {4, 5, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, A, C, C, 2, 1, 9]
B: [6, 8, 8, 6, A, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[2 y_1, -3 y_1 - y_4 - y_2 + 6 y_3, y_1, 0, 0, 0, y_4, 0, y_3, y_2, 0, y_3]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, 5 y_7, 5 y_5, 5 y_6, 5 y_4, 0, 5 y_3, 0, 5 y_2, -5 y_7 - 5 y_5 + 11 y_6 - 5 y_4 - 5 y_3 + 11 y_2 + 11 y_1, 5 y_1]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

1431 . Coloring, {4, 5, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, A, A, C, C, C, 4, 9]
B: [6, 8, 8, 6, A, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_1, 0, 0, 3\,y_1 + y_3 + y_2 - y_4, 0, y_3, y_2, 0, y_4]$$

$p = s^4 - s^6$ $p' = s^4 - s^5$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, 0, y_7, 0, y_8, y_6, 0]$$

1432 . Coloring, {4, 5, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^5 - 32s^7$ $p = s^2 - 4s^4 - 8s^5 + 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, 3, A, A, C, B, 2, 4, 9]
B: [6, 8, 8, 6, A, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_2, y_7, y_1, 0, 0, y_3, 0, y_4, y_5, y_6, y_7]$$

$p = - s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 8, 11}}

See Matrix

$$[3 y_7, 0, 3 y_6, 0, 3 y_5, 3 y_4, 0, 3 y_3, 0, 3 y_2, -3 y_7 - 3 y_6 + 5 y_5 - 3 y_4 - 3 y_3 + 5 y_2 + 5 y_1, 3 y_1]$$

$p = - s - s^2 - s^3 + s^6 + s^7 + s^8$

1433 . Coloring, {4, 5, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, B, B, C, 2, 4, 5]
B: [6, 8, 8, 6, A, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_5, y_4, y_3, y_5, 0, y_2, 0, 0, y_6, y_1, y_6]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, 0, y_4, y_5, y_6, y_7, y_8]$$

1434 . Coloring, {4, 5, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 6s^3 + 40s^5 - 32s^6 - 32s^7 + 128s^8$ $p' = - s^2 + 2s^3 + 8s^4 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, B, B, C, 2, 1, 9]
B: [6, 8, 8, 6, A, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, -3\,y_1 - 6\,y_4 - 3\,y_2 + 13\,y_5 - 3\,y_3 + 13\,y_6, 3\,y_4, 0, 0, 0, 3\,y_2, 0, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_6]$$

$p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_5, y_4, y_3, y_2, 0, y_1, 0, y_8, y_7, y_6]$$

1435 . Coloring, {4, 5, 8, 9, 11, 12}

Ωp(Δ)=0: $p' = -s^2 - 2s^3 + 8s^4 + 8s^5 - 32s^7$ $p = s^2 + 2s^3 - 8s^4 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, B, B, C, C, 4, 9]
B: [6, 8, 8, 6, A, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 3\,y_2, 3\,y_1, 0, 0, -3\,y_2 - 3\,y_1 + 10\,y_4 - 3\,y_3, 0, -3\,y_2 + 3\,y_4, 3\,y_2, 3\,y_3, 3\,y_4]$$

$p' = -s^3 + s^6$ $p = -s^2 + s^5$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_9, y_8, y_7, 0, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1]$$

1436 . Coloring, {4, 5, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, B, B, B, 2, 4, 9]
B: [6, 8, 8, 6, A, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_1, y_5, y_2, 0, 0, y_3, 0, 2\,y_5, y_5, y_4, 0]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, 0, y_5, 0, y_6, 0, y_7]$$

1437 . Coloring, {4, 5, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, B, C, C, 2, 4, 9]
B: [6, 8, 8, 6, A, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, y_1, y_3, -y_1 - 2\,y_3 - y_2 - y_5 + 6\,y_4, 0, 0, y_2, 0, y_4, y_3, y_5, y_4]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[7\,y_7,\ 0,\ 7\,y_6,\ 0,\ 7\,y_5,\ 7\,y_4,\ 0,\ 7\,y_3,\ 0,\ 7\,y_2,\ -7\,y_7 - 7\,y_6 + 9\,y_5 - 7\,y_4 - 7\,y_3 + 9\,y_2 + 9\,y_1,\ 7\,y_1]$$

$$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$$

1438 . Coloring, {4, 6, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = 3s^2 - 2s^3 - 8s^5 - 32s^7$ $p' = -3s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, A, B, C, 2, 1, 5]
B: [6, 8, 8, 6, 3, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	8 *vs* 9	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[y_1,\ y_2,\ y_5,\ 0,\ y_1,\ 0,\ y_3,\ 0,\ 0,\ y_4,\ y_5,\ y_5]$$

$p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0,\ 0,\ y_2,\ y_1,\ 0,\ y_3,\ 0,\ y_5,\ y_4,\ y_6,\ y_7,\ y_8]$$

1439 . Coloring, {4, 6, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 9s^2 - 4s^4 + 24s^5 - 16s^6 + 96s^7 - 64s^8$ $p' = 3s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, A, B, C, C, 4, 5]
B: [6, 8, 8, 6, 3, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	8 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_5, y_1, y_2, 0, y_3, 0, 0, y_4, y_5, y_6]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, 0, y_5, y_6, y_7, y_8, y_9]$$

1440 . Coloring, {4, 6, 7, 8, 9, 12}

Ωp(Δ)=0: $p' = 3s^2 + 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = 3s^2 + 14s^3 - 24s^5 + 32s^6 - 32s^7 - 128s^8$

R: [7, 7, 7, 7, A, 3, A, B, C, C, 1, 9]
B: [6, 8, 8, 6, 3, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_5 - y_4 - y_3 + y_1, 0, y_2, 0, 0, 0, y_5, 0, y_4, y_3, y_2, y_1]$$

$p = -s^5 + s^7$ $p = -s^5 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_1, y_6, y_7, y_8, y_9, 0, y_5, 0, y_2, y_3, y_4]$$

1441 . Coloring, {4, 6, 7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, A, B, B, 2, 4, 5]
B: [6, 8, 8, 6, 3, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, y_2, y_3, 2\,y_2, 0, y_4, 0, 0, y_5, 2\,y_2, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[-2\,y_3 + 2\,y_2, 0, y_3, 0, 0, y_1, 0, y_2, y_4, y_5, 2\,y_3, y_6]$$

$p = -s^5 + s^7$ $p' = -s^5 + s^7$

1442 . Coloring, {4, 6, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, B, B, 2, 1, 9]
B: [6, 8, 8, 6, 3, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, 0, y_5, 0, 2\,y_3, y_6, y_4, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_4, y_2, y_3, 0, y_8, 0, y_7, y_5, y_6]$$

1443 . Coloring, {4, 6, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = -s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, B, B, C, 4, 9]
B: [6, 8, 8, 6, 3, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_4, 0, 0, y_2, 0, -y_3 - y_4 + y_2 - y_1 + y_6 + y_5, y_1, y_6, y_5]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_3, y_2, y_1, 0, y_5, y_4, 0, y_8, 0, y_9, y_7, y_6]$$

1444 . Coloring, {4, 6, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, A, C, C, 2, 4, 5]
B: [6, 8, 8, 6, 3, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_2, y_1, 2\,y_1, y_3, 0, y_4, 0, 0, y_5, 0, 2\,y_1]$$

$p = s^3 - s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, 0, y_5, 0, y_4, y_3, y_6, y_7, y_8]$$

1445 . Coloring, {4, 6, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, C, C, 2, 1, 9]
B: [6, 8, 8, 6, 3, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[2\,y_3, y_4, y_3, 0, 0, 0, y_2, 0, y_1, -y_4 - 3\,y_3 - y_2 + 6\,y_1, 0, y_1]$$

$p = -s^2 + s^5$ $p' = s^3 - s^6$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_4, y_3, y_1, y_2, 0, y_8, 0, y_7, y_5, y_6]$$

1446 . Coloring, {4, 6, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, 3, A, C, C, C, 4, 9]
B: [6, 8, 8, 6, 3, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_1, 0, 0, 3\,y_1 + y_2 + y_3 - y_4, 0, y_2, y_3, 0, y_4]$$

$p = s^4 - s^5$ $p' = -s^4 + s^5$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_4, y_3, y_2, 0, y_1, y_6, 0, y_5, 0, y_8, y_7, 0]$$

1447 . Coloring, {4, 6, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, 3, A, C, B, 2, 4, 9]
B: [6, 8, 8, 6, 3, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_7, y_2, 0, 0, y_3, 0, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

1448 . Coloring, {4, 6, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 7, 7, 7, A, 3, B, B, C, 2, 4, 5]
B: [6, 8, 8, 6, 3, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_7, y_2, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, 0, y_6, y_4, y_5, y_8, y_7]$$

1449 . Coloring, {4, 6, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, 3, B, B, C, 2, 1, 9]
B: [6, 8, 8, 6, 3, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 - 6\,y_4 - 3\,y_2 + 13\,y_3 - 3\,y_5 + 13\,y_6, 3\,y_1, 3\,y_4, 0, 0, 0, 3\,y_2, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

1450 . Coloring, {4, 6, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, B, B, C, C, 4, 9]
B: [6, 8, 8, 6, 3, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, -3y_2 + 3y_4, 3y_2 + 7y_4 - 3y_1 - 3y_3, 0, 0, 3y_1, 0, 3y_2, -3y_2 + 3y_4, 3y_3, 3y_4]$$

$p' = -s^3 + s^6$ $p' = -s^2 + s^5$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_4, y_3, y_1, 0, y_2, y_9, 0, y_7, 0, y_8, y_6, y_5]$$

1451 . Coloring, {4, 6, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, B, B, B, 2, 4, 9]
B: [6, 8, 8, 6, 3, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_1, y_4, y_2, 0, 0, y_3, 0, 2\,y_4, y_4, y_5, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, 0, y_5, 0, y_6, 0, y_7]$$

1452 . Coloring, {4, 6, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, B, C, C, 2, 4, 9]
B: [6, 8, 8, 6, 3, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, -2\,y_3 - y_1 - y_2 + 6\,y_5 - y_4, y_3, y_1, 0, 0, y_2, 0, y_5, y_3, y_4, y_5]$$

$p' = -s^4 + s^7$ $p' = s^3 - s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

1453 . Coloring, {4, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, A, A, B, C, 2, 4, 5]
B: [6, 8, 8, 6, 3, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$[0, y_3, 0, y_2, y_2, 0, y_1, 0, 0, y_5, y_4, y_4]$

$p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$[y_6, 0, y_7, 0, 0, y_1, 0, y_2, y_3, 0, y_4, y_5]$

1454 . Coloring, {4, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, A, B, C, 2, 1, 9]
B: [6, 8, 8, 6, 3, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$[-3 y_1 - 3 y_2 + 13 y_4 - 3 y_5 - 3 y_6 + 13 y_3, 3 y_1, 0, 0, 0, 0, 3 y_2, 0, 3 y_4, 3 y_5, 3 y_6, 3 y_3]$

$p = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_3, y_1, y_2, y_4, 0, y_5, 0, 0, y_6, y_7]$$

1455 . Coloring, {4, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, A, B, C, C, 4, 9]
B: [6, 8, 8, 6, 3, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3 - y_1 - y_2 + y_5 + y_4, 0, 0, y_3, 0, y_1, y_2, y_5, y_4]$$

$p = -s^5 + s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[2 y_7, 2 y_6, 2 y_5, 0, 2 y_3, 2 y_4, 0, 2 y_2, 0, 0, 3 y_6, 2 y_1]$$

$p = -s^4 + s^8$

1456 . Coloring, {4, 7, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 - 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 - 8s^4 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, A, B, B, 2, 4, 9]
B: [6, 8, 8, 6, 3, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, 0, y_3, 0, y_4, y_5, y_6, 0]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[-y_1 + y_2 + y_5 + y_3 + y_4 - y_6, 0, y_1, 0, y_2, y_5, 0, y_3, 0, 0, y_4, y_6]$$

$p = s^4 - s^5 + s^6 - s^7$

1457 . Coloring, {4, 7, 9, 10, 11, 12}

Ωp(Δ)=0: $p = s^2 - 12s^4 + 8s^5 + 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, A, A, C, C, 2, 4, 9]
B: [6, 8, 8, 6, 3, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	2 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -y_2 + 2y_1, 0, y_2, 0, 0, 2y_1, 0, y_1, 2y_1, 0, y_1]$$

$p' = s^2 - s^5$ $p' = s^3 - s^5$ $p' = s^4 - s^5$ $p = s^2 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, 0, y_3, 0, 0, y_2, y_1]$$

1458 . Coloring, {4, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, B, B, C, 2, 4, 9]
B: [6, 8, 8, 6, 3, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_2 + 13\,y_3 - 3\,y_4 - 3\,y_5 + 13\,y_6, 0, 3\,y_1, 0, 0, 3\,y_2, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_5, 0, y_4, 0, y_3, y_2, 0, y_1, 0, 2\,y_7, y_7, y_6]$$

$p = -s^4 + s^8$

1459 . Coloring, {5, 6, 7, 8, 9, 10}

R: [7, 7, 7, 6, 3, 3, A, B, C, 2, 1, 5]
B: [6, 8, 8, 7, A, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, y_3, 0, y_2, y_6, y_4, 0, 0, y_5, y_6, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_4, 0, y_3, y_1, 2\,y_3, y_2, y_5, y_6, y_7]$$

$$p = -\,s^5 + s^8$$

1460 . Coloring, {5, 6, 7, 8, 9, 11}

R: [7, 7, 7, 6, 3, 3, A, B, C, C, 4, 5]
B: [6, 8, 8, 7, A, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_2, y_1, y_4, y_3, y_5, 0, 0, y_7, y_6, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_2, y_3, 0, 0, 0, y_1, y_4, y_5, y_6, y_7, y_8, y_9]$$

1461 . Coloring, {5, 6, 7, 8, 9, 12}

R: [7, 7, 7, 6, 3, 3, A, B, C, C, 1, 9]
B: [6, 8, 8, 7, A, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_2, 0, y_2, 0, 0, y_4, y_3, 0, -2\,y_2 + 2\,y_4 + y_3 - y_1 + y_5, y_1, y_4, y_5]$$

$p = s^5 - s^6$ $p' = -s^5 + s^6$ $p' = -s^5 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}, {4, 7, 11}}

See Matrix

$$[0, 5y_1 - 3y_2 - 3y_3 + 5y_4 - 3y_5 - 3y_6 + 5y_7 - 3y_8, 0, 3y_1, 3y_2, 3y_3, 3y_4, 3y_5, 0, 3y_6, 3y_7, 3y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

1462 . Coloring, {5, 6, 7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = 9s^3 - 2s^4 - 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, A, B, B, 2, 4, 5]
B: [6, 8, 8, 7, A, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_7, y_4, y_5, 0, 0, y_6, y_7, 0]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_4, y_3, 2y_3, y_2, y_7, y_5, y_6]$$

$p = s^6 - s^8$

1463 . Coloring, {5, 6, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 - 5s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, A, B, B, 2, 1, 9]
B: [6, 8, 8, 7, A, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	4 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_3, y_1, 0, 0, y_5, y_4, 0, 2\,y_5, y_6, 2\,y_1 - 2\,y_5, 0]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, -4\,y_3 - 2\,y_1 + 2\,y_2 + 2\,y_4, 16\,y_3 + 9\,y_1 - 11\,y_2 - 2\,y_4, 2\,y_3, 14\,y_3 + 7\,y_1 - 9\,y_2 - 2\,y_4, 4\,y_3, 0, 2\,y_1, 2\,y_2, 2\,y_4]$$

$p = s^2 - s^8$ $p' = s^2 - s^5$ $p' = s^3 - s^6$ $p' = s^4 - s^7$

1464 . Coloring, {5, 6, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 + 5s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, A, B, B, C, 4, 9]
B: [6, 8, 8, 7, A, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, -y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7, y_1, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_2, y_3, 0, 0, y_1, y_4, y_5, y_6, 0, y_7, y_9, y_8]$$

1465 . Coloring, {5, 6, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 - 2s^4 + 16s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, A, C, C, 2, 4, 5]
B: [6, 8, 8, 7, A, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, 2y_3 - 2y_4, y_3, y_4, y_5, 0, 0, y_6, 0, 2y_3 - 2y_4]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_6, y_7, 2y_7, y_4, y_5, y_3, y_2]$$

$p = -s^2 + s^8$

» SYNC'D !RANK'D

1466 . Coloring, {5, 6, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, A, C, C, 2, 1, 9]
B: [6, 8, 8, 7, A, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 8	4 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[2\,y_1, -y_2 - 3\,y_1 - y_5 + 6\,y_3 - y_4, y_2, 0, 0, y_1, y_5, 0, y_3, y_4, 0, y_3]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_3, y_4, -10\,y_3 - 7\,y_4 + 16\,y_1 + 3\,y_2, y_2, -20\,y_3 - 14\,y_4 + 32\,y_1 + 6\,y_2, 0, y_1, -8\,y_3 - 4\,y_4 + 2\,y_2 + 13\,y_1, -11\,y_3 + 18\,y_1 - 8\,y_4 + 4\,y_2]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$

» SYNC'D !RANK'D

1467 . Coloring, {5, 6, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = -2s^2 + s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, A, C, C, C, 4, 9]
B: [6, 8, 8, 7, A, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, -y_1 + y_2 + y_3 - y_4 - y_5 + y_6, y_1, 0, y_2, y_3, 0, y_4, y_5, 0, y_6]$$

$p = -s^6 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_6, y_5, 0, 0, 2\,y_3, y_4, y_3, y_2, 0, y_1, y_7, 0]$$

$p = -s^2 + s^8$

1468 . Coloring, {5, 6, 7, 10, 11, 12}

R: [7, 7, 7, 6, 3, 3, A, C, B, 2, 4, 9]
B: [6, 8, 8, 7, A, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_9, y_8, y_7, 0, y_6, y_5, 0, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_3, 0, 0, 0, y_2, y_1, y_7, 2\,y_7, 0, y_5, y_6, y_4]$$

$p = -s^5 + s^8$

1469 . Coloring, {5, 6, 8, 9, 10, 11}

R: [7, 7, 7, 6, 3, 3, B, B, C, 2, 4, 5]
B: [6, 8, 8, 7, A, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 2\,y_7, y_4, y_1, y_2, y_3, y_5, 0, 0, 0, y_6, y_7]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_3, y_2, 2\,y_2, y_4, y_7, y_6, y_5]$$

$p = -s^2 + s^8$

1470 . Coloring, {5, 6, 8, 9, 10, 12}

R: [7, 7, 7, 6, 3, 3, B, B, C, 2, 1, 9]
B: [6, 8, 8, 7, A, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 - 9\,y_2 - 3\,y_4 + 13\,y_5 - 3\,y_3 + 13\,y_6, 6\,y_2, 3\,y_1, 0, 0, 3\,y_2, 3\,y_4, 0, 3\,y_5, 0, 3\,y_3, 3\,y_6]$$

$p = s^3 + s^4 - s^6 - s^7$ $p' = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_5, y_4, 2\,y_5, 0, y_3, y_5, y_6]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$

1471 . Coloring, {5, 6, 8, 9, 11, 12}

R: [7, 7, 7, 6, 3, 3, B, B, C, C, 4, 9]
B: [6, 8, 8, 7, A, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, -5\,y_1 - 5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_5 + 11\,y_6, 5\,y_1, 0, 5\,y_2, 5\,y_3, 0, 5\,y_4, 0, 5\,y_5, 5\,y_6]$$

$p = -s - s^2 + s^6 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_2, y_1, 0, 0, y_8, y_7, y_6, y_5, 0, y_4, y_6, y_3]$$

$p = -s^4 + s^9$

1472 . Coloring, {5, 6, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 + 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, B, B, B, 2, 4, 9]
B: [6, 8, 8, 7, A, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_6, y_5, y_4, 0, y_3, y_2, 0, y_6, 0, y_1, 0]$$

$p = s^2 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\,y_5, 0, 0, 0, y_1, y_2, y_5, 2\,y_5, 0, y_3, 0, y_4]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

» SYNC'D !RANK'D

1473 . Coloring, {5, 6, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 - 5s^3 - 2s^4 + 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, B, C, C, 2, 4, 9]
B: [6, 8, 8, 7, A, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, y_6, y_5, y_4, 0, y_3, y_2, 0, y_1, 0, -y_6 - y_5 - y_4 - y_3 - y_2 + 6\, y_1, y_1]$$

$p' = -s^2 + s^7$ $p = -s^2 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_4, y_2, y_3, 2\, y_3, 0, y_6, y_7, y_5]$$

$p = -s^5 + s^8$

1474 . Coloring, {5, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = -2s^2 + 5s^3 + 2s^4 + 16s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, A, B, C, 2, 4, 5]
B: [6, 8, 8, 7, A, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_6, y_5, y_4, y_4, y_5, y_3, 0, 0, y_2, y_1, y_1]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$ $p' = s^5 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_2, 0, y_1, 0, 0, y_4, y_6, y_3, y_5, y_6, y_7, y_8]$$

$p = -s^2 + s^9$

» SYNC'D !RANK'D

1475 . Coloring, {5, 7, 8, 9, 10, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, A, B, C, 2, 1, 9]
B: [6, 8, 8, 7, A, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[3y_5, 3y_4, 3y_3, 0, 0, 3y_3, 3y_1, 0, 3y_2, -3y_5 - 3y_4 - 9y_3 - 3y_1 + 13y_2 + 13y_6, 3y_3, 3y_6]$$

$p' = -s^3 - s^4 + s^6 + s^7$ $p = s^3 + s^4 - s^6 - s^7$ $p' = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, -6y_1 + 5y_2 - 6y_3 + 4y_4 + 4y_6 - y_5, 5y_1 - 4y_2 + 5y_3 - 2y_4 - 2y_6, y_4, 0, y_6, -8y_1 + 6y_2 - 8y_3 + 5y_4 + 5y_6, y_5]$$

$p' = s^5 - s^8$ $p = -s^4 + s^7$ $p' = -s^4 + s^7$

1476 . Coloring, {5, 7, 8, 9, 11, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, A, A, B, C, C, 4, 9]
B: [6, 8, 8, 7, A, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_1 - y_4, 0, y_2 + y_3 - y_4 - y_5, y_1, 0, y_2, y_3, y_4, y_5]$$

$p' = -s^5 + s^7$ $p' = -s^5 + s^6$ $p = s^5 - s^6$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 10

See Matrix

$$[y_5, y_6, y_7, 0, y_1, y_2, y_3, y_4, 0, y_8, y_9, y_{10}]$$

1477 . Coloring, {5, 7, 8, 10, 11, 12}

R: [7, 7, 7, 6, 3, A, A, B, B, 2, 4, 9]
B: [6, 8, 8, 7, A, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_3, y_2, 0, y_4, y_7, 0, 2\,y_3, y_6, y_5, 0]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

1478 . Coloring, {5, 7, 9, 10, 11, 12}

R: [7, 7, 7, 6, 3, A, A, C, C, 2, 4, 9]
B: [6, 8, 8, 7, A, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_1 - y_2 - y_3 - y_5 + 6\,y_4, y_1, 2\,y_1, 0, y_2, y_3, 0, y_4, y_5, 0, y_4]$$

$p = -s^3 + s^6$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 8, 11}}

See Matrix

$$[5\,y_1, 0, -5\,y_1 + 11\,y_2 - 5\,y_3 - 5\,y_4 - 5\,y_5 + 11\,y_6 - 5\,y_7 + 11\,y_8, 0, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 0, 5\,y_6, 5\,y_7, 5\,y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

1479 . Coloring, {5, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p = -3s^3 + 2s^4 + 16s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, B, B, C, 2, 4, 9]
B: [6, 8, 8, 7, A, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_4 + 8\,y_2 - 3\,y_6 + 5\,y_7, 3\,y_1, -3\,y_5 + 5\,y_2 - 3\,y_3 + 8\,y_7, 0, 3\,y_4, 3\,y_5, 0, 3\,y_2, 3\,y_3, 3\,y_6, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_3, 0, y_2, 0, y_1, y_8, y_7, y_6, 0, y_5, y_7, y_4]$$

$p = s^6 - s^9$

» SYNC'D !RANK'D

1480 . Coloring, {6, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = -6s^2 - s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, A, B, C, 2, 4, 5]
B: [6, 8, 8, 7, 3, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_3, y_6, y_4, 0, 0, y_5, y_7, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_5 - y_4 - y_3 - y_1 + y_2 + y_7, 0, y_6, 0, 0, y_5, y_6, y_4, y_3, y_1, y_2, y_7]$$

$p = s^3 - s^9$ $p' = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1481 . Coloring, {6, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, A, B, C, 2, 1, 9]
B: [6, 8, 8, 7, 3, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[3\,y_1 + 3\,y_4,\ -6\,y_1 - 9\,y_4 - 3\,y_5 + 13\,y_6 - 3\,y_3 + 13\,y_2,\ 3\,y_1,\ 0,\ 0,\ 3\,y_4,\ 3\,y_5,\ 0,\ 3\,y_6,\ 3\,y_3,\ 3\,y_4,\ 3\,y_2]$$

$p = s^3 - s^9$ $p' = -s^3 + s^5 + s^6 - s^8$ $p' = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0,\ 0,\ 5\,y_7,\ 5\,y_6,\ 5\,y_5,\ 5\,y_4,\ 5\,y_3,\ 5\,y_2,\ 0,\ 5\,y_1,\ -5\,y_6 + 6\,y_5 - 5\,y_3 + 6\,y_2 + 6\,y_1,\ -5\,y_7 + 5\,y_5 - 5\,y_4 + 5\,y_2 + 5\,y_1]$$

$p = -s^3 - s^4 - s^5 + s^7 + s^8 + s^9$ $p = -s^3 - s^5 + s^6 + s^8$

1482 . Coloring, {6, 7, 8, 9, 11, 12}

Ωp(Δ)=0: $p = -3s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, A, B, C, C, 4, 9]
B: [6, 8, 8, 7, 3, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0,\ 0,\ -y_1 + y_2 + y_3 - y_4 - y_5 + y_6 + y_7,\ y_1,\ 0,\ y_2,\ y_3,\ 0,\ y_4,\ y_5,\ y_6,\ y_7]$$

$p = s^7 - s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1 + y_2 - y_3 + y_4 - y_5 - y_6 - y_7 + y_8 + y_9,\ y_1,\ y_2,\ 0,\ y_3,\ y_4,\ y_5,\ y_6,\ 0,\ y_7,\ y_8,\ y_9]$$

$p = -s^7 + s^8 - s^9 + s^{10}$

1483 . Coloring, {6, 7, 8, 10, 11, 12}

R: [7, 7, 7, 6, A, 3, A, B, B, 2, 4, 9]
B: [6, 8, 8, 7, 3, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_6, 0, y_7, y_3, 0, y_4, y_5, y_8, 0]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1 - y_2 + y_3 - y_4 - y_8 - y_5 + y_6 + y_7, 0, y_1, 0, y_2, y_3, y_4, y_8, 0, y_5, y_6, y_7]$$

$p = s^6 - s^7 + s^8 - s^9$

1484 . Coloring, {6, 7, 9, 10, 11, 12}

R: [7, 7, 7, 6, A, 3, A, C, C, 2, 4, 9]
B: [6, 8, 8, 7, 3, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -y_1 - y_2 - y_6 - y_3 + 6\,y_5 - y_4, y_1, y_2, 0, y_6, y_3, 0, y_5, y_4, 0, y_5]$$

$p' = s^4 - s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1 - y_2 + y_3 - y_8 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, y_2, y_3, y_8, y_4, 0, y_5, y_6, y_7]$$

$$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$$

1485 . Coloring, {6, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, A, 3, B, B, C, 2, 4, 9]
B: [6, 8, 8, 7, 3, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, -3y_4 - 3y_3 - 3y_2 - 3y_1 + 13y_8 - 3y_7 - 3y_6 + 13y_5, 3y_4, 3y_3, 0, 3y_2, 3y_1, 0, 3y_8, 3y_7, 3y_6, 3y_5]$$

$$p = s^3 + s^4 - s^8 - s^9$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_2, 0, y_1, 0, y_8, y_3, y_6, y_4, 0, y_5, y_6, y_7]$$

$$p = -s^5 + s^9$$

1486 . Coloring, {7, 8, 9, 10, 11, 12}

R: [7, 7, 7, 6, A, A, A, B, C, 2, 4, 9]
B: [6, 8, 8, 7, 3, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_3 - 3\,y_2 + 13\,y_6 - 3\,y_4 - 3\,y_5 + 13\,y_7, 0, 3\,y_1, 0, 3\,y_3, 3\,y_2, 0, 3\,y_6, 3\,y_4, 3\,y_5, 3\,y_7]$$

$p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_5, 0, y_4, 0, y_3, y_2, -y_5 - y_4 + y_3 + y_2 + y_1 + y_6 - y_7, y_1, 0, 0, y_6, y_7]$$

$p = -s^5 + s^6 - s^7 + s^8$

1487 . Coloring, {2, 3, 4, 5, 6, 7, 8}

Ωp(Δ)=0: $p' = s^6$ $p' = s^2$ $p' = s^3$ $p' = s^4$ $p = s^2$ $p' = s^5$ $p' = s^7$

R: [7, 8, 8, 7, 3, 3, A, B, B, C, 1, 5]
B: [6, 7, 7, 6, A, A, B, C, C, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
1 *vs* 8	1 *vs* 8	1 *vs* 8	1 *vs* 8	1 *vs* 8

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_1, 0, y_1, 0, y_1, y_1, 0, y_1, y_1, y_1]$$

$p = -s + s^2$ $p = -s + s^3$ $p = -s + s^4$ $p = -s + s^6$ $p = -s + s^5$ $p = -s + s^7$ $p = -s + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, y_1, 0, y_1, 0, y_1, y_1, 0, y_1, y_1, y_1, y_1]$$

$p = -s + s^4$ $p = -s + s^6$ $p = -s + s^5$ $p = -s + s^3$ $p = -s + s^2$ $p = -s + s^7$ $p = -s + s^8$

` See 8-level graph

`

M \; N

$ [[0, 0, 1, 0, 1, 0, 1, 1, 0, 1, 1, 1] , [0, 0, 0, 1, 0, 1, 1, 0, 1, 1, 1, 1] , [1, 0, 0, 0, 1, 0, 1, 1, 0, 1, 1, 1] , [0, 1, 0, 0, 0, 1, 1, 0, 1, 1, 1, 1] , [1, 0, 1, 0, 0, 0, 1, 1, 0, 1, 1, 1] , [0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 0, 1, 1, 2, 2, 2] , [1, 0, 1, 0, 1, 0, 1, 0, 0, 1, 1, 1] , [0, 1, 0, 1, 0, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 0, 2, 2] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 0, 2] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 2, 0]] $ $ [[0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] , [0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0]] $

τ= 20 , r'= 7/8

R: [7, 8, 8, 7, 3, 3, A, B, B, C, 1, 5]
B: [6, 7, 7, 6, A, A, B, C, C, 2, 4, 9]

Ranges

Action of R on ranges, [[1], [1]]
Action of B on ranges, [[2], [2]]

Cycles: R , {{1, 3, 5, 7, 8, 10, 11, 12}}, B , {{2, 4, 6, 7, 10, 11}, {9, 12}}

β({1, 3, 5, 7, 8, 10, 11, 12}) = 1/2
β({2, 4, 6, 7, 9, 10, 11, 12}) = 1/2

Partitions
α([{12}, {10}, {11}, {2, 3}, {5, 6}, {1, 4}, {8, 9}, {7}]) = 1/1

b1 = {12} ` , ` b2 = {10} ` , ` b3 = {11} ` , ` b4 = {2, 3} ` , ` b5 = {5, 6} ` , ` b6 = {1, 4} ` , ` b7 = {8, 9} ` , ` b8 = {7}

Action of R and B on the blocks of the partitions: = [2, 8, 7, 5, 1, 3, 4, 6] [7, 5, 8, 2, 6, 3, 1, 4]
with invariant measure [1, 1, 1, 1, 1, 1, 1, 1]

N by blocks, check: true . ` See partition graph.

` ` See level-8 partition graph.

`

Right Group	
Coloring	{2, 3, 4, 5, 6, 7, 8}
Rank	8
R,B	[7, 8, 8, 7, 3, 3, A, B, B, C, 1, 5], [6, 7, 7, 6, A, A, B, C, C, 2, 4, 9]
π_2	[0, 1, 0, 1, 0, 1, 1, 0, 1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 2, 2, 2, 0, 1, 1, 1, 1, 1, 1, 2, 2, 2]
u_2	[1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] (dim 1)
wpp	[2, 2, 2, 2, 2, 2, 1, 2, 2, 1, 1, 1]

π_8	[0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
u_8	[0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]

1488 . Coloring, {2, 3, 4, 5, 6, 7, 9}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^5 - 32s^7$ $p = s^2 - 4s^4 - 8s^5 + 16s^6 - 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, 3, A, C, C, C, 1, 5]
B: [6, 7, 7, 6, A, A, B, B, B, 2, 4, 9]

\` See graph

\` \` See pair graph

\`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_1, 0, -y_2 + y_3, 0, -y_1 + y_3, 0, y_2, y_3 - y_4, 0, y_4, 0, y_3]$$

$p = - s^4 + s^5$ $p = - s^4 + s^6$ $p = - s^4 + s^7$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_4, 0, y_3, 0, y_2, y_1, 0, y_4 - y_3 + y_2 - y_1 - y_6 + y_5, y_6, y_5, 0]$$

$$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$$

1489 . Coloring, {2, 3, 4, 5, 6, 7, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, A, C, B, 2, 1, 5]
B: [6, 7, 7, 6, A, A, B, B, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1 + y_2 - y_3 + y_4 - y_5 - y_6 + y_7 + y_8, y_1, y_2, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

$$p = s^6 - s^7 + s^8 - s^9$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1 - y_5 - y_3 - y_2 + y_4 + y_6, 0, y_1, y_5, 0, y_3, y_2, y_4, y_6]$$

$$p = -s^6 + s^7$$

1490 . Coloring, {2, 3, 4, 5, 6, 7, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, A, C, B, C, 4, 5]
B: [6, 7, 7, 6, A, A, B, B, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_4 + y_5 - y_2, -y_1 + y_4 + y_5, y_1, 0, y_2, -y_3 + y_4 + y_5, 0, y_3, y_4, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$ $p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[-3 y_2 + 5 y_3 - 3 y_4 + 8 y_6, -3 y_1 + 8 y_3 - 3 y_5 + 5 y_6, 0, 0, 0, 3 y_1, 3 y_2, 0, 3 y_3, 3 y_4, 3 y_5, 3 y_6]$$

$p = s - s^7$ $p' = s - s^7$

1491 . Coloring, {2, 3, 4, 5, 6, 7, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, A, C, B, C, 1, 9]
B: [6, 7, 7, 6, A, A, B, B, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_7, 0, y_6, 0, 0, 0, y_7 - y_6 + y_1 + y_2 + y_3 - y_4 - y_5, y_1, y_2, y_3, y_4, y_5]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_3, y_4, y_5, y_2, 0, 0, y_6, y_7, y_8]$$

1492 . Coloring, {2, 3, 4, 5, 6, 8, 9}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, B, B, C, C, 1, 5]
B: [6, 7, 7, 6, A, A, A, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, 0, y_6, 0, y_5, 0, y_3, y_4, 0, 0, y_2, y_1]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_4, 0, y_3, y_2, 0, y_7, y_6, y_8, y_5]$$

1493 . Coloring, {2, 3, 4, 5, 6, 8, 10}

$\Omega p(\Delta)=0$: $p = s^2 + 56s^5 + 16s^6 - 64s^7 - 256s^8$ $p' = s^2 - 16s^4 - 8s^5 + 16s^6 + 64s^7$ $p' = s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, 3, B, B, B, 2, 1, 5]
B: [6, 7, 7, 6, A, A, A, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	4 *vs* 6

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_5, y_4, y_3, 0, y_4, 0, y_2, y_1, 0, 0, y_6, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, y_3, 0, y_4, y_3, 0, y_2, y_1, 0, -y_4 + y_2 + y_1]$$

$p' = s^4 - s^5$ $p = s^4 - s^6$

1494 . Coloring, {2, 3, 4, 5, 6, 8, 11}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$

R: [7, 8, 8, 7, 3, 3, B, B, B, C, 4, 5]
B: [6, 7, 7, 6, A, A, A, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	3 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_7, 0, 0, y_5, y_6]$$

Omega Rank for B : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-y_1 + 2\,y_3, y_1, 0, 0, 0, -y_2 + 2\,y_3, y_2, 0, y_3, 2\,y_3, 0, y_3]$$

$p = -s^3 + s^4$ $p = -s^3 + s^5$ $p = -s^3 + s^6$ $p = -s^3 + s^7$

1495 . Coloring, {2, 3, 4, 5, 6, 8, 12}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^5 + 32s^7$ $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, 3, B, B, B, C, 1, 9]
B: [6, 7, 7, 6, A, A, A, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, 0, y_2, 0, 0, 0, y_5, y_4, y_4, 0, y_3, y_2]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, 0, y_5, y_2, y_2, y_3, 0, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

1496 . Coloring, {2, 3, 4, 5, 6, 9, 10}

$\Omega p(\Delta)=0$: $p = s^2 - 8s^5 - 80s^6 - 64s^7 - 128s^8$ $p' = s^2 - 8s^4 - 8s^5 - 16s^6$ $p' = s^3 - 8s^5 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, 3, B, C, C, 2, 1, 5]
B: [6, 7, 7, 6, A, A, A, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[y_4, -y_1 - y_2 + 5y_4 - y_3 - y_5, y_1, 0, y_2, 0, y_4, y_3, 0, 0, y_4, y_5]$$

$p = -s^2 + s^6$ $p' = -s^2 + s^6$ $p' = -s^3 + s^7$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_6, 0, y_4, y_5, 0, y_1, y_2, y_3, y_6 - y_4 - y_5 + y_1 + y_2 - y_3]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1497 . Coloring, {2, 3, 4, 5, 6, 9, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 + 8s^5 + 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, 3, B, C, C, C, 4, 5]
B: [6, 7, 7, 6, A, A, A, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 0, y_2, y_3, y_1, 0, y_3, -y_2 - y_1 + 5\, y_3 - y_4, 0, 0, y_3, y_4]$$

$p' = s^2 - s^6$ $p' = s - s^5$ $p = s - s^5$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, y_4, 0, y_5, y_6, y_7, 0]$$

1498 . Coloring, {2, 3, 4, 5, 6, 9, 12}

Ωp(Δ)=0: $p' = s^2 + 2s^3 - 8s^5 + 32s^7$ $p = s^2 - 4s^4 - 8s^5 + 16s^6 + 32s^7 - 64s^8$

R: [7, 8, 8, 7, 3, 3, B, C, C, C, 1, 9]
B: [6, 7, 7, 6, A, A, A, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[y_3, 0, 5\, y_3 - y_1 - y_2 - y_4, 0, 0, 0, y_3, y_1, y_2, 0, y_3, y_4]$$

$p = -s^3 + s^5$ $p' = -s^3 + s^5$ $p = -s^3 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_5, y_3, y_4, 0, 0, y_6, y_5, 0]$$

$p = -s^4 + s^7$

1499 . Coloring, {2, 3, 4, 5, 6, 10, 11}

$\Omega p(\Delta)=0$: $p = 9s^3 - 16s^5 - 24s^6 - 16s^7 + 64s^8$ $p' = 3s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, 3, B, C, B, 2, 4, 5]
B: [6, 7, 7, 6, A, A, A, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, -7 y_1 + 9 y_2 - 7 y_3 + 9 y_4 - 7 y_5 + 9 y_6 - 7 y_7, 7 y_1, 7 y_2, 7 y_3, 0, 7 y_4, 7 y_5, 0, 0, 7 y_6, 7 y_7]$$

$p = s^2 + s^3 + s^4 - s^6 - s^7 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_5 - y_1 - y_4 + 3 y_2 + y_3, 0, 0, 0, 0, y_5, 2 y_2, 0, y_1, y_4, y_2, y_3]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$

1500 . Coloring, {2, 3, 4, 5, 6, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$ $p = 9s^3 + 8s^5 - 8s^6 + 16s^7 - 64s^8$

R: [7, 8, 8, 7, 3, 3, B, C, B, 2, 1, 9]
B: [6, 7, 7, 6, A, A, A, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_2, y_1, y_1, 0, 0, 0, y_7, y_6, y_5, 0, y_4, y_3]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, 2\,y_5, 0, 0, y_4, y_5, y_6]$$

$p = s^4 - s^7$

1501 . Coloring, {2, 3, 4, 5, 6, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, B, C, B, C, 4, 9]
B: [6, 7, 7, 6, A, A, A, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_7, y_6, 0, 0, y_4, y_5, y_3, 0, y_2, y_1]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, y_2, y_5, y_4, 0, 0, y_3, y_6, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1502 . Coloring, {2, 3, 4, 5, 7, 8, 9}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 - 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 8, 8, 7, 3, A, A, B, C, C, 1, 5]
B: [6, 7, 7, 6, A, 3, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$[y_8, 0, y_7, 0, y_6, 0, y_5, y_4, 0, y_3, y_2, y_1]$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$[0, y_7, y_6, y_5, 0, y_4, y_3, 0, y_7, y_2, y_1, y_2]$

$p' = s^3 - s^8$ $p = s^3 - s^8$

1503 . Coloring, {2, 3, 4, 5, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, A, B, B, 2, 1, 5]
B: [6, 7, 7, 6, A, 3, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$[y_7, y_6, y_8, 0, y_5, 0, y_4, y_3, 0, y_2, y_1, 0]$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, 7\,y_7, 7\,y_6, 0, 7\,y_5, 7\,y_4, 0, 7\,y_3, 7\,y_2, -7\,y_7 - 7\,y_6 - 7\,y_5 - 7\,y_4 + 9\,y_3 + 9\,y_2 + 9\,y_1, 7\,y_1]$$

$$p = -s^2 - s^3 + s^7 + s^8$$

1504 . Coloring, {2, 3, 4, 5, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, A, B, B, C, 4, 5]
B: [6, 7, 7, 6, A, 3, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_5, 0, y_3, y_4, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[y_3, y_1, y_2, 0, 0, -y_3 - y_1 - y_2 - y_5 - y_4 - y_6 + 6\,y_7, y_5, 0, y_7, y_4, y_6, y_7]$$

$$p = -s^3 + s^8 \quad p' = -s^3 + s^8$$

1505 . Coloring, {2, 3, 4, 5, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, A, A, B, B, C, 1, 9]
B: [6, 7, 7, 6, A, 3, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_8, 0, y_7, 0, 0, 0, y_6, y_5, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_9, y_8, y_7, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

1506 . Coloring, {2, 3, 4, 5, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, A, C, C, 2, 1, 5]
B: [6, 7, 7, 6, A, 3, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_8, y_7, y_6, 0, y_5, 0, y_4, y_3, 0, y_2, 0, y_1]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_8, y_7, 0, y_6, y_5, 0, y_4, y_3, y_2, y_1]$$

1507 . Coloring, {2, 3, 4, 5, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, A, A, C, C, C, 4, 5]
B: [6, 7, 7, 6, A, 3, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_2, y_3, y_4, 0, y_1, y_6, 0, y_7, 0, y_5]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, 0, 2\,y_6, y_6, y_7, 0]$$

$p = -s^3 + s^8$

1508 . Coloring, {2, 3, 4, 5, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, A, C, C, C, 1, 9]
B: [6, 7, 7, 6, A, 3, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_1, 0, y_1, 0, 0, 0, -2\,y_1 + 2\,y_5, y_5, y_4, y_3, 0, y_2]$$

$p' = s^4 - s^6$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_6, y_4, y_5, y_3, y_1, y_2, 0, 0, y_7, y_8, 0]$$

1509 . Coloring, {2, 3, 4, 5, 7, 10, 11}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, A, A, C, B, 2, 4, 5]
B: [6, 7, 7, 6, A, 3, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_8, y_6, y_7, y_5, 0, y_4, y_3, 0, y_2, y_1, y_9]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[3\,y_3, 0, 3\,y_2, 0, 0, 3\,y_1, -3\,y_3 - 3\,y_2 - 3\,y_1 + 10\,y_6 + 10\,y_5 - 3\,y_4, 0, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_6 + 3\,y_5]$$

$p = -s^2 + s^7$ $p' = s^2 - s^7$

1510 . Coloring, {2, 3, 4, 5, 7, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^3 + 8s^5 - 8s^6 + 16s^7$ $p' = s^2 + 8s^4 - 8s^5 + 16s^6$ $p = s^2 - 8s^5 - 48s^6 + 64s^7 - 128s^8$

R: [7, 8, 8, 7, 3, A, A, C, B, 2, 1, 9]
B: [6, 7, 7, 6, A, 3, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, 0, y_4, y_9, y_5, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -3\,y_1 + 5\,y_2 - 3\,y_3 - 3\,y_4 + 5\,y_5 - 3\,y_6 + 5\,y_7, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 0, 0, 3\,y_5, 3\,y_6, 3\,y_7]$$

$$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$$

1511 . Coloring, {2, 3, 4, 5, 7, 11, 12}

Ωp(Δ)=0: $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, A, A, C, B, C, 4, 9]
B: [6, 7, 7, 6, A, 3, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_8, y_7, 0, 0, y_6, y_5, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_3, y_2, y_1, 0, y_9, y_8, y_7, 0, 0, y_6, y_5, y_4]$$

1512 . Coloring, {2, 3, 4, 5, 8, 9, 10}

Ωp(Δ)=0: $p = s^2 + 8s^5 - 48s^6 - 64s^7 - 128s^8$ $p' = s^2 + 8s^4 + 8s^5 + 16s^6$ $p' = s^3 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, 3, A, B, B, C, 2, 1, 5]
B: [6, 7, 7, 6, A, 3, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_6, y_7, 0, y_6, 0, y_5, y_4, 0, y_3, y_2, y_3]$$

$p' = s^5 - s^8$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_7, y_6, 0, y_5, y_4, 0, y_3, y_2, y_1, y_7 + y_6 - y_5 - y_4 + y_3 + y_2 - y_1]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1513 . Coloring, {2, 3, 4, 5, 8, 9, 11}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 8, 8, 7, 3, A, B, B, C, C, 4, 5]
B: [6, 7, 7, 6, A, 3, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_4, y_5, 0, y_2, y_3, 0, y_7, y_8, y_6]$$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, 0, y_6, y_7, y_8, y_9]$$

1514 . Coloring, {2, 3, 4, 5, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, A, B, B, C, C, 1, 9]
B: [6, 7, 7, 6, A, 3, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_5,\ 0,\ 3\,y_4,\ 0,\ 0,\ 0,\ 3\,y_3,\ 3\,y_2,\ 3\,y_1,\ 3\,y_4,\ -3\,y_5 + 7\,y_4 - 3\,y_3 - 3\,y_2 + 10\,y_1,\ 3\,y_4 + 3\,y_1]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0,\ y_2,\ y_1,\ y_7,\ y_7,\ y_6,\ y_5,\ 0,\ 0,\ y_4,\ y_3,\ y_3]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

1515 . Coloring, {2, 3, 4, 5, 8, 10, 11}

Ωp(Δ)=0: $p = s^3 - 16s^5 - 8s^6 + 16s^7 + 64s^8$ $p' = s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, A, B, B, B, 2, 4, 5]
B: [6, 7, 7, 6, A, 3, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_1,\ 2\,y_1 - 3\,y_6,\ y_2,\ 2\,y_6,\ 0,\ y_4,\ y_5,\ 0,\ y_6,\ y_3,\ 0]$$

$p = s^4 - s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[-y_2 + y_1 + y_4 - y_5 - y_3 + y_6, 0, y_2, 0, 0, y_1, y_4, 0, y_5, y_3, 0, y_6]$$

$p = -s^6 + s^7$

1516 . Coloring, {2, 3, 4, 5, 8, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^3 + 4s^4 + 8s^5 + 8s^6 + 16s^7$ $p = s^3 - 8s^5 - 24s^6 - 16s^7 - 64s^8$

R: [7, 8, 8, 7, 3, A, B, B, B, 2, 1, 9]
B: [6, 7, 7, 6, A, 3, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, y_2, y_5, 0, 0, 0, y_4, y_3, 2\,y_5, y_5, y_6, 0]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_4, y_5, y_1, y_2, 0, 0, y_6, 0, y_7]$$

1517 . Coloring, {2, 3, 4, 5, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, B, B, B, C, 4, 9]
B: [6, 7, 7, 6, A, 3, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_6, y_5, 0, 0, y_4, y_3, y_2, y_6, y_1, y_3]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6, y_1, y_2, 0, y_3, y_3, y_4, 0, 0, y_5, 0, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1518 . Coloring, {2, 3, 4, 5, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 8s^5 - 8s^6 - 16s^7$ $p' = s^3 - 8s^5 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, A, B, C, C, 2, 4, 5]
B: [6, 7, 7, 6, A, 3, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, -2y_1 + 5y_4 - 2y_5, 2y_1, 2y_4, 2y_2, 0, 2y_4, 2y_3, 0, 5y_4 - 2y_2 - 2y_3, 2y_4, 2y_5]$$

$p = -s^3 + s^4 - s^5 + s^6$ $p = -s^3 + s^7$ $p' = -s^4 + s^8$ $p' = -s^3 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, -y_1 + y_7 + y_6 - y_5 - y_4 + y_3 + y_2, 0, 0, y_7, y_6, 0, y_5, y_4, y_3, y_2]$$

$p = s - s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1519 . Coloring, {2, 3, 4, 5, 9, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^3 + 8s^6 + 16s^7$ $p = s^3 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, 3, A, B, C, C, 2, 1, 9]
B: [6, 7, 7, 6, A, 3, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[2\,y_3,\ 5\,y_3 - 2\,y_2 - 2\,y_4,\ 2\,y_2,\ 0,\ 0,\ 0,\ 2\,y_3,\ 5\,y_3 - 2\,y_2 - 2\,y_1,\ 2\,y_1,\ 2\,y_2,\ 2\,y_3,\ 2\,y_4]$$

$p' = -s^6 + s^7$ $p = s^4 - s^7$ $p' = s^4 - s^6$ $p' = s^5 - s^6$ $p' = -s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0,\ 0,\ y_5,\ y_4,\ y_3,\ y_2,\ y_1,\ 0,\ 0,\ y_7,\ y_6,\ y_8]$$

1520 . Coloring, {2, 3, 4, 5, 9, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, B, C, C, C, 4, 9]
B: [6, 7, 7, 6, A, 3, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0,\ 0,\ 5\,y_2 - 2\,y_3,\ 2\,y_2,\ 0,\ 0,\ 2\,y_2,\ -2\,y_1 + 2\,y_3,\ 2\,y_1,\ 5\,y_2 - 2\,y_3,\ 2\,y_2,\ 2\,y_3]$$

$p = -s^3 + s^5$ $p = -s^3 + s^6$ $p = -s^3 + s^7$ $p = -s^3 + s^8$ $p = -s^3 + s^4$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_7, y_4, y_5, 0, 0, y_6, y_7, 0]$$

$p = -s^5 + s^8$

1521 . Coloring, {2, 3, 4, 5, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^2 + 2s^3 + 8s^5 + 32s^7$ $p = -27s^2 + 56s^5 + 16s^6 + 256s^7 + 128s^8$ $p = 9s^2 + 2s^4 - 16s^5 - 80s^7 - 32s^8$

R: [7, 8, 8, 7, 3, A, B, C, B, 2, 4, 9]
B: [6, 7, 7, 6, A, 3, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, y_5, y_1, 0, 0, y_8, y_7, y_6, y_5, y_4, y_3]$$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_3, 0, y_2, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

1522 . Coloring, {2, 3, 4, 6, 7, 8, 9}

$\Omega p(\Delta)=0$: $p' = 3s^2 + 2s^3 + 8s^4 - 8s^5 - 32s^7$ $p = 3s^2 + 5s^3 + 10s^4 - 8s^6 - 32s^7 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, B, C, C, 1, 5]
B: [6, 7, 7, 6, 3, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_5, 0, y_4, 0, y_3, 0, y_2, y_1, 0, y_8, y_7, y_6]$$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_7, y_8, y_6, 0, y_5, y_4, 0, y_3, y_2, y_1, y_8]$$

$p = -s^3 + s^9$

1523 . Coloring, {2, 3, 4, 6, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, B, B, 2, 1, 5]
B: [6, 7, 7, 6, 3, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 2\,y_3, 0, y_5, y_4, 0, y_6, y_7, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7, y_8]$$

1524 . Coloring, {2, 3, 4, 6, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, B, B, C, 4, 5]
B: [6, 7, 7, 6, 3, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-y_1 - y_2 - y_3 - y_4 + 6\, y_7 - y_5 - y_6, y_1, y_2, 0, 0, y_3, y_4, 0, y_7, y_5, y_6, y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

1525 . Coloring, {2, 3, 4, 6, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, 3, A, B, B, C, 1, 9]
B: [6, 7, 7, 6, 3, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, 0, y_6, y_5, y_4, y_3, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_7, y_4, y_5, y_6, y_3, y_2, 0, 0, y_1, y_9, y_8]$$

1526 . Coloring, {2, 3, 4, 6, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, 3, A, C, C, 2, 1, 5]
B: [6, 7, 7, 6, 3, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[2 y_7, y_6, y_7, 0, y_5, 0, y_3, y_4, 0, y_2, 0, y_1]$$

$p = - s^3 + s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, 0, y_5, y_6, y_7, y_8]$$

1527 . Coloring, {2, 3, 4, 6, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, C, C, C, 4, 5]
B: [6, 7, 7, 6, 3, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, y_2, 2\,y_2, y_1, 0, -2\,y_2 + 2\,y_5, y_5, 0, y_4, 0, y_3]$$

$p' = -s^3 + s^6 \quad p = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_5, y_4, 0, 2\,y_3, y_6, y_7, 0]$$

$p = -s^2 + s^8$

1528 . Coloring, {2, 3, 4, 6, 7, 9, 12}

$\Omega p(\Delta)=0: \quad p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, 3, A, C, C, C, 1, 9]
B: [6, 7, 7, 6, 3, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_1, 0, y_1, 0, 0, 0, -2\,y_1 + 2\,y_4, y_4, y_5, y_3, 0, y_2]$$

$p' = s^4 - s^6 \quad p = s^4 - s^6$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_5, y_6, y_7, y_8, y_4, y_1, 0, 0, y_2, y_3, 0]$$

1529 . Coloring, {2, 3, 4, 6, 7, 10, 11}

$\Omega p(\Delta)=0: \quad p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8 \quad p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, 3, A, C, B, 2, 4, 5]
B: [6, 7, 7, 6, 3, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_8, y_6, y_7, y_5, 0, y_4, y_3, 0, y_2, y_6, y_1]$$

$p = s^4 - s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_2, 0, y_1, 0, 0, y_5, y_4, 0, y_3, y_8, y_7, y_6]$$

1530 . Coloring, {2, 3, 4, 6, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 8s^5 + 48s^6 + 128s^8$ $p' = s^2 - 8s^4 + 24s^5 - 16s^6 + 64s^7$ $p' = s^3 - 4s^4 + 8s^5 - 8s^6 + 16s^7$

R: [7, 8, 8, 7, A, 3, A, C, B, 2, 1, 9]
B: [6, 7, 7, 6, 3, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
5 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, 0, y_4, y_5, y_8, y_6, y_7, y_9]$$

Omega Rank for B : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_7, y_6, y_5, y_4, y_3, 0, 0, y_2, y_1, y_8]$$

1531 . Coloring, {2, 3, 4, 6, 7, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^5 - 32s^7$ $p = s^2 - 4s^4 - 8s^5 + 16s^6 - 32s^7 + 64s^8$

R: [7, 8, 8, 7, A, 3, A, C, B, C, 4, 9]
B: [6, 7, 7, 6, 3, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$[0, 0, y_7, y_8, 0, 0, y_3, y_4, y_5, y_6, y_2, y_1]$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$[y_4, y_1, y_2, 0, y_3, y_5, y_6, 0, 0, y_7, y_8, y_9]$

1532 . Coloring, {2, 3, 4, 6, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = s^2 + s^3 + 24s^6 - 16s^7 + 64s^8$ $p' = -s^2 + 8s^4 + 24s^5 + 16s^6 + 64s^7$ $p' = s^2 + 2s^3 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, 3, B, B, C, 2, 1, 5]
B: [6, 7, 7, 6, 3, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_5, y_6, y_8, 0, y_1, 0, y_2, y_3, 0, y_4, y_7, y_8]$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_7, y_6, 0, y_5, y_4, 0, y_3, y_1, y_2, y_7 + y_6 - y_5 - y_4 + y_3 + y_1 - y_2]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1533 . Coloring, {2, 3, 4, 6, 8, 9, 11}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^5 + 32s^7$ $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$

R: [7, 8, 8, 7, A, 3, B, B, C, C, 4, 5]
B: [6, 7, 7, 6, 3, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, y_3, y_2, y_1, 0, 5\,y_1 - y_4 + 4\,y_3 + 4\,y_2 - 6\,y_5, y_4, 0, -2\,y_3 - 2\,y_2 - 4\,y_1 + 5\,y_5, y_5, 6\,y_1 + 5\,y_3 + 5\,y_2 - 8\,y_5]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_8, 0, 0, y_3, y_4, 0, y_5, y_6, y_7, y_8]$$

$p = -s^6 + s^9$

1534 . Coloring, {2, 3, 4, 6, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, 3, B, B, C, C, 1, 9]
B: [6, 7, 7, 6, 3, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_1,\ 0,\ 3\,y_3,\ 0,\ 0,\ 0,\ -3\,y_1 - 3\,y_5 + 7\,y_3 - 3\,y_2 + 10\,y_4,\ 3\,y_5,\ 3\,y_4,\ 3\,y_3,\ 3\,y_2,\ 3\,y_4 + 3\,y_3]$$

$p' = s^4 - s^7$ $p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0,\ y_6,\ y_5,\ y_4,\ y_4,\ y_3,\ y_2,\ 0,\ 0,\ y_1,\ -y_5 + y_3,\ -y_5 + y_3]$$

$p' = -s^5 + s^8$ $p' = -s^4 + s^7$ $p = s^4 - s^7$

» SYNC'D !RANK'D

1535 . Coloring, {2, 3, 4, 6, 8, 10, 11}

Ωp(Δ)=0: $p = s^3 - 8s^6 - 16s^7$ $p' = s^3 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, A, 3, B, B, B, 2, 4, 5]
B: [6, 7, 7, 6, 3, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	4 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_3,\ y_2,\ y_1,\ 2\,y_2,\ 0,\ y_7,\ y_6,\ 0,\ y_5,\ y_4,\ 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_4,\ 0,\ y_4,\ 0,\ 0,\ -2\,y_4 + 2\,y_3,\ y_3,\ 0,\ y_2,\ y_1,\ 0,\ 5\,y_4 - 3\,y_3 + y_2 + y_1]$$

$p' = -s^4 + s^6$ $p' = -s^4 + s^5$ $p = s^4 - s^5$

1536 . Coloring, {2, 3, 4, 6, 8, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^3 + 8s^5 + 8s^6 + 16s^7$ $p = s^3 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, A, 3, B, B, B, 2, 1, 9]
B: [6, 7, 7, 6, 3, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$[y_1, y_2, y_5, 0, 0, 0, y_3, y_4, 2\,y_5, y_5, y_6, 0]$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$[0, 0, y_1, y_6, y_7, y_5, y_4, 0, 0, y_3, 0, y_2]$

1537 . Coloring, {2, 3, 4, 6, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, 3, B, B, B, C, 4, 9]
B: [6, 7, 7, 6, 3, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_2, y_6, 0, 0, y_5, y_4, y_3, y_2, y_1, y_4]$$

$p' = s^4 - s^7 \quad p = s^4 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_4, y_5, y_6, 0, y_2, y_2, y_3, 0, 0, y_1, 0, y_4]$$

$p = -s^4 + s^7 \quad p' = -s^4 + s^7$

1538 . Coloring, {2, 3, 4, 6, 9, 10, 11}

$\Omega p(\Delta)=0: \quad p = 3s^3 + s^4 + 4s^5 + 8s^7 - 16s^8 \quad p = -9s^3 - 8s^5 + 8s^6 - 16s^7 + 64s^8$

R: [7, 8, 8, 7, A, 3, B, C, C, 2, 4, 5]
B: [6, 7, 7, 6, 3, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}, {4, 7, 11}}

See Matrix

$$[0, y_1, -y_1 + 5y_6 - y_2 - y_3 - y_4 - y_5, y_6, y_2, 0, y_6, y_3, 0, y_4, y_6, y_5]$$

$p' = s^2 - s^7 \quad p' = s^3 - s^8 \quad p = s^2 - s^7$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_7, 0, y_4, 0, 0, y_5, y_6, 0, -y_7 - y_4 + y_5 + y_6 - y_1 + y_2 + y_3, y_1, y_2, y_3]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1539 . Coloring, {2, 3, 4, 6, 9, 10, 12}

$\Omega p(\Delta)=0: \quad p = 9s^3 - 16s^5 - 24s^6 - 16s^7 + 64s^8 \quad p' = 3s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, A, 3, B, C, C, 2, 1, 9]
B: [6, 7, 7, 6, 3, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[2\,y_2, 2\,y_3, 2\,y_4, 0, 0, 0, 2\,y_2, 5\,y_2 - 2\,y_4 - 2\,y_1, 2\,y_1, 2\,y_4, 2\,y_2, 5\,y_2 - 2\,y_3 - 2\,y_4]$$

$p' = -s^5 + s^7$ $p' = -s^5 + s^8$ $p' = s^4 - s^5$ $p' = -s^5 + s^6$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_2, y_1, y_3, y_7, y_8, 0, 0, y_6, y_5, y_4]$$

1540 . Coloring, {2, 3, 4, 6, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, B, C, C, C, 4, 9]
B: [6, 7, 7, 6, 3, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	3 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 2\,y_3, 2\,y_2, 0, 0, 2\,y_2, -2\,y_1 - 2\,y_3 + 5\,y_2, 2\,y_1, 2\,y_3, 2\,y_2, -2\,y_3 + 5\,y_2]$$

$p' = -s^6 + s^7$ $p' = s^3 - s^6$ $p' = s^5 - s^6$ $p' = s^4 - s^6$ $p = s^3 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_3, y_1, 0, 2\,y_2 - 2\,y_1, y_5, y_6, 0, 0, y_4, 2\,y_2 - 2\,y_1, 0]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

1541 . Coloring, {2, 3, 4, 6, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 - 8s^4 - 8s^5 - 16s^6$ $p' = s^3 - 8s^5 - 8s^6 - 16s^7$ $p = s^2 - 8s^5 - 80s^6 - 64s^7 - 128s^8$

R: [7, 8, 8, 7, A, 3, B, C, B, 2, 4, 9]
B: [6, 7, 7, 6, 3, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, y_1, y_6, y_5, 0, 0, y_4, y_3, y_2, y_6, y_8, y_7]$

$p = s^6 - s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$[y_3, 0, y_2, 0, y_1, y_8, y_7, 0, 0, y_5, y_6, y_4]$

1542 . Coloring, {2, 3, 4, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, A, B, C, 2, 1, 5]
B: [6, 7, 7, 6, 3, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_5, y_4, 0, 0, y_3, 0, y_2, y_1, 0, y_8, y_7, y_6]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_7, y_6, 0, y_5, y_4, 0, y_3, 0, y_2, y_1]$$

1543 . Coloring, {2, 3, 4, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, A, B, C, C, 4, 5]
B: [6, 7, 7, 6, 3, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, 0, y_3, y_7, 0, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 2\,y_7, y_2, 0, 0, y_3, y_4, 0, y_5, 0, y_6, y_7]$$

$p = s^3 - s^8$

1544 . Coloring, {2, 3, 4, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, A, B, C, C, 1, 9]
B: [6, 7, 7, 6, 3, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 2\,y_7, y_5, y_4, y_1, y_2, y_3, 0, 0, 0, y_6, y_7]$$

$p = -s^3 + s^8$

1545 . Coloring, {2, 3, 4, 7, 8, 10, 11}

Ωp(Δ)=0: $p = s^2 + 4s^4 + 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, A, A, B, B, 2, 4, 5]
B: [6, 7, 7, 6, 3, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	2 *vs* 7

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_6, 0, y_5, y_4, 0, y_3, y_2, 0, y_1, -y_6 + y_5 - y_4 - y_3 + y_2 + y_1, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[y_2, 0, y_2, 0, 0, y_2, y_2, 0, 3\,y_2 - y_1, 0, y_2, y_1]$$

$p' = -s^2 + s^6$ $p = s - s^3$ $p' = s - s^3$ $p' = -s^2 + s^4$ $p' = -s^3 + s^5$

1546 . Coloring, {2, 3, 4, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 - 8s^5 - 32s^7$ $p = s^2 - 4s^4 - 8s^5 - 16s^6 - 32s^7 - 64s^8$

R: [7, 8, 8, 7, A, A, A, B, B, 2, 1, 9]
B: [6, 7, 7, 6, 3, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$[y_6, y_5, 0, 0, 0, 0, y_4, y_3, y_2, y_1, y_7, 0]$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$[0, 0, y_7, y_6, y_5, y_4, y_3, 0, 0, 0, y_2, y_1]$

1547 . Coloring, {2, 3, 4, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^5 + 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 8, 8, 7, A, A, A, B, B, C, 4, 9]
B: [6, 7, 7, 6, 3, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$[0, 0, 0, y_7, 0, 0, y_5, y_6, y_2, y_3, y_4, y_1]$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_7, y_6, y_4, 0, y_1, y_2, y_3, 0, 0, 0, y_5, y_6]$$

$p = -s^3 + s^8$

1548 . Coloring, {2, 3, 4, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$

R: [7, 8, 8, 7, A, A, A, C, C, 2, 4, 5]
B: [6, 7, 7, 6, 3, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_7, 0, y_6, y_5, 0, y_4, y_3, 0, y_2, 0, y_1]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_3, 0, y_2, 0, 0, y_1, y_7, 0, y_6, 0, y_5, y_4]$$

1549 . Coloring, {2, 3, 4, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, A, A, C, C, 2, 1, 9]
B: [6, 7, 7, 6, 3, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, 0, 0, y_7, y_3, y_6, y_5, 0, y_4]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_5, y_4, y_3, y_2, 0, 0, 0, y_7, y_6]$$

1550 . Coloring, {2, 3, 4, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, A, A, C, C, C, 4, 9]
B: [6, 7, 7, 6, 3, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 6	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 0, y_5, 0, 0, y_4, y_5, y_3, y_2, 0, y_1]$$

$p = s^4 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_3, y_4, 0, y_3, y_2, y_6, 0, 0, 0, y_5, 0]$$

$p = -s^2 + s^7$

1551 . Coloring, {2, 3, 4, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, A, C, B, 2, 4, 9]
B: [6, 7, 7, 6, 3, 3, B, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_7, 0, y_8, 0, 0, y_1, y_2, y_3, y_4, y_5, y_6]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_4, 0, y_5, 0, y_6, y_7, y_1, 0, 0, 0, y_2, y_3]$$

1552 . Coloring, {2, 3, 4, 8, 9, 10, 11}

Ωp(Δ)=0: $p = s^3 - 8s^5 - 24s^6 - 16s^7 - 64s^8$ $p' = s^3 + 4s^4 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, A, A, B, B, C, 2, 4, 5]
B: [6, 7, 7, 6, 3, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_7, 0, y_5, y_6, 0, y_4, y_3, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[-y_1 + y_2 + y_3 - y_7 - y_4 + y_5 + y_6, 0, y_1, 0, 0, y_2, y_3, 0, y_7, y_4, y_5, y_6]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1553 . Coloring, {2, 3, 4, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 16s^5 - 8s^6 + 16s^7 + 64s^8$ $p' = s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, A, A, B, B, C, 2, 1, 9]
B: [6, 7, 7, 6, 3, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3 y_1 - 3 y_2 - 3 y_3 + 13 y_4 - 3 y_5 - 3 y_6 + 13 y_7, 3 y_1, 0, 0, 0, 0, 3 y_2, 3 y_3, 3 y_4, 3 y_5, 3 y_6, 3 y_7]$$

$p = - s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_8, y_7, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

1554 . Coloring, {2, 3, 4, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, B, B, C, C, 4, 9]
B: [6, 7, 7, 6, 3, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, 2 y_4, 0, 0, 2 y_5, 7 y_4 + 7 y_5 - 9 y_1 + 7 y_2 - 9 y_3, 2 y_1, 7 y_4 + 7 y_5 - 9 y_1 + 7 y_2 - 9 y_3, 2 y_2, 2 y_3]$$

$p = - s^2 - s^3 + s^5 + s^6$ $p' = - s^2 - s^3 + s^5 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_4, y_5, 0, y_3, y_1, y_2, 0, 0, y_6, y_7, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

1555 . Coloring, {2, 3, 4, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 8s^5 - 48s^6 - 64s^7 - 128s^8$ $p' = s^2 + 8s^4 + 8s^5 + 16s^6$ $p' = s^3 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, A, A, B, B, B, 2, 4, 9]
B: [6, 7, 7, 6, 3, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_3, 0, y_2, 0, 0, y_1, y_6, y_5, y_5, y_4, 0]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_7, 0, y_5, y_6, y_4, 0, 0, y_3, 0, y_2]$$

1556 . Coloring, {2, 3, 4, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 9s^2 + 2s^4 - 16s^6 + 16s^7 - 96s^8$ $p = -6s^2 + s^3 + 8s^6 - 16s^7 + 64s^8$ $p = -27s^2 + 8s^5 + 48s^6 - 64s^7 + 256s^8$

R: [7, 8, 8, 7, A, A, B, C, C, 2, 4, 9]
B: [6, 7, 7, 6, 3, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
5 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, 0, y_2, -y_1 - y_3 - y_4 + 5\, y_2 - y_5, y_3, y_4, y_2, y_5]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$ $p = -s^4 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_5, 0, y_4, 0, y_6, y_7, y_8, 0, 0, y_2, y_1, y_3]$$

1557 . Coloring, {2, 3, 5, 6, 7, 8, 9}

R: [7, 8, 8, 6, 3, 3, A, B, C, C, 1, 5]
B: [6, 7, 7, 7, A, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_7, 0, y_2, y_3, y_4, y_5, 0, y_6, y_9, y_8]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_3, 0, y_6, y_1, 0, y_4, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1558 . Coloring, {2, 3, 5, 6, 7, 8, 10}

Ωp(Δ)=0: $p = 6s^2 + s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, A, B, B, 2, 1, 5]
B: [6, 7, 7, 7, A, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_8, y_6, y_7, 0, 2\,y_5, y_5, y_4, y_3, 0, y_2, y_1, 0]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 0, 7\,y_2, 0, 9\,y_2 + 9\,y_1 - 7\,y_3 - 7\,y_4 + 9\,y_5 - 7\,y_6, 7\,y_1, 0, 7\,y_3, 7\,y_4, 7\,y_5, 7\,y_6]$$

$p = s^3 + s^4 - s^6 - s^7$

1559 . Coloring, {2, 3, 5, 6, 7, 8, 11}

Ωp(Δ)=0: $p = -6s^2 + s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, B, B, C, 4, 5]
B: [6, 7, 7, 7, A, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[y_1, -y_1 + 2\,y_3, 0, 0, 0, -y_4 + 2\,y_3, y_4, 0, y_3, y_2, 2\,y_3 - y_2, y_3]$$

$p' = -s + s^7$ $p' = -s^2 + s^3 - s^5 + s^6$ $p' = s - s^2 + s^4 - s^5$ $p = s - s^3 + s^4 - s^6$

1560 . Coloring, {2, 3, 5, 6, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, B, B, C, 1, 9]
B: [6, 7, 7, 7, A, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_3, 0, y_2, 0, 0, y_1, y_9, y_8, y_7, y_6, y_5, y_4]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_7, 0, y_5, y_6, y_4, y_3, 0, 0, y_1, y_2, 2\,y_4]$$

$p = s^5 - s^8$

1561 . Coloring, {2, 3, 5, 6, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, C, C, 2, 1, 5]
B: [6, 7, 7, 7, A, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	8 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[2\,y_4, y_2, y_1, 0, y_3, y_4, y_6, y_5, 0, y_7, 0, y_8]$$

$p = -s^5 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_7, 0, y_6, y_5, 0, y_4, y_3, y_2, y_1]$$

1562 . Coloring, {2, 3, 5, 6, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, C, C, C, 4, 5]
B: [6, 7, 7, 7, A, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_2, 2\,y_3, y_1, -3\,y_3 + 2\,y_5, y_3, y_4, 0, y_5, 0, y_6]$$

$p = s^3 - s^7$ $p' = -s^3 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_4, y_3, 0, 0, 0, y_2, y_1, 0, y_7, y_6, y_5, 0]$$

1563 . Coloring, {2, 3, 5, 6, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, A, C, C, C, 1, 9]
B: [6, 7, 7, 7, A, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[-6\,y_3 + 8\,y_4 - 4\,y_1,\ 0,\ -4\,y_3 + 6\,y_4 - 3\,y_1,\ 0,\ 0,\ -3\,y_3 + 4\,y_4 - 2\,y_1,\ y_3,\ y_4,\ y_5,\ y_1,\ 0,\ y_2]$$

$p = s^4 - s^6$ $p' = -s^5 + s^7$ $p' = s^4 - s^6$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ y_6,\ 0,\ y_5,\ 2\,y_4,\ y_4,\ y_3,\ 0,\ 0,\ y_2,\ y_1,\ 0]$$

$p = s^4 - s^7$

1564 . Coloring, {2, 3, 5, 6, 7, 10, 11}

R: [7, 8, 8, 6, 3, 3, A, C, B, 2, 4, 5]
B: [6, 7, 7, 7, A, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 10	7 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0,\ y_2 + y_6,\ y_1 - y_6 + y_3 - y_5,\ y_4,\ y_1,\ y_2,\ y_6,\ y_3,\ 0,\ y_4,\ y_6,\ y_5]$$

$p = s^4 - s^5 + s^6 - s^7$ $p = -s^4 + s^8$ $p' = -s^4 + s^8$ $p = s^4 - s^5 - s^7 + s^{10}$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_7,\ 0,\ 0,\ 0,\ 0,\ y_6,\ y_5,\ 0,\ y_4,\ y_3,\ y_2,\ y_1]$$

1565 . Coloring, {2, 3, 5, 6, 7, 10, 12}

R: [7, 8, 8, 6, 3, 3, A, C, B, 2, 1, 9]
B: [6, 7, 7, 7, A, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	4 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_2, -y_1 + y_3, y_1, y_4, 0, 0, y_2, y_3, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = s^3 - s^6$

1566 . Coloring, {2, 3, 5, 6, 7, 11, 12}

R: [7, 8, 8, 6, 3, 3, A, C, B, C, 4, 9]
B: [6, 7, 7, 7, A, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_9, y_8, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_1 - y_7 - y_6 + y_5 + y_4 - y_3 + y_2, 0, 0, y_7, y_6, y_5, 0, 0, y_4, y_3, y_2]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1567 . Coloring, {2, 3, 5, 6, 8, 9, 10}

R: [7, 8, 8, 6, 3, 3, B, B, C, 2, 1, 5]
B: [6, 7, 7, 7, A, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, 2\,y_4, y_6, 0, y_5, y_4, y_3, y_2, 0, 0, y_1, y_4]$$

$p' = -s^5 + s^8$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1 + y_2 - y_6 - y_3 + y_4 + y_5, 0, y_1, y_2, 0, y_6, y_3, y_4, y_5]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

1568 . Coloring, {2, 3, 5, 6, 8, 9, 11}

R: [7, 8, 8, 6, 3, 3, B, B, C, C, 4, 5]
B: [6, 7, 7, 7, A, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, 0, y_7, 3\, y_5]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_8, y_7, 0, y_3, y_4, y_5, y_6]$$

1569 . Coloring, {2, 3, 5, 6, 8, 9, 12}

R: [7, 8, 8, 6, 3, 3, B, B, C, C, 1, 9]
B: [6, 7, 7, 7, A, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	5 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-5\, y_1 - 5\, y_2 - 5\, y_7 - 5\, y_3 + 11\, y_4 - 5\, y_5 + 11\, y_6, 0, 5\, y_1, 0, 0, 5\, y_2, 5\, y_7, 5\, y_3, 5\, y_4, 0, 5\, y_5, 5\, y_6]$$

$p = s^4 + s^5 - s^7 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, 0, y_5, y_5, y_4, y_3, 0, 0, y_2, y_4, y_4]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$ $p' = s^4 - s^7$

1570 . Coloring, {2, 3, 5, 6, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 + s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, B, B, B, 2, 4, 5]
B: [6, 7, 7, 7, A, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 8	4 *vs* 6

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 2\,y_3, y_1, y_2, 2\,y_3, y_4, y_3, y_5, 0, 0, y_6, 0]$$

$p = s^2 - s^7$ $p' = s^2 - s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[-2\,y_1 + 2\,y_2 + 2\,y_3 - 2\,y_4, 0, 0, 0, 0, y_1, -3\,y_1 + 3\,y_2 + 3\,y_3 - 3\,y_4, 0, y_2, y_3, 0, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$

» SYNC'D !RANK'D

1571 . Coloring, {2, 3, 5, 6, 8, 10, 12}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, B, B, B, 2, 1, 9]
B: [6, 7, 7, 7, A, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 8	5 *vs* 6

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_3, y_2, 0, 0, y_3, y_4, y_5, 2\,y_3, 0, y_6, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_2, y_3, y_2, y_1, 0, 0, y_5, 0, y_4]$$

$p = s^3 - s^6$

» SYNC'D !RANK'D

1572 . Coloring, {2, 3, 5, 6, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, B, B, B, C, 4, 9]
B: [6, 7, 7, 7, A, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_3, y_2, 0, y_1, y_4, y_6, y_5, 0, y_7, 2\,y_4]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[2\,y_2 - 2\,y_5, y_1, 0, 0, y_2, y_5, y_4, 0, 0, y_3, 0, 2\,y_2 - 2\,y_5]$$

$p' = -s^3 + s^6$ $p = s^3 - s^6$

1573 . Coloring, {2, 3, 5, 6, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = 2s^2 - 7s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, B, C, C, 2, 4, 5]
B: [6, 7, 7, 7, A, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 2\,y_3, y_6, y_5, y_1, y_2, y_3, y_4, 0, 0, y_7, y_8]$$

$p = -s^5 + s^9$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_2, 0, 0, 0, 0, y_1, y_2 - y_1 + y_6 + y_5 - y_4 - y_3, 0, y_6, y_5, y_4, y_3]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

1574 . Coloring, {2, 3, 5, 6, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, B, C, C, 2, 1, 9]
B: [6, 7, 7, 7, A, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[5\,y_1, 10\,y_2, 11\,y_1 - 15\,y_2 + 11\,y_3 - 5\,y_4 - 5\,y_5 + 11\,y_6 - 5\,y_7, 0, 0, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 0, 5\,y_6, 5\,y_7]$$

$p' = -s^4 - s^5 + s^7 + s^8$ $p = s^4 + s^5 - s^7 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_5, y_6, y_4, y_3, 0, 0, y_2, 2\,y_4, y_1]$$

$p = s^4 - s^7$

1575 . Coloring, {2, 3, 5, 6, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, B, C, C, C, 4, 9]
B: [6, 7, 7, 7, A, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	8 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$[0, 0, y_1, y_8, 0, y_7, y_6, y_5, y_4, 0, y_2, y_3]$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$[y_1, y_2, 0, 0, y_6, y_4, y_3, 0, 0, y_5, y_6, 0]$

$p = -s^4 + s^7$

1576 . Coloring, {2, 3, 5, 6, 10, 11, 12}

R: [7, 8, 8, 6, 3, 3, B, C, B, 2, 4, 9]
B: [6, 7, 7, 7, A, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$[0, 2\,y_5, y_8, y_6, 0, y_7, y_5, y_4, y_3, 0, y_1, y_2]$

$p = -s^2 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, 3\,y_5, 0, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

1577 . Coloring, {2, 3, 5, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, A, B, C, 2, 1, 5]
B: [6, 7, 7, 7, A, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	9 *vs* 10	6 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_3, y_2, y_1, 0, y_9, y_8, y_7, y_6, 0, y_5, y_4, y_8]$$

$p = s^4 - s^{10}$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, -2\,y_4 + y_2, y_1, 0, y_4, y_6, 0, y_5, y_4, y_3, y_2]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

» SYNC'D !RANK'D

1578 . Coloring, {2, 3, 5, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, A, B, C, C, 4, 5]
B: [6, 7, 7, 7, A, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 10	9 *vs* 10	9 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_5, y_4, y_1, y_2, y_3, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_6, y_7, 0, 0, y_4, y_5, 0, y_6, y_3, y_2, y_3]$$

$p' = -s^3 + s^8$ $p = -s^3 + s^8$

1579 . Coloring, {2, 3, 5, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 7s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, A, B, C, C, 1, 9]
B: [6, 7, 7, 7, A, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_5, 0, 0, y_5, y_4, y_2, y_3, y_8, y_6, y_7]$$

$p = s^7 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_3 - y_7, y_2, y_3, y_7, y_4, 0, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

1580 . Coloring, {2, 3, 5, 7, 8, 10, 11}

R: [7, 8, 8, 6, 3, A, A, B, B, 2, 4, 5]
B: [6, 7, 7, 7, A, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_4, 2\,y_5, y_3, y_5, y_7, 0, y_6, y_8, 0]$$

$p = s^3 - s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[-7\,y_1 - 7\,y_2 - 7\,y_3 + 9\,y_4 + 9\,y_5 - 7\,y_6 + 9\,y_7, 0, 7\,y_1, 0, 0, 7\,y_2, 7\,y_3, 0, 7\,y_4, 7\,y_5, 7\,y_6, 7\,y_7]$$

$p = -s^2 - s^3 + s^7 + s^8$

1581 . Coloring, {2, 3, 5, 7, 8, 10, 12}

R: [7, 8, 8, 6, 3, A, A, B, B, 2, 1, 9]
B: [6, 7, 7, 7, A, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_3, y_5, y_4, 2\,y_3, y_7, y_6, 0]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_5 + 3\,y_4, 0, 0, 3\,y_1, 3\,y_5 + 3\,y_4 - 3\,y_2, 7\,y_5 + 7\,y_4 - 3\,y_3 - 3\,y_1]$$

$p = s^3 - s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

1582 . Coloring, {2, 3, 5, 7, 8, 11, 12}

R: [7, 8, 8, 6, 3, A, A, B, B, C, 4, 9]
B: [6, 7, 7, 7, A, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_1, 0, y_2, y_3, y_4, y_5, y_8, y_6, y_7]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_3, y_2, y_1, 0, y_9, y_8, y_7, 0, 0, y_6, y_5, y_4]$$

1583 . Coloring, {2, 3, 5, 7, 9, 10, 11}

R: [7, 8, 8, 6, 3, A, A, C, C, 2, 4, 5]
B: [6, 7, 7, 7, A, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_1, y_2, 2\,y_4, y_6, y_3, y_4, y_5, 0, y_8, 0, y_7]$$

$p = -s^5 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, 0, y_4, y_3, 0, y_8, y_7, y_6, y_5]$$

1584 . Coloring, {2, 3, 5, 7, 9, 10, 12}

R: [7, 8, 8, 6, 3, A, A, C, C, 2, 1, 9]
B: [6, 7, 7, 7, A, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_6, y_7, y_6, 0, 0, y_6, y_5, y_4, y_3, y_2, 0, y_1]$$

$p' = s^6 - s^8$ $p = s^6 - s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, -3\,y_5 - 7\,y_3 + 14\,y_2 + 8\,y_1, 3\,y_5, -5\,y_3 + 7\,y_2 + 7\,y_1, 3\,y_4, 3\,y_3, 0, 0, 3\,y_2, -3\,y_4 - 7\,y_3 + 8\,y_2 + 14\,y_1, 3\,y_1]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

1585 . Coloring, {2, 3, 5, 7, 9, 11, 12}

R: [7, 8, 8, 6, 3, A, A, C, C, C, 4, 9]
B: [6, 7, 7, 7, A, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_5, 2\,y_5, 0, -3\,y_5 + 2\,y_4, y_5, y_4, y_3, y_2, 0, y_1]$$

$p' = s^5 - s^7$ $p' = s^4 - s^6$ $p = s^4 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, 0, 0, y_7, y_8, 0]$$

1586 . Coloring, {2, 3, 5, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -2s^2 - s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, A, C, B, 2, 4, 9]
B: [6, 7, 7, 7, A, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_9, y_7, y_8, 0, y_6, y_7, y_5, y_3, y_4, y_2, y_1]$$

$p = -s^2 + s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[3\,y_2, 0, -3\,y_2 + 5\,y_1 - 3\,y_7 - 3\,y_6 + 5\,y_5 - 3\,y_3 + 5\,y_4, 0, 3\,y_1, 3\,y_7, 3\,y_6, 0, 0, 3\,y_5, 3\,y_3, 3\,y_4]$$

$p = s + s^2 + s^3 - s^6 - s^7 - s^8$

1587 . Coloring, {2, 3, 5, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, B, B, C, 2, 4, 5]
B: [6, 7, 7, 7, A, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_7, y_8, y_6, y_5, y_3, y_4, y_2, 0, y_1, -y_7 - y_8 + y_6 + y_5 - y_3 + y_2 + y_1, y_4]$$

$p = s^4 - s^{10}$ $p' = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[-y_3 + y_1 + y_2 - y_4 - y_5 + y_6 + y_7, 0, y_3, 0, 0, y_1, y_2, 0, y_4, y_5, y_6, y_7]$$

$p = - s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1588 . Coloring, {2, 3, 5, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, B, B, C, 2, 1, 9]
B: [6, 7, 7, 7, A, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 10	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, -3\,y_1 - 6\,y_8 - 3\,y_7 - 3\,y_6 + 13\,y_5 - 3\,y_4 - 3\,y_3 + 13\,y_2, 3\,y_8, 0, 0, 3\,y_8, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2]$$

$p' = s^5 + s^6 - s^8 - s^9 \quad p = s^5 - s^7 - s^8 + s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_2, y_2 + y_6, y_1, y_6, y_5, 0, 0, y_4, y_6, y_3]$$

$p' = -s^4 + s^7 \quad p = s^4 - s^7$

» SYNC'D !RANK'D

1589 . Coloring, {2, 3, 5, 8, 9, 11, 12}

$\Omega p(\Delta)=0: \quad p = -2s^2 + 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, B, B, C, C, 4, 9]
B: [6, 7, 7, 7, A, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_3, y_2, 0, y_1, y_3, -y_2 + y_1 - y_7 - y_6 + y_5 + y_4, y_7, y_6, y_5, y_4]$$

$p' = s^7 - s^8 \quad p = s^7 - s^9$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_1, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_7]$$

$p = -s^5 + s^8 \quad p' = -s^5 + s^8$

» SYNC'D !RANK'D

1590 . Coloring, {2, 3, 5, 8, 10, 11, 12}

R: [7, 8, 8, 6, 3, A, B, B, B, 2, 4, 9]
B: [6, 7, 7, 7, A, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_6, y_5, y_4, 0, y_3, y_5, y_2, 2\,y_5, y_1, -y_6 + 2\,y_5 + y_4 - y_3 + y_2 + y_1, 0]$$

$p' = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p' = s^2 - s^8$ $p = s^2 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_7, 0, y_6, y_5, y_4, 0, 0, y_3, 0, y_2]$$

1591 . Coloring, {2, 3, 5, 9, 10, 11, 12}

R: [7, 8, 8, 6, 3, A, B, C, C, 2, 4, 9]
B: [6, 7, 7, 7, A, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_1 - y_2 + y_4 + y_5 + y_6 - y_7 - y_8, y_3, y_1, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^8 + s^9$ $p = -s^8 + s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

1592 . Coloring, {2, 3, 6, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = 9s^3 - 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, A, B, C, 2, 1, 5]
B: [6, 7, 7, 7, 3, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_4 - y_8, 0, y_4, y_8, y_3, y_7, 0, y_5, y_6, y_8]$$

$p' = s^3 - s^9$ $p = s^3 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_7, y_6, 0, y_7, y_5, 0, y_4, y_3, y_2, y_1]$$

$p = -s^5 + s^8$

1593 . Coloring, {2, 3, 6, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 9s^3 + 2s^4 + 16s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, B, C, C, 4, 5]
B: [6, 7, 7, 7, 3, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}, {3, 4, 6, 8, 11}}

See Matrix

$$[0, 0, -3\,y_6 - 3\,y_5 - 3\,y_2 - 3\,y_1 + 7\,y_4 + 7\,y_3, 3\,y_6, 3\,y_4, 3\,y_5, 3\,y_3, 3\,y_2, 0, 3\,y_4 + 3\,y_3, 3\,y_1, 3\,y_4 + 3\,y_3]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_1 - 2\,y_2 - y_7 + y_6 + y_5 + y_4 - y_3, y_2, 0, 0, y_7, y_6, 0, y_5, y_4, y_3, y_2]$$

$p = -s^3 + s^9$ $p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1594 . Coloring, {2, 3, 6, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 + 5s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, A, B, C, C, 1, 9]
B: [6, 7, 7, 7, 3, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[y_9, 0, y_8, 0, 0, y_7, y_6, y_4, y_5, y_3, y_1, y_2]$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_5, y_6, y_4, -y_5 + y_6 + 3\,y_3, y_3, y_2, 0, 0, -y_5 + y_6 + 2\,y_3, y_1, y_3]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$ $p' = -s^5 + s^8$

1595 . Coloring, {2, 3, 6, 7, 8, 10, 11}

R: [7, 8, 8, 6, A, 3, A, B, B, 2, 4, 5]
B: [6, 7, 7, 7, 3, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_7, 2\,y_6, y_8, y_6, y_5, 0, y_4, y_3, 0]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_1 - y_5 + y_4 + y_3 + y_2 - y_7 - y_6, 0, 0, y_5, y_4, 0, y_3, y_2, y_7, y_6]$$

$p = s^7 - s^8$

1596 . Coloring, {2, 3, 6, 7, 8, 10, 12}

R: [7, 8, 8, 6, A, 3, A, B, B, 2, 1, 9]
B: [6, 7, 7, 7, 3, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, 2\,y_4, y_7, y_8, 0]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_4, y_3, y_2, y_1, y_8, 0, 0, y_7, y_6, y_5]$$

1597 . Coloring, {2, 3, 6, 7, 8, 11, 12}

R: [7, 8, 8, 6, A, 3, A, B, B, C, 4, 9]
B: [6, 7, 7, 7, 3, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_4, 0, y_2, y_3, y_7, y_5, y_6, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_2, y_2 - y_1 + y_8 - y_6 + y_7 + y_3 - y_4 - y_5, y_1, 0, y_8, y_6, y_7, 0, 0, y_3, y_4, y_5]$$

$$p = - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$$

1598 . Coloring, {2, 3, 6, 7, 9, 10, 11}

R: [7, 8, 8, 6, A, 3, A, C, C, 2, 4, 5]
B: [6, 7, 7, 7, 3, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_4, y_5, 2\,y_2, y_6, y_1, y_2, y_3, 0, y_7, 0, y_8]$$

$$p = - s^4 + s^9$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_1 - y_7 + y_6 + y_5 + y_4 - y_3 - y_2, 0, 0, y_7, y_6, 0, y_5, y_4, y_3, y_2]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1599 . Coloring, {2, 3, 6, 7, 9, 10, 12}

R: [7, 8, 8, 6, A, 3, A, C, C, 2, 1, 9]
B: [6, 7, 7, 7, 3, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[4 y_2 - 2 y_3, y_1, y_2, 0, 0, 2 y_2 - y_3, y_3, y_7, y_4, y_5, 0, y_6]$$

$p = -s^6 + s^8$ $p' = -s^6 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_4, y_5, y_3, y_1, y_2, 0, 0, y_8, y_7, y_6]$$

1600 . Coloring, {2, 3, 6, 7, 9, 11, 12}

R: [7, 8, 8, 6, A, 3, A, C, C, C, 4, 9]
B: [6, 7, 7, 7, 3, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, -8\,y_1 + 3\,y_4 + y_2 + y_3 - y_5, 2\,y_1, 0, -5\,y_1 + 2\,y_4, y_1, y_2, y_3, y_4, 0, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$ $p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_4, y_2, y_3, 0, -y_4 + y_2 + y_3 + y_5 - y_1 - y_6 + y_7, y_5, y_1, 0, 0, y_6, y_7, 0]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1601 . Coloring, {2, 3, 6, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, C, B, 2, 4, 9]
B: [6, 7, 7, 7, 3, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_3, y_1, y_2, 0, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_7, 0, y_6, 0, y_4, y_5, y_3, 0, 0, y_2, y_7 - y_6 + y_4 - y_5 + y_3 + y_2 - y_1, y_1]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1602 . Coloring, {2, 3, 6, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, B, B, C, 2, 4, 5]
B: [6, 7, 7, 7, 3, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_9, y_6, 0, y_7, y_8, y_9]$$

$p = s^5 - s^{10}$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_7, 0, y_6, 0, 0, y_5, y_4, 0, y_3, y_2, y_1, y_7 + y_6 - y_5 - y_4 + y_3 + y_2 - y_1]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1603 . Coloring, {2, 3, 6, 8, 9, 10, 12}

Ωp(Δ)=0: $p = 2s^2 + 3s^3 + 2s^4 - 16s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, B, B, C, 2, 1, 9]
B: [6, 7, 7, 7, 3, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-6\,y_1 - 9\,y_5 - 3\,y_2 - 3\,y_3 + 13\,y_4 - 3\,y_6 + 13\,y_7, 3\,y_1 + 3\,y_5, 3\,y_1, 0, 0, 3\,y_5, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^4 + s^6 + s^7 - s^9$ $p' = -s^4 - s^5 + s^7 + s^8$ $p = -s^4 + s^{10}$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_4, y_3, y_2, y_6, y_1, 0, 0, y_7, y_6, y_5]$$

$p = -s^3 + s^8$

1604 . Coloring, {2, 3, 6, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 - 3s^3 + 2s^4 + 16s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, B, B, C, C, 4, 9]
B: [6, 7, 7, 7, 3, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, 0, -3y_1 - 3y_6 + 7y_4 - 3y_2 + 10y_3 - 3y_5, 3y_1, 0, 3y_6, 3y_4, 3y_2, 3y_3, 3y_4, 3y_5, 3y_4 + 3y_3]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, y_3, 0, y_2, y_3, y_4, 0, 0, y_5, y_6, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

1605 . Coloring, {2, 3, 6, 8, 10, 11, 12}

R: [7, 8, 8, 6, A, 3, B, B, B, 2, 4, 9]
B: [6, 7, 7, 7, 3, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_6, y_5, 2\,y_6, y_6, y_7, 0]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_4, 0, y_3, 0, y_2, y_1, y_6, 0, 0, y_5, 0, y_7]$$

1606 . Coloring, {2, 3, 6, 9, 10, 11, 12}

R: [7, 8, 8, 6, A, 3, B, C, C, 2, 4, 9]
B: [6, 7, 7, 7, 3, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_4, y_2, y_1, 0, y_2 + y_1 - y_6 - y_5 + y_3, y_7, y_6, y_5, y_7, y_4, y_3]$$

$p' = s^8 - s^9$ $p' = s^7 - s^9$ $p = s^7 - s^{10}$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

1607 . Coloring, {2, 3, 7, 8, 9, 10, 11}

R: [7, 8, 8, 6, A, A, A, B, C, 2, 4, 5]
B: [6, 7, 7, 7, 3, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_4, 0, y_2, y_3, y_1, y_7, y_8, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, 0, y_5, y_4, 0, y_3, 0, y_1, y_2]$$

1608 . Coloring, {2, 3, 7, 8, 9, 10, 12}

R: [7, 8, 8, 6, A, A, A, B, C, 2, 1, 9]
B: [6, 7, 7, 7, 3, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[11 y_1 + 11 y_2 + 11 y_3 - 2 y_7 - 2 y_4 + 11 y_5 - 39 y_6, 2 y_1, 0, 0, 0, 2 y_2, 2 y_3, 2 y_7, 3 y_1 + 3 y_2 + 3 y_3 + 3 y_5 - 11 y_6, 2 y_4, 2 y_5, 2 y_6]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_4, y_5, y_6, y_3, y_2, 0, 0, 0, y_1, 3 y_3]$$

$p = -s^4 + s^7$

1609 . Coloring, {2, 3, 7, 8, 9, 11, 12}

R: [7, 8, 8, 6, A, A, A, B, C, C, 4, 9]
B: [6, 7, 7, 7, 3, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, 0, y_2, y_1, 2\,y_1, y_7, y_6, y_5, y_4]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_5, 2\,y_7, y_4, 0, y_2, y_3, y_1, 0, 0, 0, y_6, y_7]$$

$p = -s^3 + s^8$

1610 . Coloring, {2, 3, 7, 8, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, A, B, B, 2, 4, 9]
B: [6, 7, 7, 7, 3, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_1, 0, y_3, y_4, y_5, 2\,y_4, y_6, y_7, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, 0, y_7, y_6]$$

1611 . Coloring, {2, 3, 7, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, A, A, C, C, 2, 4, 9]
B: [6, 7, 7, 7, 3, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_2, 0, 2\,y_6, 0, y_1, y_6, y_7, y_5, y_4, 0, y_3]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_5, y_3, y_4, 0, 0, 0, y_6, y_7]$$

1612 . Coloring, {2, 3, 8, 9, 10, 11, 12}

R: [7, 8, 8, 6, A, A, B, B, C, 2, 4, 9]
B: [6, 7, 7, 7, 3, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_7, 0, 3\,y_6, 0, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, -3\,y_6 - 3\,y_4 - 3\,y_3 + 8\,y_2 + 5\,y_1, -3\,y_7 - 3\,y_5 + 5\,y_2 + 8\,y_1, 3\,y_1]$$

$p' = s^2 - s^8 \quad p = s^2 - s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$[y_2, 0, y_1, 0, y_5, y_3, y_4, 0, 0, y_8, y_7, y_6]$

1613 . Coloring, {2, 4, 5, 6, 7, 8, 9}

R: [7, 8, 7, 7, 3, 3, A, B, C, C, 1, 5]
B: [6, 7, 8, 6, A, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$[y_1, 0, y_2, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$[0, y_8, 0, y_7, 0, y_6, y_5, y_4, y_3, y_2, y_1, -y_8 + y_7 - y_6 + y_5 + y_4 + y_3 + y_2 - y_1]$

$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

1614 . Coloring, {2, 4, 5, 6, 7, 8, 10}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, A, B, B, 2, 1, 5]
B: [6, 7, 8, 6, A, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_7, y_6, y_5, 0, y_4, 0, y_2, y_3, 0, y_8, y_1, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_2, y_3, y_3, y_4, y_5, y_6, y_1 - y_2 + 2\,y_3 + y_4 + y_5 - y_6]$$

$p = -s^6 + s^8$ $p = -s^6 + s^7$

1615 . Coloring, {2, 4, 5, 6, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, A, B, B, C, 4, 5]
B: [6, 7, 8, 6, A, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_2, y_3, y_1, 0, y_6, y_4, 0, y_5, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {9, 12}} order: 6

See Matrix

$$[8\,y_1 + 8\,y_2 - 3\,y_3 - 11\,y_4 - 11\,y_5 - 3\,y_6 + 8\,y_7, 3\,y_1, 0, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 5\,y_1 + 5\,y_2 - 8\,y_4 - 8\,y_5 + 5\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

1616 . Coloring, {2, 4, 5, 6, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, A, B, B, C, 1, 9]
B: [6, 7, 8, 6, A, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 2\,y_7, 0, 0, 0, y_6, y_7, y_4, y_3, y_5, y_2]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

1617 . Coloring, {2, 4, 5, 6, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, A, C, C, 2, 1, 5]
B: [6, 7, 8, 6, A, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_1, y_2, y_7, 0, y_3, 0, y_4, y_5, 0, y_6, 0, y_8]$$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1 - 2\,y_6 - y_2 - y_3 + y_4 + y_5, 0, y_1, y_6, y_6, y_2, y_3, y_4, y_5]$$

$p' = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 \quad p = s^2 - s^8$

1618 . Coloring, {2, 4, 5, 6, 7, 9, 11}

$\Omega p(\Delta)=0: \quad p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, A, C, C, C, 4, 5]
B: [6, 7, 8, 6, A, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_4, 2\,y_1, y_3, 0, y_2, y_1, 0, y_5, 0, y_6]$$

$p = -s^2 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1 + y_4 - y_5 - 3\,y_6 - y_2 + y_3, y_1, 0, 0, 0, y_4, y_5, y_6, 2\,y_6, y_2, y_3, 0]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 \quad p = -s^2 + s^8$

1619 . Coloring, {2, 4, 5, 6, 7, 9, 12}

$\Omega p(\Delta)=0: \quad p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, A, C, C, C, 1, 9]
B: [6, 7, 8, 6, A, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_4, 0, 2\,y_4, 0, 0, 0, y_5, y_4, y_3, y_2, 0, y_1]$$

$p' = s^4 - s^6$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_4, 0, y_3, 2\,y_7, y_1, y_2, y_7, 0, y_6, y_5, 0]$$

$p = -s^2 + s^8$

1620 . Coloring, {2, 4, 5, 6, 7, 10, 11}

R: [7, 8, 7, 7, 3, 3, A, C, B, 2, 4, 5]
B: [6, 7, 8, 6, A, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_9, y_8, y_7, y_6, 0, y_5, y_3, 0, y_4, y_2, y_1]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_6, 0, 0, 0, 0, y_5, y_4, y_4, y_3, y_2, y_6 - y_5 + 2\,y_4 + y_3 + y_2 - y_1, y_1]$$

$p' = -s^6 + s^7$ $p = s^6 - s^7$

1621 . Coloring, {2, 4, 5, 6, 7, 10, 12}

R: [7, 8, 7, 7, 3, 3, A, C, B, 2, 1, 9]
B: [6, 7, 8, 6, A, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, y_3, 0, 0, 0, y_4, y_5, y_6, y_7, y_9, y_8]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, y_5, y_6, y_7, y_7, 0, y_1, y_2, y_3]$$

$p = -s^5 + s^8$

1622 . Coloring, {2, 4, 5, 6, 7, 11, 12}

R: [7, 8, 7, 7, 3, 3, A, C, B, C, 4, 9]
B: [6, 7, 8, 6, A, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 2\,y_3, y_1, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = s^2 - s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_8, y_7, 0, 0, y_6, y_5, y_4, y_3, 0, y_2, y_1, y_3]$$

$p = s^3 - s^9$

1623 . Coloring, {2, 4, 5, 6, 8, 9, 10}

R: [7, 8, 7, 7, 3, 3, B, B, C, 2, 1, 5]
B: [6, 7, 8, 6, A, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_6, y_2, 0, y_3, 0, y_4, 2\,y_3 - 3\,y_6, 0, 0, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, 0, y_1, y_6, y_6, y_5, y_3, y_4, y_2]$$

$p = -s^2 + s^8$

1624 . Coloring, {2, 4, 5, 6, 8, 9, 11}

R: [7, 8, 7, 7, 3, 3, B, B, C, C, 4, 5]
B: [6, 7, 8, 6, A, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, 0, y_6, 3\,y_5]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

1625 . Coloring, {2, 4, 5, 6, 8, 9, 12}

R: [7, 8, 7, 7, 3, 3, B, B, C, C, 1, 9]
B: [6, 7, 8, 6, A, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	6 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-5\,y_1 - 15\,y_2 + 11\,y_3 - 5\,y_5 + 11\,y_4, 0, 10\,y_2, 0, 0, 0, 5\,y_1, 5\,y_2, 5\,y_3, 0, 5\,y_5, 5\,y_4]$$

$p = s^2 + s^3 - s^5 - s^6$ $p = -s^2 + s^4 + s^5 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_6 + y_4, y_6 - y_4 + y_2, y_2, y_3, y_6, 0, y_5, y_6, y_4]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

1626 . Coloring, {2, 4, 5, 6, 8, 10, 11}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, B, B, B, 2, 4, 5]
B: [6, 7, 8, 6, A, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 2\,y_5 - 2\,y_2, y_5, y_4, 2\,y_5 - 2\,y_2, 0, y_1, y_2, 0, 0, y_3, 0]$$

$p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_2, 0, 0, 0, 0, y_1, y_2, y_2, y_3, y_4, 0, y_5]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$

1627 . Coloring, {2, 4, 5, 6, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, B, B, B, 2, 1, 9]
B: [6, 7, 8, 6, A, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_5, y_4, y_4, 0, 0, 0, y_2, y_3, y_4, 0, y_1, 0]$$

$p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_1, y_2, y_3, y_1, y_1, 0, y_5, 0, y_4]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

1628 . Coloring, {2, 4, 5, 6, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, B, B, B, C, 4, 9]
B: [6, 7, 8, 6, A, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 0, 2\,y_3, y_5, 0, 0, y_4, y_3, y_2, 0, y_1, 2\,y_3]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[2\,y_3, y_1, 0, 0, y_2, -2\,y_3 + 2\,y_5, y_6, y_3, 0, y_4, 0, y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1629 . Coloring, {2, 4, 5, 6, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, B, C, C, 2, 4, 5]
B: [6, 7, 8, 6, A, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_8, y_7, 0, y_6, y_5, 0, 0, y_4, y_3]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, y_7, y_7, y_5, y_6, y_4, y_3]$$

$p = s^2 - s^8$

1630 . Coloring, {2, 4, 5, 6, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, B, C, C, 2, 1, 9]
B: [6, 7, 8, 6, A, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[2 y_1, 7 y_1 + 7 y_6 - 9 y_5 - 9 y_4 + 7 y_3 - 9 y_2, 7 y_1 + 7 y_6 - 9 y_5 - 9 y_4 + 7 y_3 - 9 y_2, 0, 0, 0, 2 y_6, 2 y_5, 2 y_4, 0, 2 y_3, 2 y_2]$$

$p = -s^3 + s^5 + s^6 - s^8$ $p = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_4, y_3, y_3, 0, y_5, y_6, y_7]$$

$p = s^5 - s^8$

1631 . Coloring, {2, 4, 5, 6, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, B, C, C, C, 4, 9]
B: [6, 7, 8, 6, A, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, -14\, y_5 - 14\, y_2 + 18\, y_3 - 14\, y_4 + 18\, y_1, 5\, y_5, 0, 0, 5\, y_2, -7\, y_5 - 7\, y_2 + 9\, y_3 - 7\, y_4 + 9\, y_1, 5\, y_3, 0, 5\, y_4, 5\, y_1]$$

$p = -s^2 + s^4 + s^5 - s^7$ $p' = -s^2 - s^3 + s^5 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 2\, y_4, y_5, y_6, y_4, 0, y_3, y_7, 0]$$

$p = s^5 - s^8$

1632 . Coloring, {2, 4, 5, 6, 10, 11, 12}

R: [7, 8, 7, 7, 3, 3, B, C, B, 2, 4, 9]
B: [6, 7, 8, 6, A, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_7, y_7, y_6, 0, 0, y_5, y_4, y_3, 0, y_2, y_1]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_5, y_4, y_4, 0, y_3, y_6, y_7]$$

$p = -s^5 + s^8$

1633 . Coloring, {2, 4, 5, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, A, B, C, 2, 1, 5]
B: [6, 7, 8, 6, A, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_1 + y_2 - y_3 - y_4 + y_5 + y_6 - y_7 + y_8, y_2, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_6, y_4, y_5, y_6, y_7, y_8]$$

$p = - s^2 + s^9$

1634 . Coloring, {2, 4, 5, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, A, B, C, C, 4, 5]
B: [6, 7, 8, 6, A, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_6, y_5, y_4, 0, 0, y_3, y_2, y_1, y_{10}, y_9, y_8, y_7]$$

1635 . Coloring, {2, 4, 5, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, A, B, C, C, 1, 9]
B: [6, 7, 8, 6, A, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, 0, 0, y_7, y_5, y_6, y_4, y_2, y_3]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{2, 3, 4, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[0, y_9, y_{10}, y_8, y_6, y_7, y_5, y_4, 0, y_3, y_1, y_2]$$

1636 . Coloring, {2, 4, 5, 7, 8, 10, 11}

R: [7, 8, 7, 7, 3, A, A, B, B, 2, 4, 5]
B: [6, 7, 8, 6, A, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_4, 0, y_5, y_6, 0, y_7, y_8, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_4, 0, y_3, 0, 0, y_2, y_7, y_1, y_4 + y_3 - y_2 - y_1 - y_6 + y_5, y_7, y_6, y_5]$$

$p' = s^7 - s^8$ $p = s^7 - s^9$

1637 . Coloring, {2, 4, 5, 7, 8, 10, 12}

R: [7, 8, 7, 7, 3, A, A, B, B, 2, 1, 9]
B: [6, 7, 8, 6, A, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_7, y_6, y_5, 0, 0, 0, y_4, y_3, 2\,y_5, y_2, y_1, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_9, y_8]$$

1638 . Coloring, {2, 4, 5, 7, 8, 11, 12}

R: [7, 8, 7, 7, 3, A, A, B, B, C, 4, 9]
B: [6, 7, 8, 6, A, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_7, y_1, 0, 0, y_2, y_7, y_5, y_6, y_4, y_3]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 2, 3, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[y_1, y_2, y_3, 0, y_7, y_6, y_4, y_5, 0, y_9, y_8, y_{10}]$$

1639 . Coloring, {2, 4, 5, 7, 9, 10, 11}

R: [7, 8, 7, 7, 3, A, A, C, C, 2, 4, 5]
B: [6, 7, 8, 6, A, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_6, y_5, y_4, y_3, 0, y_2, y_1, 0, y_8, 0, y_7]$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, 0, y_8, y_7, y_6, y_5, y_7, y_4, y_3]$$

$p = s^4 - s^9$

1640 . Coloring, {2, 4, 5, 7, 9, 10, 12}

R: [7, 8, 7, 7, 3, A, A, C, C, 2, 1, 9]

B: [6, 7, 8, 6, A, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_5, y_4, y_5, 0, 0, 0, y_1, y_2, y_3, y_7, 0, y_6]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, -5\,y_1 + 11\,y_2 - 5\,y_3 - 5\,y_4 - 5\,y_5 + 11\,y_6 - 5\,y_7 + 11\,y_8, 5\,y_1, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_5, 0, 5\,y_6, 5\,y_7, 5\,y_8]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

1641 . Coloring, {2, 4, 5, 7, 9, 11, 12}

R: [7, 8, 7, 7, 3, A, A, C, C, C, 4, 9]
B: [6, 7, 8, 6, A, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_5, 2\,y_5, 0, 0, y_3, y_5, y_4, y_1, 0, y_2]$$

$p' = -s^4 + s^6 \quad p = -s^4 + s^6$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_9, y_8, y_7, 0, y_6, y_5, y_4, y_3, 0, y_2, y_1, 0]$$

1642 . Coloring, {2, 4, 5, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, A, C, B, 2, 4, 9]
B: [6, 7, 8, 6, A, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_2, y_9, 0, 0, y_8, y_7, y_5, y_6, y_3, y_4]$$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 8, 11}}

See Matrix

$$[3\,y_1, 0, -3\,y_1 + 5\,y_4 - 3\,y_2 - 3\,y_3 - 3\,y_8 + 5\,y_7 - 3\,y_6 + 5\,y_5, 0, 3\,y_4, 3\,y_2, 3\,y_3, 3\,y_8, 0, 3\,y_7, 3\,y_6, 3\,y_5]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

1643 . Coloring, {2, 4, 5, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, B, B, C, 2, 4, 5]
B: [6, 7, 8, 6, A, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_4, y_3, y_2, y_4, 0, y_1, y_3, 0, y_5, y_6, y_5]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_9, 0, y_8, 0, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

1644 . Coloring, {2, 4, 5, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, B, B, C, 2, 1, 9]
B: [6, 7, 8, 6, A, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-3 y_5 - 6 y_6 - 3 y_1 - 3 y_7 + 13 y_2 - 3 y_3 + 13 y_4, 3 y_5, 3 y_6, 0, 0, 0, 3 y_1, 3 y_7, 3 y_2, 3 y_6, 3 y_3, 3 y_4]$$

$p = -s^4 + s^6 + s^7 - s^9$ $p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_8, y_7, 0, y_5, y_8, y_6]$$

$p = -s^6 + s^9$

1645 . Coloring, {2, 4, 5, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, B, B, C, C, 4, 9]
B: [6, 7, 8, 6, A, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 3\,y_4, -3\,y_1 - 6\,y_4 + 10\,y_3 - 3\,y_2, 0, 0, 3\,y_1, 3\,y_4, -3\,y_4 + 3\,y_3, 3\,y_4, 3\,y_2, 3\,y_3]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_2, y_3, 0, y_6, y_7, y_5, y_4, 0, y_{10}, y_8, y_9]$$

1646 . Coloring, {2, 4, 5, 8, 10, 11, 12}

R: [7, 8, 7, 7, 3, A, B, B, B, 2, 4, 9]
B: [6, 7, 8, 6, A, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_4, y_5, y_3, 0, 0, y_2, y_1, 2\,y_5, y_5, y_6, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\,y_1, 0, y_4, 0, y_3, y_2, y_1, y_7, 0, y_6, 0, y_5]$$

$p = s^5 - s^8$

1647 . Coloring, {2, 4, 5, 9, 10, 11, 12}

R: [7, 8, 7, 7, 3, A, B, C, C, 2, 4, 9]
B: [6, 7, 8, 6, A, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, y_4 + y_1 + y_2 - y_6, y_4, y_4 + 2\,y_1 + 2\,y_2 - y_3 - y_5, 0, 0, y_3, y_1, y_2, y_4, y_5, y_6]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 8, 11}}

See Matrix

$$[y_2, 0, y_1, 0, y_2 + y_1 + y_8 - y_7 + y_6 - y_5 + y_3 - y_4, y_8, y_7, y_6, 0, y_5, y_3, y_4]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

1648 . Coloring, {2, 4, 6, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, A, B, C, 2, 1, 5]
B: [6, 7, 8, 6, 3, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_4, y_3, y_5, 0, y_2, 0, y_1, -y_4 + y_3 + y_2 + y_1 - y_7 + y_6 - 2\,y_5, 0, y_7, y_6, y_5]$$

$p = -s^3 + s^9$ $p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$[0, 0, y_8, y_7, 0, y_6, y_8, y_5, y_4, y_3, y_2, y_1]$

$p = s^3 - s^9$

1649 . Coloring, {2, 4, 6, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, 3, A, B, C, C, 4, 5]
B: [6, 7, 8, 6, 3, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, y_4, y_2, y_1, 0, y_3, y_4, 0, y_5, y_6, y_7]$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$[y_1, y_2, y_3, 0, 0, y_6, y_4, y_5, y_{10}, y_7, y_8, y_9]$

1650 . Coloring, {2, 4, 6, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, A, B, C, C, 1, 9]
B: [6, 7, 8, 6, 3, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, y_6, 0, 0, 0, y_7, y_6, y_5, y_2, y_3, y_4]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 2y_5, -5y_5 + 13y_1 - 5y_2 + 13y_3 - 5y_8 - 2y_7, 2y_6, 2y_1, 2y_2, -2y_6 + 33y_1 + 33y_3 - 2y_4 - 13y_5 - 13y_2 - 13y_8, 2y_3, 0, 2y_4, 2y_8, 2y_7]$$

$p = s + s^3 - s^7 - s^9$ $p' = s + s^3 - s^7 - s^9$

1651 . Coloring, {2, 4, 6, 7, 8, 10, 11}

R: [7, 8, 7, 7, A, 3, A, B, B, 2, 4, 5]
B: [6, 7, 8, 6, 3, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 2y_2, 0, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_7, 0, y_6, 0, 0, y_5, y_6, y_3, y_4, y_2, y_6 + y_3, y_1]$$

$p = s^6 - s^8$ $p' = s^6 - s^8$

1652 . Coloring, {2, 4, 6, 7, 8, 10, 12}

R: [7, 8, 7, 7, A, 3, A, B, B, 2, 1, 9]
B: [6, 7, 8, 6, 3, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_7, y_6, y_5, 0, 0, 0, y_4, y_3, 2\,y_5, y_2, y_1, 0]$$

$$p = -s^2 + s^8$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

1653 . Coloring, {2, 4, 6, 7, 8, 11, 12}

R: [7, 8, 7, 7, A, 3, A, B, B, C, 4, 9]
B: [6, 7, 8, 6, 3, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_7, 0, 0, y_5, y_6, y_3, y_4, y_2, y_1]$$

$$p = -s^2 + s^8$$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {1, 2, 6, 7, 10, 11}} order: 12

See Matrix

$$[-3\,y_1 + 10\,y_7 - 3\,y_6 - 3\,y_5 + 10\,y_4 - 3\,y_3 - 3\,y_2,\ 3\,y_1,\ 3\,y_7 + 3\,y_4 - 3\,y_8,\ 0,\ 3\,y_7,\ 3\,y_6,\ 3\,y_5,\ 3\,y_4,\ 0,\ 3\,y_3,\ 3\,y_2,\ 3\,y_8]$$

$p' = -s - s^3 + s^7 + s^9 \quad p = -s - s^3 + s^7 + s^9$

1654 . Coloring, {2, 4, 6, 7, 9, 10, 11}

R: [7, 8, 7, 7, A, 3, A, C, C, 2, 4, 5]
B: [6, 7, 8, 6, 3, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0,\ y_1,\ y_2,\ 2\,y_2,\ y_3,\ 0,\ y_4,\ y_6,\ 0,\ y_5,\ 0,\ y_7]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_8,\ 0,\ y_7,\ 0,\ 0,\ y_6,\ y_7,\ y_5,\ y_4,\ y_3,\ y_2,\ y_1]$$

$p = s^3 - s^9$

1655 . Coloring, {2, 4, 6, 7, 9, 10, 12}

R: [7, 8, 7, 7, A, 3, A, C, C, 2, 1, 9]
B: [6, 7, 8, 6, 3, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_2, y_1, y_2, 0, 0, 0, y_3, y_4, y_7, y_5, 0, y_6]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{3, 4, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_9, y_8, y_6, y_7, 0, y_5, y_4, y_3]$$

1656 . Coloring, {2, 4, 6, 7, 9, 11, 12}

R: [7, 8, 7, 7, A, 3, A, C, C, C, 4, 9]
B: [6, 7, 8, 6, 3, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_3, 2\,y_3, 0, 0, y_4, y_3, y_1, y_2, 0, y_5]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_9, y_8, y_7, 0, y_6, y_5, y_4, y_3, 0, y_2, y_1, 0]$$

1657 . Coloring, {2, 4, 6, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, A, C, B, 2, 4, 9]
B: [6, 7, 8, 6, 3, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, 0, 0, y_4, y_7, y_5, y_6, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_9, 0, y_8, y_7, y_6, y_5, 0, y_4, y_3, y_2]$$

1658 . Coloring, {2, 4, 6, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, B, C, 2, 4, 5]
B: [6, 7, 8, 6, 3, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_8, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[2y_7 + y_2 - y_1 - y_5 - y_6 + y_4 + y_3, 0, y_7, 0, 0, y_2, y_7, y_1, y_5, y_6, y_4, y_3]$$

$p = -s^3 + s^9$ $p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1659 . Coloring, {2, 4, 6, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, 3, B, B, C, 2, 1, 9]
B: [6, 7, 8, 6, 3, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3 y_6, 3 y_5, 3 y_4, 0, 0, 0, 3 y_3, 3 y_2, 3 y_1, 3 y_4, -3 y_6 - 3 y_5 - 6 y_4 - 3 y_3 - 3 y_2 + 13 y_1 + 13 y_7, 3 y_7]$$

$p' = s^4 + s^5 - s^7 - s^8$ $p = s^4 - s^6 - s^7 + s^9$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, -y_5 + y_2 + y_1 - y_3, -y_4 + y_2 + y_1, y_4, y_5, y_3, y_2, 0, y_1, y_3, y_2 + y_1 - y_3]$$

$p = s^5 - s^9$ $p' = s^5 - s^8$ $p' = s^6 - s^8$ $p' = s^7 - s^8$

1660 . Coloring, {2, 4, 6, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, B, B, C, C, 4, 9]
B: [6, 7, 8, 6, 3, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 8	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 3 y_4, 3 y_3, 0, 0, 3 y_2, 3 y_4, 3 y_1, 3 y_4, 4 y_4 - 3 y_3 - 3 y_2 + 10 y_1, 3 y_4 + 3 y_1]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p' = s^2 - s^5$ $p = s^2 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$[5\,y_6, 5\,y_5, 5\,y_4, 0, 5\,y_3, 5\,y_2, -5\,y_6 - 5\,y_5 + 11\,y_4 + 11\,y_3 - 5\,y_2 + 11\,y_1 - 5\,y_9 - 5\,y_8 + 11\,y_7, 5\,y_1, 0, 5\,y_9, 5\,y_8, 5\,y_7]$

$p = s^4 + s^5 + s^6 - s^8 - s^9 - s^{10}$

1661 . Coloring, {2, 4, 6, 8, 10, 11, 12}

R: [7, 8, 7, 7, A, 3, B, B, B, 2, 4, 9]
B: [6, 7, 8, 6, 3, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	4 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, y_1, y_4, y_2, 0, 0, y_6, y_3, 2\,y_4, y_4, y_5, 0]$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$[2\,y_2, 0, -y_2 + y_4 - y_1, 0, -2\,y_2 + y_4, y_1, y_2, y_4 - y_3, 0, y_3, 0, y_4]$

$p = s^4 - s^6$ $p' = s^4 - s^5$ $p' = -s^5 + s^7$ $p' = -s^5 + s^6$

1662 . Coloring, {2, 4, 6, 9, 10, 11, 12}

R: [7, 8, 7, 7, A, 3, B, C, C, 2, 4, 9]
B: [6, 7, 8, 6, 3, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, y_2, y_3, -y_3 - y_1 + 2\,y_2 + 2\,y_5 - y_4, 0, 0, y_1, y_2 - y_3 - y_6 + y_5, y_6, y_3, y_4, y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[-y_1 + y_5 + y_6, 0, y_5 + y_6 - y_2 - y_3, 0, y_1, y_2, y_3, -y_4 + y_5 + y_6, 0, y_4, y_5, y_6]$$

$p' = -s^3 + s^4 - s^7 + s^8$ $p' = s^2 - s^3 + s^6 - s^7$ $p = s^2 - s^4 + s^6 - s^8$

1663 . Coloring, {2, 4, 7, 8, 9, 10, 11}

R: [7, 8, 7, 7, A, A, A, B, C, 2, 4, 5]
B: [6, 7, 8, 6, 3, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 - y_2 - y_3 + y_7 + y_4 - y_5 + y_6, 0, y_1, y_2, 0, y_3, y_7, 0, y_4, y_5, y_6]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_8, 0, y_7, 0, 0, y_6, y_5, y_3, y_4, 0, y_1, y_2]$$

1664 . Coloring, {2, 4, 7, 8, 9, 10, 12}

R: [7, 8, 7, 7, A, A, A, B, C, 2, 1, 9]
B: [6, 7, 8, 6, 3, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_2 + 8\,y_3 - 3\,y_4 + 5\,y_6, -3\,y_1 + 5\,y_3 - 3\,y_5 + 8\,y_6, 0, 0, 0, 0, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s + s^7$ $p' = -s + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, -y_1 + y_2 + y_3 - y_4 + y_5 + y_6 - y_7, y_1, y_2, y_3, y_4, y_5, 0, 0, y_6, y_7]$$

$p = -s^5 + s^6 - s^7 + s^8$

1665 . Coloring, {2, 4, 7, 8, 9, 11, 12}

R: [7, 8, 7, 7, A, A, A, B, C, C, 4, 9]
B: [6, 7, 8, 6, 3, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, 0, 0, y_6, y_5, y_3, y_4, y_2, y_1]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$[y_3, y_1, y_2, 0, y_4, y_5, y_6, y_7, 0, 0, y_8, y_9]$

1666 . Coloring, {2, 4, 7, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, A, B, B, 2, 4, 9]
B: [6, 7, 8, 6, 3, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$[0, y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_7, y_6, 0]$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, 0, y_7, y_8]$

1667 . Coloring, {2, 4, 7, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, A, A, C, C, 2, 4, 9]
B: [6, 7, 8, 6, 3, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$[0, y_2, 0, y_3, 0, 0, y_1, y_5, y_6, y_7, 0, y_4]$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_5, y_6, y_7, 0, 0, y_4, 2\, y_6]$$

$p = -s^3 + s^8$

1668 . Coloring, {2, 4, 8, 9, 10, 11, 12}

R: [7, 8, 7, 7, A, A, B, B, C, 2, 4, 9]
B: [6, 7, 8, 6, 3, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\, y_5, 0, 3\, y_4, 0, 0, 3\, y_3, 3\, y_2, 3\, y_1, -3\, y_5 - 3\, y_4 - 3\, y_3 - 3\, y_2 + 13\, y_1 - 3\, y_7 + 13\, y_6, 3\, y_7, 3\, y_6]$$

$p = s^4 + s^5 - s^7 - s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_6, 0, y_4, 0, y_5, y_3, y_2, y_4 - y_5 - y_3 + y_1, 0, y_6, y_2, y_1]$$

$p' = -s^4 + s^8$ $p' = s^4 - s^5 + s^6 - s^7$ $p = s^4 - s^8$

1669 . Coloring, {2, 5, 6, 7, 8, 9, 10}

R: [7, 8, 7, 6, 3, 3, A, B, C, 2, 1, 5]
B: [6, 7, 8, 7, A, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1 - y_2 + y_3 + y_4 - y_5 - y_6 + y_8, y_1, y_2, 0, y_3, y_7, y_4, y_5, 0, y_6, y_8, y_7]$$

$p = -s^4 + s^{10}$ $p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

1670 . Coloring, {2, 5, 6, 7, 8, 9, 11}

R: [7, 8, 7, 6, 3, 3, A, B, C, C, 4, 5]
B: [6, 7, 8, 7, A, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 0, y_7, y_8, y_9, y_6, y_5, y_3, y_4]$$

1671 . Coloring, {2, 5, 6, 7, 8, 9, 12}

R: [7, 8, 7, 6, 3, 3, A, B, C, C, 1, 9]
B: [6, 7, 8, 7, A, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, y_3 + y_6, 0, 0, y_3, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p' = s^6 - s^8$ $p = -s^6 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_8, y_7, y_6, y_5, y_6, 0, y_4, y_3, y_2]$$

$p = s^6 - s^9$

1672 . Coloring, {2, 5, 6, 7, 8, 10, 11}

R: [7, 8, 7, 6, 3, 3, A, B, B, 2, 4, 5]
B: [6, 7, 8, 7, A, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, y_4, y_5, y_3, y_2, y_1, y_9, y_8, 0, y_7, y_6, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, 2\,y_5, y_5, y_3, y_6, y_4, y_7]$$

$p = -s^6 + s^8$

1673 . Coloring, {2, 5, 6, 7, 8, 10, 12}

R: [7, 8, 7, 6, 3, 3, A, B, B, 2, 1, 9]
B: [6, 7, 8, 7, A, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_8, y_7, y_6, 0, 0, y_5, y_4, y_3, 2\,y_5, y_2, y_1, 0]$$

$p = s^3 - s^9$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_4, y_2, y_1, y_4, y_1, 0, 5\,y_4 - y_2 - 2\,y_1 - y_3, y_4, y_3]$$

$p = -s^2 + s^8$ $p' = -s^3 + s^6$ $p' = -s^2 + s^5$ $p = -s^2 + s^5$

1674 . Coloring, {2, 5, 6, 7, 8, 11, 12}

R: [7, 8, 7, 6, 3, 3, A, B, B, C, 4, 9]
B: [6, 7, 8, 7, A, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_9, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_8, y_7, 0, 0, y_6, y_5, y_4, y_3, 0, y_2, y_1, -y_8 + y_7 + y_6 + y_5 - y_4 + y_3 - y_2 + y_1]$$

$$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$$

1675 . Coloring, {2, 5, 6, 7, 9, 10, 11}

R: [7, 8, 7, 6, 3, 3, A, C, C, 2, 4, 5]
B: [6, 7, 8, 7, A, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_8, y_9, y_7, y_5, y_6, y_4, y_3, 0, y_2, 0, y_1]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, 2\,y_3, y_3, y_4, y_5, y_7, y_6]$$

$$p = s^2 - s^8$$

1676 . Coloring, {2, 5, 6, 7, 9, 10, 12}

R: [7, 8, 7, 6, 3, 3, A, C, C, 2, 1, 9]
B: [6, 7, 8, 7, A, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[2\,y_7, y_1, y_8, 0, 0, y_7, y_6, y_5, y_4, y_3, 0, y_2]$$

$p = s^7 - s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, -27\,y_4 - 20\,y_3 + 7\,y_2 + 16\,y_1, 2\,y_4, 2\,y_3, 2\,y_2, 2\,y_3, 0, -16\,y_4 - 12\,y_3 + 4\,y_2 + 10\,y_1, 2\,y_1, -7\,y_4 - 4\,y_3 + 3\,y_2 + 4\,y_1]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p' = s^2 - s^5$ $p = s^2 - s^8$

1677 . Coloring, {2, 5, 6, 7, 9, 11, 12}

R: [7, 8, 7, 6, 3, 3, A, C, C, C, 4, 9]
B: [6, 7, 8, 7, A, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_4, 0, y_2, y_3, y_4, y_6, y_5, 0, y_7]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, 2\,y_5, y_3, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^2 + s^8$

1678 . Coloring, {2, 5, 6, 7, 10, 11, 12}

R: [7, 8, 7, 6, 3, 3, A, C, B, 2, 4, 9]
B: [6, 7, 8, 7, A, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{2, 3, 4, 6, 7, 8, 9, 10, 11, 12}} order: 10

See Matrix

$$[0, y_{10}, y_9, y_8, 0, y_7, y_6, y_5, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_3, 0, 0, 0, y_2, y_1, 2\,y_6, y_6, 0, y_4, y_5, y_7]$$

$p = s^5 - s^8$

1679 . Coloring, {2, 5, 6, 8, 9, 10, 11}

R: [7, 8, 7, 6, 3, 3, B, B, C, 2, 4, 5]
B: [6, 7, 8, 7, A, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 2\,y_7, y_1, y_2, y_3, y_4, y_5, 2\,y_3 - 3\,y_7, 0, 0, y_6, y_7]$$

$p' = s^3 - s^8$ $p = s^3 - s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, 2\,y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

1680 . Coloring, {2, 5, 6, 8, 9, 10, 12}

R: [7, 8, 7, 6, 3, 3, B, B, C, 2, 1, 9]
B: [6, 7, 8, 7, A, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_3,\ 6\,y_1,\ 3\,y_2,\ 0,\ 0,\ 3\,y_1,\ -3\,y_3 - 9\,y_2 + 13\,y_6 - 3\,y_5 + 13\,y_4,\ 6\,y_2 - 9\,y_1,\ 3\,y_6,\ 0,\ 3\,y_5,\ 3\,y_4]$$

$p = -s^3 + s^9$ $p' = -s^3 - s^4 + s^6 + s^7$ $p = -s^3 + s^5 + s^6 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0,\ 0,\ 0,\ y_2,\ y_1,\ y_4,\ y_5,\ y_4,\ 0,\ y_3,\ y_4,\ y_6]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

1681 . Coloring, {2, 5, 6, 8, 9, 11, 12}

R: [7, 8, 7, 6, 3, 3, B, B, C, C, 4, 9]
B: [6, 7, 8, 7, A, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0,\ 0,\ -5\,y_1 - 5\,y_2 - 5\,y_3 - 5\,y_4 + 11\,y_5 - 5\,y_6 + 11\,y_7,\ 5\,y_1,\ 0,\ 5\,y_2,\ 5\,y_3,\ 5\,y_4,\ 5\,y_5,\ 0,\ 5\,y_6,\ 5\,y_7]$$

$p = -s^2 - s^3 + s^7 + s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6 + y_5, y_4, 0, 0, y_3, -2\,y_6 + y_5 + y_3, y_2, y_6, 0, y_1, y_6, y_5]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

1682 . Coloring, {2, 5, 6, 8, 10, 11, 12}

R: [7, 8, 7, 6, 3, 3, B, B, B, 2, 4, 9]
B: [6, 7, 8, 7, A, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_6, y_5, y_4, 0, y_3, y_2, y_1, y_6, 0, y_7, 0]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\,y_3, 0, 0, 0, y_1, y_2, 2\,y_3, y_3, 0, y_4, 0, y_5]$$

$p' = s^3 - s^6$ $p = s^3 - s^6$

1683 . Coloring, {2, 5, 6, 9, 10, 11, 12}

R: [7, 8, 7, 6, 3, 3, B, C, C, 2, 4, 9]
B: [6, 7, 8, 7, A, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, 7\,y_1, 9\,y_1 - 7\,y_8 - 7\,y_7 - 7\,y_6 + 9\,y_5 + 9\,y_4 - 7\,y_3 + 9\,y_2, 7\,y_8, 0, 7\,y_7, 7\,y_6, 7\,y_5, 7\,y_4, 0, 7\,y_3, 7\,y_2]$$

$$p = s^3 + s^4 - s^8 - s^9$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, 2\,y_4, y_4, 0, y_5, y_6, y_7]$$

$$p = -s^5 + s^8$$

1684 . Coloring, {2, 5, 7, 8, 9, 10, 11}

R: [7, 8, 7, 6, 3, A, A, B, C, 2, 4, 5]
B: [6, 7, 8, 7, A, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 + y_2 - y_5 - y_3 - y_4 + y_6 + y_7 - y_8 + y_9, y_1, y_2, y_5, y_3, y_4, y_6, 0, y_7, y_8, y_9]$$

$$p = -s^5 + s^6 - s^7 + s^8 - s^9 + s^{10}$$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_2, 0, y_1, 0, 0, y_3, 2\,y_5, y_6, y_7, y_5, y_4, y_8]$$

$$p = -s^2 + s^9$$

1685 . Coloring, {2, 5, 7, 8, 9, 10, 12}

R: [7, 8, 7, 6, 3, A, A, B, C, 2, 1, 9]
B: [6, 7, 8, 7, A, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	6 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_7,\ 3\,y_6,\ 3\,y_5,\ 0,\ 0,\ 3\,y_5,\ 3\,y_4,\ 3\,y_3,\ 3\,y_2,\ -3\,y_7 - 3\,y_5 - 3\,y_3 + 8\,y_2 + 5\,y_1,\ -3\,y_6 - 3\,y_5 - 3\,y_4 + 5\,y_2 + 8\,y_1,\ 3\,y_1]$$

$p' = -s^3 + s^9$ $p' = -s^2 + s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0,\ 0,\ 2\,y_1,\ 4\,y_6 - 16\,y_5 + 10\,y_4 + 10\,y_3 + 4\,y_2,\ -2\,y_1 + 7\,y_6 - 27\,y_5 + 16\,y_4 + 16\,y_3 + 7\,y_2,\ 2\,y_6,\ 2\,y_5,\ 2\,y_4,\ 0,\ 2\,y_3,\ 3\,y_6 - 7\,y_5 + 4\,y_4 + 4\,y_3 + 3\,y_2,\ 2\,y_2]$$

$p' = -s^5 + s^8$ $p' = -s^4 + s^7$ $p = s^4 - s^7$

1686 . Coloring, {2, 5, 7, 8, 9, 11, 12}

R: [7, 8, 7, 6, 3, A, A, B, C, C, 4, 9]
B: [6, 7, 8, 7, A, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0,\ 0,\ y_3,\ y_1,\ 0,\ y_2,\ y_3 + y_6,\ y_3,\ y_4,\ y_5,\ y_6,\ y_7]$$

$p = -s^6 + s^8$ $p' = -s^6 + s^8$

Omega Rank for B : cycles: {{1, 2, 3, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[y_1,\ y_2,\ y_3,\ 0,\ y_4,\ y_5,\ y_7,\ y_6,\ 0,\ y_8,\ y_9,\ y_{10}]$$

1687 . Coloring, {2, 5, 7, 8, 10, 11, 12}

R: [7, 8, 7, 6, 3, A, A, B, B, 2, 4, 9]
B: [6, 7, 8, 7, A, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_6, y_7, y_8, 0, y_5, y_4, y_1, 2\, y_7, y_3, y_2, 0]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_2, 0, y_1, 0, y_8, y_7, y_6, y_5, 0, y_4, y_3, y_9]$$

1688 . Coloring, {2, 5, 7, 9, 10, 11, 12}

R: [7, 8, 7, 6, 3, A, A, C, C, 2, 4, 9]
B: [6, 7, 8, 7, A, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, y_3, 2\, y_3, 0, -3\, y_3 + 2\, y_2, y_2, y_5, y_6, y_7, 0, y_4]$$

$p = s^6 - s^8 \quad p' = -s^6 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[5\,y_6, 0, 5\,y_5, 0, 5\,y_4, 5\,y_3, 5\,y_2, -5\,y_6 - 5\,y_5 + 11\,y_4 - 5\,y_3 - 5\,y_2 + 11\,y_1 - 5\,y_8 + 11\,y_7, 0, 5\,y_1, 5\,y_8, 5\,y_7]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

1689 . Coloring, {2, 5, 8, 9, 10, 11, 12}

R: [7, 8, 7, 6, 3, A, B, B, C, 2, 4, 9]
B: [6, 7, 8, 7, A, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_4, 3\,y_3, 3\,y_2, 0, -3\,y_4 - 3\,y_3 + 8\,y_8 - 3\,y_6 + 5\,y_5, 3\,y_1, -3\,y_2 - 3\,y_1 + 5\,y_8 - 3\,y_7 + 8\,y_5, 3\,y_8, 3\,y_7, 3\,y_6, 3\,y_5]$$

$$p' = -s^3 + s^9 \quad p = -s^3 + s^9$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, y_6, y_7, 2\,y_3, y_8, 0, y_2, y_3, y_4]$$

$$p = -s^6 + s^9$$

1690 . Coloring, {2, 6, 7, 8, 9, 10, 11}

R: [7, 8, 7, 6, A, 3, A, B, C, 2, 4, 5]
B: [6, 7, 8, 7, 3, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, y_5, y_4, y_3, y_2, y_1, -y_5 + y_4 + y_3 - y_2 - y_1 + y_6 + y_9 - y_8 + y_7, y_6, 0, y_9, y_8, y_7]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9 - s^{10}$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[-y_7 + y_6 - y_5 - y_4 - y_3 + y_2 + y_1, 0, y_7, 0, 0, y_6, 2\,y_7, y_5, y_4, y_3, y_2, y_1]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = -s^3 + s^9$

1691 . Coloring, {2, 6, 7, 8, 9, 10, 12}

R: [7, 8, 7, 6, A, 3, A, B, C, 2, 1, 9]
B: [6, 7, 8, 7, 3, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, -3\,y_8 - 3\,y_7 + 5\,y_6 - 3\,y_4 + 8\,y_2, -3\,y_1 - 3\,y_5 + 8\,y_6 - 3\,y_3 + 5\,y_2, 0, 0, 3\,y_8, 3\,y_7, 3\,y_5, 3\,y_6, 3\,y_3, 3\,y_4, 3\,y_2]$$

$p' = -s^3 + s^9$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 0, 9\,y_1 - 7\,y_2 - 7\,y_3 + 9\,y_4 - 7\,y_5 - 7\,y_6 + 9\,y_7 - 7\,y_8, 7\,y_1, 7\,y_2, 7\,y_3, 7\,y_4, 7\,y_5, 0, 7\,y_6, 7\,y_7, 7\,y_8]$$

$p = s^3 + s^4 + s^5 - s^7 - s^8 - s^9$

1692 . Coloring, {2, 6, 7, 8, 9, 11, 12}

R: [7, 8, 7, 6, A, 3, A, B, C, C, 4, 9]
B: [6, 7, 8, 7, 3, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_5, y_4, 0, y_3, y_2, y_1, y_9, y_8, y_7, y_6]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[3\,y_7, 3\,y_6, 3\,y_5, 0, 3\,y_4, 3\,y_3, 3\,y_2, 5\,y_7 - 8\,y_5 - 3\,y_4 + 5\,y_2 + 5\,y_1 - 8\,y_8, 0, 3\,y_1, 8\,y_7 - 3\,y_6 - 11\,y_5 - 3\,y_3 + 8\,y_2 + 8\,y_1 - 11\,y_8, 3\,y_8]$$

$p' = -s - s^3 + s^7 + s^9$ $p = -s - s^3 + s^7 + s^9$

1693 . Coloring, {2, 6, 7, 8, 10, 11, 12}

R: [7, 8, 7, 6, A, 3, A, B, B, 2, 4, 9]
B: [6, 7, 8, 7, 3, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, 0, y_9, y_4, y_5, y_8, y_6, y_7, 0]$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_3, 0, y_2, 0, y_1, y_3 - y_2 + y_1 + y_8 + y_7 + y_6 - y_5 - y_4, y_8, y_7, 0, y_6, y_5, y_4]$$

$p = s^6 - s^7 + s^8 - s^9$

1694 . Coloring, {2, 6, 7, 9, 10, 11, 12}

R: [7, 8, 7, 6, A, 3, A, C, C, 2, 4, 9]
B: [6, 7, 8, 7, 3, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_1, y_2, y_9, 0, y_7, y_8, y_5, y_6, y_4, 0, y_3]$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1 - y_2 + y_3 - y_8 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, y_2, y_3, y_8, y_4, 0, y_5, y_6, y_7]$$

$$p = - s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$$

1695 . Coloring, {2, 6, 8, 9, 10, 11, 12}

R: [7, 8, 7, 6, A, 3, B, B, C, 2, 4, 9]
B: [6, 7, 8, 7, 3, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	5 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, -3 y_1 - 3 y_8 - 3 y_9 - 3 y_5 - 3 y_6 + 13 y_7 - 3 y_2 - 3 y_3 + 13 y_4, 3 y_1, 3 y_8, 0, 3 y_9, 3 y_5, 3 y_6, 3 y_7, 3 y_2, 3 y_3, 3 y_4]$$

$$p = s^4 + s^5 - s^9 - s^{10}$$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_5, 0, y_3, 0, y_4, y_5 - y_3 + y_4 - 2\,y_1, 2\,y_1, y_2, 0, y_5 + y_4 - y_2, y_1, y_5 + y_4 - y_1]$$

$p = s^5 - s^9$ $p' = s^5 - s^8$ $p' = s^7 - s^8$ $p' = s^6 - s^8$

1696 . Coloring, {2, 7, 8, 9, 10, 11, 12}

R: [7, 8, 7, 6, A, A, A, B, C, 2, 4, 9]
B: [6, 7, 8, 7, 3, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, -3\,y_2 - 3\,y_1 + 5\,y_7 - 3\,y_5 + 8\,y_4, 0, 3\,y_3, 0, 3\,y_2, 3\,y_1, -3\,y_3 + 8\,y_7 - 3\,y_6 + 5\,y_4, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, y_6, 0, 0, y_7, y_8]$$

1697 . Coloring, {3, 4, 5, 6, 7, 8, 9}

R: [7, 7, 8, 7, 3, 3, A, B, C, C, 1, 5]
B: [6, 8, 7, 6, A, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_3, 0, y_2, 0, y_8, y_7, 0, y_6, y_5, y_4]$$

Omega Rank for B : cycles: {{2, 4, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_2 - y_1 + y_3 + y_4 + y_5 + y_7 - y_8 - y_6, 0, y_2, 0, y_1, y_3, y_4, y_5, y_7, y_8, y_6]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

1698 . Coloring, {3, 4, 5, 6, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, A, B, B, 2, 1, 5]
B: [6, 8, 7, 6, A, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_4, 0, y_5, y_6, 0, y_8, y_7, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_1 + 2\,y_6 + y_5 + y_4 - y_3 - y_2, y_6, y_6, y_5, y_4, y_3, y_2]$$

$p' = s^6 - s^7$ $p = s^6 - s^8$

1699 . Coloring, {3, 4, 5, 6, 7, 8, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, A, B, B, C, 4, 5]
B: [6, 8, 7, 6, A, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, y_1 - y_3 + y_4 + y_2 + y_7 + y_8 - y_6 - y_5, 0, 0, 0, y_3, y_4, y_2, y_7, y_8, y_6, y_5]$$

$p = s^8 - s^9$

1700 . Coloring, {3, 4, 5, 6, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, A, B, B, C, 1, 9]
B: [6, 8, 7, 6, A, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, 0, y_4, y_2, y_3, y_5, y_6, 0, y_9, y_7, y_8]$$

1701 . Coloring, {3, 4, 5, 6, 7, 9, 10}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, A, C, C, 2, 1, 5]
B: [6, 8, 7, 6, A, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[7\,y_7, 7\,y_6, 7\,y_5, 0, 7\,y_4, 0, 7\,y_3, 7\,y_2, 0, -7\,y_7 - 7\,y_6 + 9\,y_5 + 9\,y_4 - 7\,y_3 + 9\,y_2 + 9\,y_1, 0, 7\,y_1]$$

$p = s^2 + s^3 + s^4 - s^6 - s^7 - s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, 0, y_5, y_1, y_1, -y_4 + y_5 - 2\,y_1 - y_2 + y_3 + y_6, y_2, y_3, y_6]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$ $p = -s^2 + s^8$

1702 . Coloring, {3, 4, 5, 6, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, A, C, C, C, 4, 5]
B: [6, 8, 7, 6, A, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	7 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, y_6, y_5, y_4, 0, y_3, y_2, 0, y_1, 0, y_7]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_6 - 3\,y_5 - y_4 - y_2 + y_3, y_1, 0, 0, 0, y_6, y_5, y_4, 2\,y_5, y_2, y_3, 0]$$

$p = -s^2 + s^8$ $p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1703 . Coloring, {3, 4, 5, 6, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, A, C, C, C, 1, 9]
B: [6, 8, 7, 6, A, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[y_5 - y_4, 0, y_5 - y_4, 0, 0, 0, y_5, y_4, y_3, y_2, 0, y_1]$$

$p' = -s^4 + s^6$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 2\,y_4, y_3, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^2 + s^8$

1704 . Coloring, {3, 4, 5, 6, 7, 10, 11}

R: [7, 7, 8, 7, 3, 3, A, C, B, 2, 4, 5]
B: [6, 8, 7, 6, A, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 3\,y_2, 3\,y_1, -3\,y_2 + 10\,y_1 + 10\,y_3 - 3\,y_7 - 3\,y_5 - 3\,y_4, 3\,y_1 - 3\,y_6 + 3\,y_3, 0, 3\,y_7, 3\,y_6, 0, 3\,y_5, 3\,y_4, 3\,y_3]$$

$p = s^3 + s^5 - s^6 - s^8$ $p' = s^3 + s^5 - s^6 - s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_4 - 2\,y_3 - y_2 - y_1 + y_5 + y_6, 0, 0, 0, 0, y_4, y_3, y_3, y_2, y_1, y_5, y_6]$$

$p = s^6 - s^8$ $p' = s^6 - s^7$

1705 . Coloring, {3, 4, 5, 6, 7, 10, 12}

R: [7, 7, 8, 7, 3, 3, A, C, B, 2, 1, 9]
B: [6, 8, 7, 6, A, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_3, y_2, 0, 0, 0, y_9, y_7, y_6, y_8, y_5, y_4]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, y_2, y_1, y_5, y_5, 0, y_4, y_7, y_6]$$

$p = -s^5 + s^8$

1706 . Coloring, {3, 4, 5, 6, 7, 11, 12}

R: [7, 7, 8, 7, 3, 3, A, C, B, C, 4, 9]

B: [6, 8, 7, 6, A, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_5, 0, 0, y_3, y_4, y_2, y_1, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_4, y_5, y_8, y_3, 0, y_6, y_7, y_8]$$

$p = s^3 - s^9$

1707 . Coloring, {3, 4, 5, 6, 8, 9, 10}

R: [7, 7, 8, 7, 3, 3, B, B, C, 2, 1, 5]
B: [6, 8, 7, 6, A, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_7, 2\,y_1, y_6, 0, y_5, 0, y_4, y_3, 0, 0, y_2, y_1]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, 0, y_1, y_3, y_3, y_4, y_5, y_7, y_6]$$

$p = s^2 - s^8$

1708 . Coloring, {3, 4, 5, 6, 8, 9, 11}

R: [7, 7, 8, 7, 3, 3, B, B, C, C, 4, 5]
B: [6, 8, 7, 6, A, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_7, y_5, y_6, 0, y_3, y_4, 0, 0, y_2, y_1]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, y_4, y_5, y_9, y_7, y_8, y_6]$$

1709 . Coloring, {3, 4, 5, 6, 8, 9, 12}

R: [7, 7, 8, 7, 3, 3, B, B, C, C, 1, 9]
B: [6, 8, 7, 6, A, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 7, 11}} order: 6

See Matrix

$$[-5\,y_1 - 5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_5 + 11\,y_6, 0, 5\,y_1, 0, 0, 0, 5\,y_2, 5\,y_3, 5\,y_4, 0, 5\,y_5, 5\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_8, 0, y_6, y_7, y_5, y_3, y_4, 0, y_2, y_3, y_1]$$

$p = -s^4 + s^9$

1710 . Coloring, {3, 4, 5, 6, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, B, B, B, 2, 4, 5]
B: [6, 8, 7, 6, A, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_6, y_5, y_4, y_6, 0, y_3, y_2, 0, 0, y_1, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[2\,y_4, 0, 0, 0, 0, y_5, y_4, y_4, y_3, y_2, 0, y_1]$$

$p' = -s^4 + s^6$ $p = s^4 - s^6$

1711 . Coloring, {3, 4, 5, 6, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, B, B, B, 2, 1, 9]
B: [6, 8, 7, 6, A, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$$[y_1, y_4, y_4, 0, 0, 0, y_2, y_3, y_4, 0, y_5, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_3, y_1, y_2, y_3, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

1712 . Coloring, {3, 4, 5, 6, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, B, B, B, C, 4, 9]
B: [6, 8, 7, 6, A, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	9 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, 0, -2\,y_3 + 2\,y_4, y_1, 0, 0, y_2, y_3, y_4, 0, y_5, -2\,y_3 + 2\,y_4]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[2\,y_4, y_7, 0, 0, y_6, y_5, y_4, y_3, 0, y_2, 0, y_1]$$

$p = -s^3 + s^8$

1713 . Coloring, {3, 4, 5, 6, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, B, C, C, 2, 4, 5]
B: [6, 8, 7, 6, A, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}, {4, 7, 11}} order: 12

See Matrix

$$[0, 9\,y_1 - 7\,y_2 + 9\,y_3 - 7\,y_4 + 9\,y_5 - 7\,y_6 + 9\,y_7, 7\,y_1, 7\,y_2, 7\,y_3, 0, 7\,y_4, 7\,y_5, 0, 0, 7\,y_6, 7\,y_7]$$

$p = s^2 + s^3 + s^4 - s^6 - s^7 - s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

1714 . Coloring, {3, 4, 5, 6, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, B, C, C, 2, 1, 9]
B: [6, 8, 7, 6, A, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$[2\,y_1, 7\,y_1 + 7\,y_4 - 9\,y_3 - 9\,y_2 + 7\,y_5 - 9\,y_6, 7\,y_1 + 7\,y_4 - 9\,y_3 - 9\,y_2 + 7\,y_5 - 9\,y_6, 0, 0, 0, 2\,y_4, 2\,y_3, 2\,y_2, 0, 2\,y_5, 2\,y_6]$

$p' = s^3 + s^4 - s^6 - s^7 \quad p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, 0, y_6, y_5, y_4, y_3, y_3, 0, y_2, y_1, y_7]$

$p = s^5 - s^8$

1715 . Coloring, {3, 4, 5, 6, 9, 11, 12}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, B, C, C, C, 4, 9]
B: [6, 8, 7, 6, A, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$[0, 0, 9\,y_1 + 9\,y_5 - 7\,y_4 - 7\,y_3 + 9\,y_2 - 7\,y_6, 7\,y_1, 0, 0, 7\,y_5, 7\,y_4, 7\,y_3, 0, 7\,y_2, 7\,y_6]$

$p = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$[y_1, y_2, 0, 0, 2\,y_4, y_3, y_4, y_5, 0, y_6, y_7, 0]$

$p = -s^2 + s^8$

1716 . Coloring, {3, 4, 5, 6, 10, 11, 12}

R: [7, 7, 8, 7, 3, 3, B, C, B, 2, 4, 9]
B: [6, 8, 7, 6, A, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_1, y_2, 0, 0, y_3, y_4, y_5, 0, y_6, y_7]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_5, y_6, y_7, y_7, 0, y_2, y_3, y_4]$$

$p = -s^5 + s^8$

1717 . Coloring, {3, 4, 5, 7, 8, 9, 10}

Ωp(Δ)=0: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, A, B, C, 2, 1, 5]
B: [6, 8, 7, 6, A, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_1, y_3, y_2, 0, y_4, 0, y_6, y_5, 0, y_9, y_8, y_7]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, 0, y_4, y_3, y_6, y_5, y_6, y_8, y_7]$$

$p = s^4 - s^9$

1718 . Coloring, {3, 4, 5, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, A, B, C, C, 4, 5]
B: [6, 8, 7, 6, A, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_2, y_1, -y_1 + y_4 + y_3, 0, -y_2 + y_4 + y_3, -y_5 + y_4 + y_3, 0, y_5, y_4, y_3]$$

$p' = -s^2 + s^3 - s^6 + s^7$ $p' = s - s^2 + s^5 - s^6$ $p = s - s^3 + s^5 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 10

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

1719 . Coloring, {3, 4, 5, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, A, B, C, C, 1, 9]
B: [6, 8, 7, 6, A, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	5 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1 + y_4 - y_2 - y_3 - y_5 + y_6 + y_7, 0, y_1, 0, 0, 0, y_4, y_2, y_3, y_5, y_6, y_7]$$

$p = s^7 - s^8$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_4, y_3, y_4 + y_3 - 2\,y_2 + 3\,y_1 - 2\,y_5, -y_4 - 7\,y_3 + 13\,y_2 - 8\,y_1 + 6\,y_5, 3\,y_4 + 8\,y_3 - 14\,y_2 + 9\,y_1 - 7\,y_5, -2\,y_4 - 6\,y_3 + 11\,y_2 - 7\,y_1 + 7\,y_5, y_2, 0, y_1, -2\,y_4 - 13\,y_3 + 23\,y_2 - 14\,y_1 + 11\,y_5, y_5]$$

$p' = -s^4 + s^9$ $p' = -s + s^6$ $p' = -s^3 + s^8$ $p' = -s^2 + s^7$ $p = -s + s^6$

1720 . Coloring, {3, 4, 5, 7, 8, 10, 11}

R: [7, 7, 8, 7, 3, A, A, B, B, 2, 4, 5]
B: [6, 8, 7, 6, A, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_4, y_2, y_3, 0, y_7, y_5, 0, y_6, y_8, 0]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[y_2, 0, y_1, 0, 0, -y_2 - y_1 - y_3 + 2\,y_6 - y_5, y_3, y_4, -2\,y_4 + y_6, y_4, y_5, y_6]$$

$p' = s^2 - s^7$ $p' = s^3 - s^8$ $p = s^2 - s^7$

1721 . Coloring, {3, 4, 5, 7, 8, 10, 12}

R: [7, 7, 8, 7, 3, A, A, B, B, 2, 1, 9]
B: [6, 8, 7, 6, A, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_1, y_2, 0, 0, 0, y_5, y_4, 2\,y_2, y_6, y_7, 0]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {3, 4, 6, 7, 11}}

See Matrix

$$[0, 0, y_5, y_6, y_2, y_3, y_4, y_5 + y_6 - y_2 + y_3 + y_4 - y_1 + y_7 - y_8, 0, y_1, y_7, y_8]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

1722 . Coloring, {3, 4, 5, 7, 8, 11, 12}

R: [7, 7, 8, 7, 3, A, A, B, B, C, 4, 9]
B: [6, 8, 7, 6, A, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	5 *vs* 10

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {2, 5, 8, 10, 12}} order: 5

See Matrix

$$[-y_4 + y_2 + y_1, y_5 + y_4 - y_2, y_4 - y_2 - y_1 + y_5 + y_3, 0, y_5 - y_2 + y_3, y_5, y_4, y_3, 0, y_2, y_1, -y_3 + y_2 + y_1]$$

$p' = -s + s^6$ $p' = -s^3 + s^8$ $p' = -s^2 + s^7$ $p = -s + s^6$ $p' = -s^4 + s^9$

1723 . Coloring, {3, 4, 5, 7, 9, 10, 11}

R: [7, 7, 8, 7, 3, A, A, C, C, 2, 4, 5]
B: [6, 8, 7, 6, A, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, -3\,y_1 + 10\,y_2 - 3\,y_3 + 10\,y_4 - 3\,y_5, 3\,y_2 + 3\,y_4 - 3\,y_6, 3\,y_1, 3\,y_2, 0, 3\,y_3, 3\,y_4, 0, 3\,y_5, 0, 3\,y_6]$$

$p' = -s^2 - s^4 + s^5 + s^7 \quad p = s^2 + s^4 - s^5 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_2, 0, y_3, 0, 0, y_8, y_1, y_7, y_5, y_7, y_6, y_4]$$

$p = -s^4 + s^9$

1724 . Coloring, {3, 4, 5, 7, 9, 10, 12}

R: [7, 7, 8, 7, 3, A, A, C, C, 2, 1, 9]
B: [6, 8, 7, 6, A, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[6\,y_2 + 6\,y_3 - 6\,y_5, 4\,y_2 + 4\,y_3 + 6\,y_5 - 3\,y_1 - 3\,y_4, 3\,y_2 + 3\,y_3 - 3\,y_5, 0, 0, 0, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 0, 3\,y_5\ ]$$

$p = -s^3 + s^6 \quad p' = -s^3 + s^6 \quad p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, 5\,y_2, 5\,y_3, 5\,y_4, 5\,y_1, -5\,y_2 - 5\,y_3 + 11\,y_4 - 5\,y_1 - 5\,y_8 + 11\,y_7 - 5\,y_5 + 11\,y_6, 5\,y_8, 0, 5\,y_7, 5\,y_5, 5\,y_6]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

1725 . Coloring, {3, 4, 5, 7, 9, 11, 12}

R: [7, 7, 8, 7, 3, A, A, C, C, C, 4, 9]
B: [6, 8, 7, 6, A, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_3 - 2\,y_4, 2\,y_3 - 4\,y_4, 0, 0, y_3, y_4, y_2, y_1, 0, -y_4 + y_2 + y_1]$$

$$p' = -s^5 + s^6 \quad p = s^4 - s^6 \quad p' = s^4 - s^5$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, 0]$$

1726 . Coloring, {3, 4, 5, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, A, C, B, 2, 4, 9]
B: [6, 8, 7, 6, A, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_9, y_8, y_7, 0, 0, y_6, y_5, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[-3\,y_8 + 5\,y_7 - 3\,y_6 - 3\,y_5 - 3\,y_4 + 5\,y_3 - 3\,y_2 + 5\,y_1, 0, 3\,y_8, 0, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4, 0, 3\,y_3, 3\,y_2, 3\,y_1]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

1727 . Coloring, {3, 4, 5, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, B, B, C, 2, 4, 5]
B: [6, 8, 7, 6, A, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_1, 0, y_7, y_5, 0, y_6, y_4, y_6]$$

$$p = -s^5 + s^8 \quad p' = -s^5 + s^8$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_6, y_7, y_8, y_9, y_5, y_4]$$

1728 . Coloring, {3, 4, 5, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, B, B, C, 2, 1, 9]
B: [6, 8, 7, 6, A, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-9\,y_3 - 6\,y_6 - 3\,y_1 + 13\,y_5 - 3\,y_4 + 13\,y_2,\ 3\,y_3 + 3\,y_6,\ 3\,y_3,\ 0,\ 0,\ 0,\ 3\,y_1,\ 3\,y_6,\ 3\,y_5,\ 3\,y_3,\ 3\,y_4,\ 3\,y_2]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0,\ 0,\ y_1,\ y_2,\ y_3,\ y_4,\ y_5,\ y_7,\ 0,\ y_6,\ y_7,\ y_8]$$

$p = s^6 - s^9$

1729 . Coloring, {3, 4, 5, 8, 9, 11, 12}

Ωp(Δ)=0: $p = 3s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, B, B, C, C, 4, 9]
B: [6, 8, 7, 6, A, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0,\ 0,\ 3\,y_2,\ -3\,y_2 - 3\,y_1 - 3\,y_5 - 3\,y_3 + 10\,y_4,\ 0,\ 0,\ 3\,y_1,\ 3\,y_5,\ -3\,y_2 + 3\,y_4,\ 3\,y_2,\ 3\,y_3,\ 3\,y_4]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 10

See Matrix

$$[y_6,\ y_7,\ y_5,\ 0,\ y_4,\ y_3,\ y_1,\ y_2,\ 0,\ y_9,\ y_{10},\ y_8]$$

1730 . Coloring, {3, 4, 5, 8, 10, 11, 12}

R: [7, 7, 8, 7, 3, A, B, B, B, 2, 4, 9]
B: [6, 8, 7, 6, A, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_3 + y_4, y_3, y_1, 0, 0, y_5, y_4, 2\,y_3, y_3, y_2, 0]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\,y_5, 0, y_1, 0, y_2, y_3, y_4, y_5, 0, y_6, 0, y_7]$$

$p = -s^5 + s^8$

1731 . Coloring, {3, 4, 5, 9, 10, 11, 12}

R: [7, 7, 8, 7, 3, A, B, C, C, 2, 4, 9]
B: [6, 8, 7, 6, A, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_5, 3\,y_4, 3\,y_3, 0, 0, 3\,y_1, 3\,y_5 - 3\,y_4, 3\,y_2, 3\,y_4, -3\,y_3 - 3\,y_1 + 7\,y_5 - 13\,y_4 + 10\,y_2, 3\,y_5 - 6\,y_4 + 3\,y_2]$$

$p' = -s^5 + s^8$ $p' = s^3 - s^6$ $p' = s^4 - s^7$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_9, 0, y_8, 0, y_7, y_6, y_5, y_4, 0, y_3, y_2, y_1]$$

1732 . Coloring, {3, 4, 6, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, A, B, C, 2, 1, 5]
B: [6, 8, 7, 6, 3, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_2, y_7, 0, y_7 + y_4, 0, y_3, y_4, 0, y_5, y_6, y_7]$$

$p = - s^5 + s^8$ $p' = - s^5 + s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_1, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = - s^3 + s^9$

1733 . Coloring, {3, 4, 6, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, A, B, C, C, 4, 5]
B: [6, 8, 7, 6, 3, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_{10}, y_8, y_9, 0, 0, y_7, y_6, y_4, y_5, y_3, y_1, y_2]$$

1734 . Coloring, {3, 4, 6, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, A, B, C, C, 1, 9]
B: [6, 8, 7, 6, 3, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1 + y_7 - y_2 - y_3 - y_4 + y_5 + y_6, 0, y_1, 0, 0, 0, y_7, y_2, y_3, y_4, y_5, y_6]$$

$p = -s^7 + s^8$

Omega Rank for B : cycles: {{2, 3, 4, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[0, y_6, y_7, y_1, y_2, y_3, y_4, y_5, 0, y_8, y_9, y_{10}]$$

1735 . Coloring, {3, 4, 6, 7, 8, 10, 11}

R: [7, 7, 8, 7, A, 3, A, B, B, 2, 4, 5]
B: [6, 8, 7, 6, 3, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 2\,y_2, 0, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_8, 0, y_7, 0, 0, y_5, y_6, y_7, y_3, y_4, y_1, y_2]$$

$p = -s^7 + s^9$

1736 . Coloring, {3, 4, 6, 7, 8, 10, 12}

R: [7, 7, 8, 7, A, 3, A, B, B, 2, 1, 9]
B: [6, 8, 7, 6, 3, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, y_3, 0, 0, 0, y_4, y_6, 2\,y_3, y_5, y_7, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_9, y_8, y_7, y_6, y_5, y_4, 0, y_3, y_2, y_1]$$

1737 . Coloring, {3, 4, 6, 7, 8, 11, 12}

R: [7, 7, 8, 7, A, 3, A, B, B, C, 4, 9]
B: [6, 8, 7, 6, 3, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1 - y_2 + y_3 + y_4 + y_5 - y_6 - y_7, y_1, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$$

Omega Rank for B : cycles: {{1, 2, 3, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[y_{10}, y_9, y_8, 0, y_7, y_6, y_5, y_4, 0, y_3, y_2, y_1]$$

1738 . Coloring, {3, 4, 6, 7, 9, 10, 11}

R: [7, 7, 8, 7, A, 3, A, C, C, 2, 4, 5]
B: [6, 8, 7, 6, 3, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_2, y_1, 2\,y_1, y_3, 0, y_4, y_5, 0, y_6, 0, y_7]$$

$$p = -s^5 + s^8$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_4, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^3 + s^9$

1739 . Coloring, {3, 4, 6, 7, 9, 10, 12}

R: [7, 7, 8, 7, A, 3, A, C, C, 2, 1, 9]
B: [6, 8, 7, 6, 3, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[6 y_3 + 6 y_2 - 6 y_5, -3 y_1 + 4 y_3 + 4 y_2 - 3 y_4 + 6 y_5, 3 y_3 + 3 y_2 - 3 y_5, 0, 0, 0, 3 y_1, 3 y_3, 3 y_2, 3 y_4, 0, 3 y_5]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_4, y_5, y_9, y_6, y_7, y_8, 0, y_1, y_2, y_3]$$

1740 . Coloring, {3, 4, 6, 7, 9, 11, 12}

R: [7, 7, 8, 7, A, 3, A, C, C, C, 4, 9]
B: [6, 8, 7, 6, 3, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	4 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1 - 2\,y_2 - 2\,y_3 + 2\,y_4, 2\,y_1 - 4\,y_2 - 4\,y_3 + 4\,y_4, 0, 0, y_1, y_2 + y_3 - y_4, y_2, y_3, 0, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_9, 0, y_7, y_8, 0]$$

1741 . Coloring, {3, 4, 6, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, A, C, B, 2, 4, 9]
B: [6, 8, 7, 6, 3, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_9, y_8, 0, 0, y_7, y_6, y_5, y_4, y_3, y_2]$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_6, 0, y_4, y_5, y_3, y_2, 0, y_8, y_9, y_7]$$

1742 . Coloring, {3, 4, 6, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, B, B, C, 2, 4, 5]
B: [6, 8, 7, 6, 3, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_5, y_6, y_4, y_3, 0, y_2, -y_6 + y_3, 0, y_1, y_7, y_6]$$

$p = s^5 - s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_8, 0, y_7, 0, 0, y_6, y_5, y_7, y_4, y_3, y_2, y_1]$$

$p = s^3 - s^9$

1743 . Coloring, {3, 4, 6, 8, 9, 10, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, B, B, C, 2, 1, 9]
B: [6, 8, 7, 6, 3, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-9 y_2 - 3 y_5 - 6 y_4 + 13 y_3 - 3 y_1 + 13 y_6, 3 y_2 + 3 y_4, 3 y_2, 0, 0, 0, 3 y_5, 3 y_4, 3 y_3, 3 y_2, 3 y_1, 3 y_6]$$

$p = -s^3 + s^9$ $p = s^3 - s^5 - s^6 + s^8$ $p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_2, y_3, y_8, y_7, y_6, y_5, 0, y_4, y_5, y_1]$$

$p = s^4 - s^9$

1744 . Coloring, {3, 4, 6, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, B, B, C, C, 4, 9]
B: [6, 8, 7, 6, 3, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 3\,y_2, 3\,y_3, 0, 0, 3\,y_1, -3\,y_3 - 3\,y_1 - 3\,y_2 - 3\,y_5 + 10\,y_4, -3\,y_2 + 3\,y_4, 3\,y_2, 3\,y_5, 3\,y_4]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[y_9, y_{10}, y_7, 0, y_8, y_6, y_5, y_4, 0, y_2, y_3, y_1]$$

1745 . Coloring, {3, 4, 6, 8, 10, 11, 12}

R: [7, 7, 8, 7, A, 3, B, B, B, 2, 4, 9]
B: [6, 8, 7, 6, 3, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_5, y_4, y_3, 0, 0, y_2, y_5 - y_4, 2\,y_4, y_4, y_1, 0]$$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[2\,y_2, 0, y_6, 0, y_5, y_4, y_3, y_2, 0, y_1, 0, y_7]$$

$p = -s^3 + s^8$

1746 . Coloring, {3, 4, 6, 9, 10, 11, 12}

R: [7, 7, 8, 7, A, 3, B, C, C, 2, 4, 9]
B: [6, 8, 7, 6, 3, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 3\,y_1 + 3\,y_3, 3\,y_1, 4\,y_1 - 3\,y_3 - 3\,y_2 + 10\,y_5 - 3\,y_4, 0, 0, 3\,y_2, 3\,y_3, 3\,y_1 - 3\,y_3 + 3\,y_5, 3\,y_1, 3\,y_4, 3\,y_5]$$

$p' = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = -s^3 + s^9$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_9, 0, y_7, y_8, y_4, y_5, 0, y_6, y_2, y_3]$$

1747 . Coloring, {3, 4, 7, 8, 9, 10, 11}

R: [7, 7, 8, 7, A, A, A, B, C, 2, 4, 5]
B: [6, 8, 7, 6, 3, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_5 + y_6, 0, y_3, y_5, 0, y_4, y_6, y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_5, 0, y_4, 0, 0, y_3, y_2, y_1, y_6, 0, y_7, y_8]$$

1748 . Coloring, {3, 4, 7, 8, 9, 10, 12}

R: [7, 7, 8, 7, A, A, A, B, C, 2, 1, 9]
B: [6, 8, 7, 6, 3, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[3 y_2, 3 y_3, 0, 0, 0, 0, -3 y_2 - 3 y_3 - 3 y_1 + 13 y_4 - 3 y_5 - 3 y_6 + 13 y_7, 3 y_1, 3 y_4, 3 y_5, 3 y_6, 3 y_7]$$

$p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_8, y_7, y_6, y_5, y_4, y_3, 0, 0, y_2, y_1]$$

1749 . Coloring, {3, 4, 7, 8, 9, 11, 12}

R: [7, 7, 8, 7, A, A, A, B, C, C, 4, 9]
B: [6, 8, 7, 6, 3, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, 0, y_2, y_6, y_7, y_5, y_3, y_4]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_5, y_6, y_7, 0, y_8, y_9, y_3, y_4, 0, 0, y_2, y_1]$$

1750 . Coloring, {3, 4, 7, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, A, B, B, 2, 4, 9]
B: [6, 8, 7, 6, 3, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_6, 0, y_5, 0, 0, y_4, y_3, 2\,y_3, y_2, y_1, 0]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_4, 0, y_3, 0, y_1, y_2, y_8, y_7, 0, 0, y_5, y_6]$$

1751 . Coloring, {3, 4, 7, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, A, A, C, C, 2, 4, 9]
B: [6, 8, 7, 6, 3, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, 10\,y_1 + 10\,y_5 - 22\,y_4 + 10\,y_3 - 22\,y_2, 0, 0, y_5, 5\,y_1 + 5\,y_5 - 11\,y_4 + 5\,y_3 - 11\,y_2, y_4, y_3, 0, y_2]$$

$p = -s^2 + s^4 + s^5 - s^7$ $p = s^2 + s^3 - s^5 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_7, y_4, y_5, y_6, 0, 0, y_3, 2\,y_6]$$

$p = s^3 - s^8$

1752 . Coloring, {3, 4, 8, 9, 10, 11, 12}

R: [7, 7, 8, 7, A, A, B, B, C, 2, 4, 9]
B: [6, 8, 7, 6, 3, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 3\,y_1, 0, -3\,y_1 - 3\,y_4 - 9\,y_5 + 13\,y_3 - 3\,y_2 + 13\,y_6, 0, 0, 3\,y_4, 3\,y_5, 3\,y_3, 6\,y_5, 3\,y_2, 3\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, y_8, y_7, y_6, y_5, 0, y_4, y_5, y_3]$$

$$p = s^4 - s^9$$

1753 . Coloring, {3, 5, 6, 7, 8, 9, 10}

R: [7, 7, 8, 6, 3, 3, A, B, C, 2, 1, 5]
B: [6, 8, 7, 7, A, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_6, y_5, y_4, 0, y_3, y_7, y_2, y_1, 0, y_9, y_8, y_7]$$

$$p = s^7 - s^{10}$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, 0, y_1, 0, y_6, y_7, y_6, y_4, y_5, y_3, y_2]$$

$$p = -s^5 + s^8$$

1754 . Coloring, {3, 5, 6, 7, 8, 9, 11}

R: [7, 7, 8, 6, 3, 3, A, B, C, C, 4, 5]
B: [6, 8, 7, 7, A, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_6, y_5, y_4, y_3, y_2, y_1, 0, y_9, y_8, y_7]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1, y_2, 0, 0, 0, y_3, y_4, y_9, y_5, y_6, y_7, y_8]$$

1755 . Coloring, {3, 5, 6, 7, 8, 9, 12}

R: [7, 7, 8, 6, 3, 3, A, B, C, C, 1, 9]
B: [6, 8, 7, 7, A, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[y_3, 0, y_2, 0, 0, y_1, y_3 - y_2 + y_1 + y_8 + y_6 + y_7 - y_5 - y_4, y_8, y_6, y_7, y_5, y_4]$$

$p = s^8 - s^9$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}, {4, 7, 11}}

See Matrix

$$[0, 9\,y_1 - 7\,y_2 - 7\,y_3 + 9\,y_4 - 7\,y_5 - 7\,y_6 + 9\,y_7 - 7\,y_8, 0, 7\,y_1, 7\,y_2, 7\,y_3, 7\,y_4, 7\,y_5, 0, 7\,y_6, 7\,y_7, 7\,y_8]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

1756 . Coloring, {3, 5, 6, 7, 8, 10, 11}

R: [7, 7, 8, 6, 3, 3, A, B, B, 2, 4, 5]
B: [6, 8, 7, 7, A, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {3, 4, 6, 8, 11}}

See Matrix

$$[0, y_2, 5\,y_2 - y_5 - y_3 - y_4 - y_1 - y_6, y_5, y_3, y_4, y_2, y_1, 0, y_2, y_6, 0]$$

$p' = -s^2 + s^7$ $p' = -s^3 + s^8$ $p = -s^2 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_3, 2\,y_2, y_2, y_4, y_7, y_6, y_5]$$

$p = s^6 - s^8$

1757 . Coloring, {3, 5, 6, 7, 8, 10, 12}

R: [7, 7, 8, 6, 3, 3, A, B, B, 2, 1, 9]
B: [6, 8, 7, 7, A, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_1, y_7, y_8, 0, 0, y_6, y_4, y_5, 2\,y_6, y_2, y_3, 0]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_3, 5\,y_3 - 2\,y_1 - y_2 - y_4, y_1, y_3, y_1, 0, y_2, y_3, y_4]$$

$p' = s^2 - s^5$ $p = -s^2 + s^5$ $p' = -s^3 + s^6$ $p = -s^2 + s^8$

1758 . Coloring, {3, 5, 6, 7, 8, 11, 12}

R: [7, 7, 8, 6, 3, 3, A, B, B, C, 4, 9]
B: [6, 8, 7, 7, A, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, 0, 0, y_8, y_9, y_3, y_4, 0, y_5, y_6, y_7]$$

1759 . Coloring, {3, 5, 6, 7, 9, 10, 11}

R: [7, 7, 8, 6, 3, 3, A, C, C, 2, 4, 5]
B: [6, 8, 7, 7, A, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, y_6, y_5, y_4, y_3, y_2, y_6, y_1, 0, y_6, 0, -y_5 - y_4 - y_3 - y_2 + 5\, y_6 - y_1]$$

$p' = s^4 - s^8$ $p' = s^3 - s^7$ $p = s^3 - s^7$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_7, 2\,y_2, y_2, y_3, y_4, y_5, y_6]$$

$p = -s^2 + s^8$

1760 . Coloring, {3, 5, 6, 7, 9, 10, 12}

R: [7, 7, 8, 6, 3, 3, A, C, C, 2, 1, 9]
B: [6, 8, 7, 7, A, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[2\,y_6, 2\,y_4 + 2\,y_3 - y_5 - y_2, y_6 + y_4 + y_3 - y_1, 0, 0, y_6, y_5, y_4, y_3, y_2, 0, y_1]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, -27\,y_1 - 20\,y_2 + 7\,y_3 + 16\,y_4, 2\,y_1, 2\,y_2, 2\,y_3, 2\,y_2, 0, -16\,y_1 - 12\,y_2 + 4\,y_3 + 10\,y_4, 2\,y_4, -7\,y_1 - 4\,y_2 + 3\,y_3 + 4\,y_4]$$

$p = s^2 - s^8$ $p' = s^2 - s^5$ $p' = s^3 - s^6$ $p' = s^4 - s^7$

1761 . Coloring, {3, 5, 6, 7, 9, 11, 12}

R: [7, 7, 8, 6, 3, 3, A, C, C, C, 4, 9]
B: [6, 8, 7, 7, A, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_1, -2\,y_2 + 2\,y_5, 0, y_2, -2\,y_2 + 2\,y_5, y_3, y_4, y_5, 0, y_6]$$

$p = -s^5 + s^7$ $p' = -s^5 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_6, y_5, y_6, y_7, 0, y_3, y_4, 0]$$

$p = -s^2 + s^8$

1762 . Coloring, {3, 5, 6, 7, 10, 11, 12}

R: [7, 7, 8, 6, 3, 3, A, C, B, 2, 4, 9]
B: [6, 8, 7, 7, A, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {3, 4, 6, 8, 9, 11, 12}}

See Matrix

$$[0, y_7, y_6, y_5, 0, y_4, y_7, y_3, y_2, y_7, y_1, 5\,y_7 - y_6 - y_5 - y_4 - y_3 - y_2 - y_1]$$

$p' = -s^2 + s^9$ $p' = -s + s^8$ $p = -s + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, 2\,y_4, y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

1763 . Coloring, {3, 5, 6, 8, 9, 10, 11}

R: [7, 7, 8, 6, 3, 3, B, B, C, 2, 4, 5]
B: [6, 8, 7, 7, A, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 2\,y_7, y_1, y_2, y_5, y_4, 2\,y_5 - 2\,y_7, y_3, 0, 0, y_6, y_7]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, 0, y_6, 2\,y_5, y_5, y_4, y_3, y_2, y_1]$$

$p = s^2 - s^8$

1764 . Coloring, {3, 5, 6, 8, 9, 10, 12}

R: [7, 7, 8, 6, 3, 3, B, B, C, 2, 1, 9]
B: [6, 8, 7, 7, A, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_2, 6\,y_1, -3\,y_2 - 9\,y_1 - 3\,y_7 - 3\,y_5 + 13\,y_6 - 3\,y_3 + 13\,y_4, 0, 0, 3\,y_1, 3\,y_7, 3\,y_5, 3\,y_6, 0, 3\,y_3, 3\,y_4]$$

$p = -s^4 - s^5 + s^7 + s^8$ $p = s^4 - s^6 - s^7 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, y_2, y_4, y_1, y_4, 0, y_6, y_4, y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1765 . Coloring, {3, 5, 6, 8, 9, 11, 12}

R: [7, 7, 8, 6, 3, 3, B, B, C, C, 4, 9]
B: [6, 8, 7, 7, A, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, 5\,y_7, 5\,y_6, 0, 5\,y_5, 5\,y_4, 5\,y_3, 5\,y_2, 0, -5\,y_7 - 5\,y_6 - 5\,y_5 - 5\,y_4 - 5\,y_3 + 11\,y_2 + 11\,y_1, 5\,y_1]$$

$p = s^2 + s^3 - s^7 - s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_6, y_5, 0, 0, y_4, y_3, 2\,y_7, y_2, 0, y_1, y_7, y_8]$$

$p = -s^4 + s^9$

1766 . Coloring, {3, 5, 6, 8, 10, 11, 12}

R: [7, 7, 8, 6, 3, 3, B, B, B, 2, 4, 9]
B: [6, 8, 7, 7, A, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	5 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_6, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, 0]$$

$p = -s^3 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\,y_2, 0, 0, 0, y_3, y_1, 2\,y_2, y_2, 0, y_4, 0, y_5]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$

1767 . Coloring, {3, 5, 6, 9, 10, 11, 12}

R: [7, 7, 8, 6, 3, 3, B, C, C, 2, 4, 9]
B: [6, 8, 7, 7, A, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_1 + y_2 - y_3 + y_4 - y_5 - y_6 - y_8 + y_7, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_8, y_7]$$

$p = -s^8 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, y_6, y_5, 2\,y_4, y_4, 0, y_3, y_2, y_1]$$

$p = -s^5 + s^8$

1768 . Coloring, {3, 5, 7, 8, 9, 10, 11}

R: [7, 7, 8, 6, 3, A, A, B, C, 2, 4, 5]
B: [6, 8, 7, 7, A, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_7, y_8, y_6, y_4, y_5, y_3, y_2, 0, y_1, y_9, y_{10}]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_8, 0, y_7, 0, 0, y_5, y_6, y_4, y_3, y_4, y_2, y_1]$$

$p = s^4 - s^9$

1769 . Coloring, {3, 5, 7, 8, 9, 10, 12}

R: [7, 7, 8, 6, 3, A, A, B, C, 2, 1, 9]
B: [6, 8, 7, 7, A, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	5 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[-3 y_1 - 6 y_2 - 3 y_3 - 3 y_4 + 13 y_5 - 3 y_6 - 3 y_7 + 13 y_8, 3 y_1, 3 y_2, 0, 0, 3 y_2, 3 y_3, 3 y_4, 3 y_5, 3 y_6, 3 y_7, 3 y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$ $p = s^5 - s^7 - s^8 + s^{10}$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 2 y_1, 2 y_2, 3 y_1 + 3 y_2 + 4 y_5 + 4 y_4 - 7 y_3, 2 y_5, 7 y_1 + 7 y_2 + 16 y_5 + 16 y_4 - 27 y_3, 2 y_5, 0, 4 y_1 + 4 y_2 + 8 y_5 + 10 y_4 - 16 y_3, 2 y_4, 2 y_3]$$

$p = -s^3 + s^6$ $p' = -s^4 + s^7$ $p = -s^3 + s^9$ $p' = -s^3 + s^6$

1770 . Coloring, {3, 5, 7, 8, 9, 11, 12}

R: [7, 7, 8, 6, 3, A, A, B, C, C, 4, 9]
B: [6, 8, 7, 7, A, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, 3\,y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_2, 2\,y_1, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^7 + s^8$ $p = -s^7 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {2, 5, 8, 10, 12}} order: 5

See Matrix

$$[2\,y_2, 6\,y_2 + 8\,y_1 - 12\,y_3 + 4\,y_5 - 8\,y_4, 2\,y_1, 0, 8\,y_2 + 13\,y_1 - 18\,y_3 + 8\,y_5 - 15\,y_4, -4\,y_2 - 8\,y_1 + 14\,y_3 - 8\,y_5 + 12\,y_4, 8\,y_2 + 15\,y_1 - 22\,y_3 + 12\,y_5 - 17\,y_4, 2\,y_3, 0, 2\,y_5, 12\,y_2 + 18\,y_1 - 28\,y_3 + 14\,y_5 - 22\,y_4, 2\,y_4]$$

$p' = -s^4 + s^9$ $p' = -s^3 + s^8$ $p' = -s^2 + s^7$ $p = -s + s^6$ $p' = -s + s^6$

1771 . Coloring, {3, 5, 7, 8, 10, 11, 12}

R: [7, 7, 8, 6, 3, A, A, B, B, 2, 4, 9]
B: [6, 8, 7, 7, A, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_6, y_5, y_4, 0, y_3, y_2, y_1, 2\,y_5, y_8, y_7, 0]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_3, y_2, 0, y_1, -y_7 - y_6 + y_5 - y_4 - y_3 + y_2 + y_1 + y_8, y_8]$$

$$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$$

1772 . Coloring, {3, 5, 7, 9, 10, 11, 12}

R: [7, 7, 8, 6, 3, A, A, C, C, 2, 4, 9]
B: [6, 8, 7, 7, A, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, y_2, -6 y_5 - 4 y_3 + 3 y_2 + 3 y_1 + 3 y_4, -12 y_5 - 8 y_3 + 6 y_2 + 6 y_1 + 6 y_4, 0, -8 y_5 - 2 y_3 + 3 y_2 + 3 y_1 + 3 y_4, y_1, 3 y_2 - 7 y_5 - 3 y_3 + 3 y_1 + 3 y_4, y_5, y_4, 0, y_3]$$

$$p = -s^3 + s^6 \quad p = -s^3 + s^9 \quad p' = s^4 - s^7 \quad p' = s^3 - s^6$$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[5 y_6, 0, 5 y_5, 0, 5 y_4, 5 y_3, 5 y_2, -5 y_6 - 5 y_5 + 11 y_4 - 5 y_3 - 5 y_2 + 11 y_1 - 5 y_8 + 11 y_7, 0, 5 y_1, 5 y_8, 5 y_7]$$

$$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$$

1773 . Coloring, {3, 5, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p = 5s^4 - 8s^5 + 8s^7 - 16s^8$

R: [7, 7, 8, 6, 3, A, B, B, C, 2, 4, 9]
B: [6, 8, 7, 7, A, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_2 + 8\,y_8 - 3\,y_6 + 5\,y_7, 3\,y_1, -3\,y_3 - 3\,y_4 + 5\,y_8 - 3\,y_5 + 8\,y_7, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_8, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p' = -s^3 + s^9 \quad p = -s^3 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, y_4, y_2, y_3, y_8, 0, y_1, y_8, y_7]$$

$p = s^6 - s^9$

1774 . Coloring, {3, 6, 7, 8, 9, 10, 11}

R: [7, 7, 8, 6, A, 3, A, B, C, 2, 4, 5]
B: [6, 8, 7, 7, 3, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {3, 4, 6, 8, 11}}

See Matrix

$$[0, 5\,y_1 + 5\,y_2 - 3\,y_3 + 5\,y_4 - 3\,y_5 + 5\,y_6 - 3\,y_7 + 5\,y_8 - 3\,y_9, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 0, 3\,y_7, 3\,y_8, 3\,y_9]$$

$p = -s^3 - s^4 - s^5 + s^8 + s^9 + s^{10}$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1 - y_2 - y_4 - y_7 + y_5 + y_6, 0, y_3, 0, 0, y_1, y_2, y_3, y_4, y_7, y_5, y_6]$$

$p = -s^3 + s^9 \quad p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1775 . Coloring, {3, 6, 7, 8, 9, 10, 12}

R: [7, 7, 8, 6, A, 3, A, B, C, 2, 1, 9]
B: [6, 8, 7, 7, 3, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_9 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8,\ 3\,y_1,\ 3\,y_2,\ 0,\ 0,\ 3\,y_3,\ 3\,y_9,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$$p = -s^6 - s^7 + s^9 + s^{10}$$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0,\ 0,\ y_3,\ y_2,\ y_1,\ y_5,\ y_4,\ y_5,\ 0,\ y_8,\ y_6,\ y_7]$$

$$p = s^6 - s^9$$

1776 . Coloring, {3, 6, 7, 8, 9, 11, 12}

R: [7, 7, 8, 6, A, 3, A, B, C, C, 4, 9]
B: [6, 8, 7, 7, 3, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 10

Omega Rank for R : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0,\ 0,\ 5\,y_6,\ 5\,y_7,\ 0,\ -5\,y_6 - 5\,y_7 - 5\,y_1 + 6\,y_2 + 6\,y_3 - 5\,y_4,\ 5\,y_2 + 5\,y_3 - 5\,y_5,\ 5\,y_1,\ 5\,y_2,\ 5\,y_3,\ 5\,y_4,\ 5\,y_5]$$

$$p' = -s^3 + s^8 \quad p = -s^3 + s^8$$

Omega Rank for B : cycles: {{1, 2, 3, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[y_1,\ y_2,\ y_1 - y_2 + y_8 - y_7 + y_5 + y_6 + y_3 - y_4 - y_9,\ 0,\ y_8,\ y_7,\ y_5,\ y_6,\ 0,\ y_3,\ y_4,\ y_9]$$

$$p = s - s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9 - s^{10}$$

1777 . Coloring, {3, 6, 7, 8, 10, 11, 12}

R: [7, 7, 8, 6, A, 3, A, B, B, 2, 4, 9]
B: [6, 8, 7, 7, 3, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[0, 7\,y_1, 9\,y_1 - 7\,y_2 - 7\,y_3 + 9\,y_4 - 7\,y_5 - 7\,y_6 + 9\,y_7 - 7\,y_8, 7\,y_2, 0, 7\,y_3, 7\,y_4, 7\,y_5, 7\,y_6, 7\,y_7, 7\,y_8, 0]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_1 + y_7 - y_4 + y_5 + y_6 + y_3 - y_2 - y_8, 0, y_7, y_4, y_5, y_6, 0, y_3, y_2, y_8]$$

$$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8 - s^9$$

1778 . Coloring, {3, 6, 7, 9, 10, 11, 12}

R: [7, 7, 8, 6, A, 3, A, C, C, 2, 4, 9]
B: [6, 8, 7, 7, 3, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, 7\,y_2, 7\,y_1, 9\,y_2 - 7\,y_1 - 7\,y_8 + 9\,y_7 - 7\,y_6 - 7\,y_5 + 9\,y_4 - 7\,y_3, 0, 7\,y_8, 7\,y_7, 7\,y_6, 7\,y_5, 7\,y_4, 0, 7\,y_3]$$

$p = s^5 + s^6 - s^8 - s^9$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1 - y_2 + y_3 - y_4 - y_5 - y_6 + y_7 + y_8, 0, y_1, 0, y_2, y_3, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

1779 . Coloring, {3, 6, 8, 9, 10, 11, 12}

R: [7, 7, 8, 6, A, 3, B, B, C, 2, 4, 9]
B: [6, 8, 7, 7, 3, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[0, -3 y_3 - 3 y_1 - 3 y_2 - 3 y_4 - 3 y_5 + 13 y_6 - 3 y_7 - 3 y_8 + 13 y_9, 3 y_3, 3 y_1, 0, 3 y_2, 3 y_4, 3 y_5, 3 y_6, 3 y_7, 3 y_8, 3 y_9]$$

$p = -s^4 - s^5 + s^9 + s^{10}$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_3, y_2, 0, y_1, y_2, y_8]$$

$p = s^4 - s^9$

1780 . Coloring, {3, 7, 8, 9, 10, 11, 12}

R: [7, 7, 8, 6, A, A, A, B, C, 2, 4, 9]
B: [6, 8, 7, 7, 3, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8, 0, 3\,y_1, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, y_5, y_4, y_3, y_2, 0, 0, y_1, y_8]$$

1781 . Coloring, {4, 5, 6, 7, 8, 9, 10}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, A, B, C, 2, 1, 5]
B: [6, 8, 8, 6, A, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_3, y_1, y_2, 0, y_3, 0, y_6, 0, 0, y_4, y_5, y_5]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1 - y_5 - y_6 - y_2 + y_3 + y_4, 0, y_1, 0, y_5, y_6, y_2, y_3, y_4]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1782 . Coloring, {4, 5, 6, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, A, B, C, C, 4, 5]
B: [6, 8, 8, 6, A, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$[0, 0, y_1, y_2, y_3, 0, y_4, 0, 0, y_5, y_6, y_7]$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$[y_1, y_1 - y_2 + y_7 + y_5 + y_4 - y_6 - y_3, 0, 0, 0, y_2, 0, y_7, y_5, y_4, y_6, y_3]$

$p = s - s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1783 . Coloring, {4, 5, 6, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, A, B, C, C, 1, 9]
B: [6, 8, 8, 6, A, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$[y_4 - y_5 - y_1 - y_2 + y_3, 0, 2\,y_2, 0, 0, 0, y_4, 0, y_5, y_1, y_2, y_3]$

$p = -s^5 + s^6$ $p = -s^5 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_4, 0, y_3, y_2, y_1, 0, y_8, 0, y_7, y_6, y_5]$$

1784 . Coloring, {4, 5, 6, 7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = 3s^2 - 14s^3 + 24s^5 + 32s^6 + 32s^7 - 128s^8$ $p' = -3s^2 + 2s^3 + 8s^4 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, 3, A, B, B, 2, 4, 5]
B: [6, 8, 8, 6, A, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_1, y_2, y_2, y_5, 0, y_3, 0, 0, y_4, y_5, 0]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1 - y_2 - y_3 + y_5, 0, 0, 0, 0, y_1, 0, y_4, y_2, y_3, y_4, y_5]$$

$p = s^5 - s^7$ $p' = s^5 - s^6$

1785 . Coloring, {4, 5, 6, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^2 + 2s^3 + 8s^5 + 32s^7$ $p = -9s^2 + 4s^4 + 24s^5 + 16s^6 + 96s^7 + 64s^8$

R: [7, 7, 7, 7, 3, 3, A, B, B, 2, 1, 9]
B: [6, 8, 8, 6, A, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_5, y_4, y_3, 0, 0, 0, y_2, 0, y_3, y_1, y_6, 0]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, y_5, y_6, 0, y_3, 0, y_1, y_3, y_2]$$

$p = -s^4 + s^7$

1786 . Coloring, {4, 5, 6, 7, 8, 11, 12}

Ωp(Δ)=0: $p = -9s^2 + 4s^4 - 24s^5 + 16s^6 - 96s^7 + 64s^8$ $p = 3s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, 3, A, B, B, C, 4, 9]
B: [6, 8, 8, 6, A, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_6, y_5, 0, 0, y_4, 0, y_3, y_2, y_6 + y_5 - y_4 + y_3 + y_2 - y_1, y_1]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_4, y_5, 0, 0, y_6, y_7, 0, y_1, 0, y_2, y_3, y_8]$$

1787 . Coloring, {4, 5, 6, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 + 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, 3, 3, A, C, C, 2, 4, 5]
B: [6, 8, 8, 6, A, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$[0, y_4, y_3, y_5, y_2, 0, y_1, 0, 0, y_6, 0, y_5]$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$[y_6 - y_4 - y_5 - y_1 + y_2 + y_3, 0, 0, 0, 0, y_6, 0, y_4, y_5, y_1, y_2, y_3]$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1788 . Coloring, {4, 5, 6, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 - 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, 3, A, C, C, 2, 1, 9]
B: [6, 8, 8, 6, A, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[y_3, y_4, y_3, 0, 0, 0, y_2, 0, y_1, -2\,y_3 - y_4 - y_2 + 6\,y_1, 0, y_1]$$

$p = s^2 - s^5$ $p' = s^3 - s^6$ $p' = s^2 - s^5$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, y_3, y_2, 0, y_1, 0, y_7, y_6, y_5]$$

1789 . Coloring, {4, 5, 6, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, 3, 3, A, C, C, C, 4, 9]
B: [6, 8, 8, 6, A, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 6	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_4, y_4, 0, 0, y_3, 0, y_2, y_1, 0, 2\,y_4 - y_3 + y_2 + y_1]$$

$p' = s^4 - s^5$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_4, 0, y_5, 0, y_7, y_6, 0]$$

1790 . Coloring, {4, 5, 6, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, A, C, B, 2, 4, 9]
B: [6, 8, 8, 6, A, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 2\,y_3, y_2, 0, 0, y_7, 0, y_6, y_5, y_4, y_3]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_3, y_2, 0, y_5, 0, y_4, y_7, y_6]$$

1791 . Coloring, {4, 5, 6, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, B, B, C, 2, 4, 5]
B: [6, 8, 8, 6, A, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_5, y_1, y_2, y_4, 0, y_3, 0, 0, 0, y_6, y_5]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, 0, y_3, y_4, y_5, y_7, y_6]$$

1792 . Coloring, {4, 5, 6, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, B, B, C, 2, 1, 9]
B: [6, 8, 8, 6, A, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_4, 3\,y_3, 3\,y_3, 0, 0, 0, 3\,y_2, 0, 3\,y_1, 0, -3\,y_4 - 6\,y_3 - 3\,y_2 + 13\,y_1 + 13\,y_5, 3\,y_5]$$

$p = s^2 - s^4 - s^5 + s^7$ $p = -s^2 - s^3 + s^5 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, y_3, y_2, 0, 2\,y_6, 0, y_1, y_6, y_5]$$

$p = s^4 - s^7$

1793 . Coloring, {4, 5, 6, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, B, B, C, C, 4, 9]
B: [6, 8, 8, 6, A, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 6	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, -5\,y_1 - 5\,y_2 + 11\,y_3 - 5\,y_4 + 11\,y_5, 5\,y_1, 0, 0, 5\,y_2, 0, 5\,y_3, 0, 5\,y_4, 5\,y_5]$$

$p = s^2 + s^3 - s^5 - s^6$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$[y_8, y_7, 0, 0, y_5, y_6, 0, y_4, 0, y_3, y_1, y_2]$

1794 . Coloring, {4, 5, 6, 8, 10, 11, 12}

Ωp(Δ)=0: $p = s^2 + 4s^4 - 8s^5 - 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 + 8s^4 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, 3, B, B, B, 2, 4, 9]
B: [6, 8, 8, 6, A, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 6	5 *vs* 6

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$[0, y_3, y_3, y_1, 0, 0, y_2, 0, y_3, 0, y_4, 0]$

$p' = -s^2 + s^5$ $p = -s^2 + s^5$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$[y_2, 0, 0, 0, y_4, y_3, 0, y_2, 0, y_1, 0, y_5]$

$p = s^3 - s^6$

1795 . Coloring, {4, 5, 6, 9, 10, 11, 12}

Ωp(Δ)=0: $p' = s^2 - 2s^3 + 8s^4 - 8s^5 + 32s^7$ $p = s^2 + 4s^4 + 8s^5 - 16s^6 + 32s^7 + 64s^8$

R: [7, 7, 7, 7, 3, 3, B, C, C, 2, 4, 9]
B: [6, 8, 8, 6, A, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_1, -2\,y_1 - y_2 - y_3 + 6\,y_4, 0, 0, y_2, 0, y_4, 0, y_3, y_4]$$

$p = s^2 - s^5$ $p' = s^2 - s^5$ $p' = s^3 - s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, 0, y_4, 0, y_7, y_6, y_5]$$

1796 . Coloring, {4, 5, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 - 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 - 8s^4 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, A, A, B, C, 2, 4, 5]
B: [6, 8, 8, 6, A, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_4, y_5, y_6, y_6, 0, y_1, 0, 0, y_2, y_3, y_3]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, 0, y_2, 0, 0, y_6, 0, y_3, y_4, y_5, y_7, y_8]$$

1797 . Coloring, {4, 5, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 + 16s^6 - 32s^7 - 64s^8$

R: [7, 7, 7, 7, 3, A, A, B, C, 2, 1, 9]
B: [6, 8, 8, 6, A, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[3 y_1, -3 y_1 - 6 y_3 - 3 y_6 + 13 y_5 - 3 y_4 + 13 y_2, 3 y_3, 0, 0, 0, 3 y_6, 0, 3 y_5, 3 y_4, 3 y_3, 3 y_2]$$

$p' = s^3 + s^4 - s^6 - s^7$ $p = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

1798 . Coloring, {4, 5, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^5 + 32s^7$ $p = s^2 - 4s^4 - 8s^5 + 16s^6 + 32s^7 - 64s^8$

R: [7, 7, 7, 7, 3, A, A, B, C, C, 4, 9]
B: [6, 8, 8, 6, A, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_3, 0, 0, y_1, 0, y_2, -y_3 + y_1 - y_2 + y_5, y_4, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, y_5, 0, y_3, y_4, 0, y_6, 0, y_7, y_8, y_9]$$

1799 . Coloring, {4, 5, 7, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, A, B, B, 2, 4, 9]
B: [6, 8, 8, 6, A, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_2, y_1, y_6, 0, 0, y_5, 0, 2\,y_1, y_4, y_3, 0]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, 0, y_8, 0, y_5, y_6, y_7]$$

1800 . Coloring, {4, 5, 7, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, A, A, C, C, 2, 4, 9]
B: [6, 8, 8, 6, A, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, y_2, y_1, 2\,y_1, 0, 0, -y_2 - 3\,y_1 + 6\,y_3 - y_4, 0, y_3, y_4, 0, y_3]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 8, 11}}

See Matrix

$$[-5\,y_1 + 11\,y_2 - 5\,y_3 - 5\,y_4 + 11\,y_5 - 5\,y_6 + 11\,y_7, 0, 5\,y_1, 0, 5\,y_2, 5\,y_3, 0, 5\,y_4, 0, 5\,y_5, 5\,y_6, 5\,y_7]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

1801 . Coloring, {4, 5, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = -s^2 + 2s^3 + 8s^4 - 8s^5 + 32s^7$ $p = s^2 - 6s^3 + 40s^5 - 32s^6 - 32s^7 + 128s^8$

R: [7, 7, 7, 7, 3, A, B, B, C, 2, 4, 9]
B: [6, 8, 8, 6, A, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, -6\,y_4 - 3\,y_1 - 3\,y_2 + 13\,y_3 - 3\,y_5 + 13\,y_6, 3\,y_4, 3\,y_1, 0, 0, 3\,y_2, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

1802 . Coloring, {4, 6, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p' = -3s^2 + 2s^3 + 8s^5 + 32s^7$ $p = 3s^2 - 2s^3 - 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, 3, A, B, C, 2, 4, 5]
B: [6, 8, 8, 6, 3, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	8 *vs* 9	5 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 3

See Matrix

$$[0, y_3, y_5, y_2, y_2, 0, y_1, 0, 0, y_4, y_5, y_5]$$

$p = -s^3 + s^6$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_6, 0, y_5, 0, 0, y_4, 0, y_3, y_1, y_2, y_8, y_7]$$

1803 . Coloring, {4, 6, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p' = 3s^2 - 2s^3 - 8s^4 - 8s^5 + 32s^7$ $p = 9s^2 - 28s^4 - 40s^5 - 16s^6 + 96s^7 + 64s^8$

R: [7, 7, 7, 7, A, 3, A, B, C, 2, 1, 9]
B: [6, 8, 8, 6, 3, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[-3y_1 - 6y_4 - 3y_2 + 13y_3 - 3y_5 + 13y_6, 3y_1, 3y_4, 0, 0, 0, 3y_2, 0, 3y_3, 3y_5, 3y_4, 3y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_8, y_7, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1]$$

1804 . Coloring, {4, 6, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^2 + 14s^3 - 24s^5 + 32s^6 - 32s^7 - 128s^8$ $p' = 3s^2 + 2s^3 - 8s^4 + 8s^5 - 32s^7$

R: [7, 7, 7, 7, A, 3, A, B, C, C, 4, 9]
B: [6, 8, 8, 6, 3, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_4, y_2 - y_1 - y_3 + y_5, 0, 0, y_2, 0, y_1, y_3, y_4, y_5]$$

$p = s^5 - s^7$ $p' = s^5 - s^6$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_9, y_8, y_7, 0, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1]$$

1805 . Coloring, {4, 6, 7, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, B, B, 2, 4, 9]
B: [6, 8, 8, 6, 3, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_4, y_3, y_2, 0, 0, y_1, 0, 2\,y_3, y_6, y_5, 0]$$

$p = s^4 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_4, 0, y_1, 0, y_2, y_3, 0, y_7, 0, y_5, y_6, y_8]$$

1806 . Coloring, {4, 6, 7, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, A, 3, A, C, C, 2, 4, 9]
B: [6, 8, 8, 6, 3, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, -3\,y_1 - y_2 + 6\,y_4 - y_3, y_1, 2\,y_1, 0, 0, y_2, 0, y_4, y_3, 0, y_4]$$

$p' = -s^3 + s^6$ $p = -s^2 + s^5$ $p' = -s^2 + s^5$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

1807 . Coloring, {4, 6, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 7, 7, 7, A, 3, B, B, C, 2, 4, 9]
B: [6, 8, 8, 6, 3, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, -6\,y_4 - 3\,y_1 - 3\,y_2 + 13\,y_3 - 3\,y_5 + 13\,y_6, 3\,y_4, 3\,y_1, 0, 0, 3\,y_2, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p' = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_8, 0, y_7, 0, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1]$$

1808 . Coloring, {4, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, A, A, A, B, C, 2, 4, 9]
B: [6, 8, 8, 6, 3, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, -3\,y_6 - 3\,y_1 + 13\,y_2 - 3\,y_3 - 3\,y_4 + 13\,y_5, 0, 3\,y_6, 0, 0, 3\,y_1, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5]$$

$p = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, 0, y_5, 0, 0, y_6, y_7]$$

1809 . Coloring, {5, 6, 7, 8, 9, 10, 11}

R: [7, 7, 7, 6, 3, 3, A, B, C, 2, 4, 5]
B: [6, 8, 8, 7, A, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_3, y_4, y_5, 0, 0, y_6, y_7, y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, 0, y_6, y_5, 2\,y_5, y_4, y_3, y_2, y_1]$$

$p = -s^2 + s^8$

1810 . Coloring, {5, 6, 7, 8, 9, 10, 12}

R: [7, 7, 7, 6, 3, 3, A, B, C, 2, 1, 9]
B: [6, 8, 8, 7, A, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	4 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[3\,y_1, -6\,y_1 - 6\,y_5 - 3\,y_2 + 13\,y_6 - 3\,y_4 + 13\,y_3, 3\,y_1, 0, 0, 3\,y_5, 3\,y_2, 0, 3\,y_6, 3\,y_4, 3\,y_5, 3\,y_3]$$

$p = s^3 + s^4 - s^6 - s^7$ $p = -s^3 + s^5 + s^6 - s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, -18\,y_3 + 14\,y_2 + 9\,y_1 + 2\,y_4, y_3, -5\,y_3 + 4\,y_2 + 2\,y_1 + y_4, y_2, -10\,y_3 + 8\,y_2 + 4\,y_1 + 2\,y_4, 0, y_1, y_4, -16\,y_3 + 13\,y_2 + 8\,y_1 + 2\,y_4]$$

$p = s^2 - s^5$ $p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p' = -s^2 + s^5$

1811 . Coloring, {5, 6, 7, 8, 9, 11, 12}

R: [7, 7, 7, 6, 3, 3, A, B, C, C, 4, 9]
B: [6, 8, 8, 7, A, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, -y_1 + y_6 + y_7 - y_5 - y_2 + y_3 + y_4, y_1, 0, y_6, y_7, 0, y_5, y_2, y_3, y_4]$$

$p = s^7 - s^8$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

1812 . Coloring, {5, 6, 7, 8, 10, 11, 12}

Ωp(Δ)=0: $p = 6s^2 + s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 7, 6, 3, 3, A, B, B, 2, 4, 9]
B: [6, 8, 8, 7, A, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_4, y_5, y_6, 0, y_7, y_8, 0, y_1, y_2, y_3, 0]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, y_4, 2\,y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

1813 . Coloring, {5, 6, 7, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 2s^2 + 3s^3 - 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, 3, A, C, C, 2, 4, 9]
B: [6, 8, 8, 7, A, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, -y_1 - y_2 - y_3 - y_4 + 6\,y_6 - y_5, y_1, y_2, 0, y_3, y_4, 0, y_6, y_5, 0, y_6]$$

$p = -s^4 + s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_4, y_2, y_3, 2\,y_3, 0, y_5, y_6, y_7]$$

$p = s^5 - s^8$

» SYNC'D !RANK'D

1814 . Coloring, {5, 6, 8, 9, 10, 11, 12}

R: [7, 7, 7, 6, 3, 3, B, B, C, 2, 4, 9]
B: [6, 8, 8, 7, A, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_7 + 13\,y_4 - 3\,y_5 + 13\,y_6, 3\,y_1, 3\,y_2, 0, 3\,y_3, 3\,y_7, 0, 3\,y_4, 0, 3\,y_5, 3\,y_6]$$

$p = -s^2 - s^3 + s^7 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_4, y_5, y_3, 2\,y_3, 0, y_2, y_3, y_6]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

1815 . Coloring, {5, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 7, 6, 3, A, A, B, C, 2, 4, 9]
B: [6, 8, 8, 7, A, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 3\,y_5, 3\,y_6, 3\,y_7, 0, 3\,y_3, 3\,y_4, 0, 3\,y_2, -3\,y_5 - 6\,y_6 - 3\,y_7 - 3\,y_3 - 3\,y_4 + 13\,y_2 + 13\,y_1, 3\,y_6, 3\,y_1]$$

$p = -s^4 - s^5 + s^7 + s^8 \quad p' = s^4 + s^5 - s^7 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_1, 0, y_9, 0, y_8, y_7, y_6, y_5, 0, y_4, y_3, y_2]$$

1816 . Coloring, {6, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0: \quad p = -9s^3 + 2s^4 + 16s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 6, A, 3, A, B, C, 2, 4, 9]
B: [6, 8, 8, 7, 3, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 3y_3, 3y_2, 3y_1, 0, -3y_3 - 3y_2 - 3y_1 - 3y_8 + 13y_7 - 3y_6 - 3y_5 + 13y_4, 3y_8, 0, 3y_7, 3y_6, 3y_5, 3y_4]$$

$p = s^5 + s^6 - s^8 - s^9$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1 - y_2 + y_3 - y_4 - y_5 - y_6 + y_7 + y_8, 0, y_1, 0, y_2, y_3, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^6 + s^7 - s^8 + s^9$

1817 . Coloring, {2, 3, 4, 5, 6, 7, 8, 9}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, A, B, C, C, 1, 5]
B: [6, 7, 7, 6, A, A, B, C, B, 2, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 3, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[-y_5 + y_2 + y_3, 0, y_4, 0, y_5, 0, -y_4 + y_2 + y_3, y_2, 0, y_3, y_2 + y_3 - y_1, y_1]$$

$p = -s + s^2 - s^5 + s^6$ $p = -s + s^3 - s^5 + s^7$ $p = -s + s^4 - s^5 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_3, 0, y_3 + y_1 - y_2 - y_4 - y_5 + y_7 + y_6, 0, y_1, y_2, 0, y_4, y_5, y_7, y_6]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1818 . Coloring, {2, 3, 4, 5, 6, 7, 8, 10}

$\Omega p(\Delta)=0$: $p = -3s^2 + 2s^3 - 8s^5 + 32s^7$ $p = -9s^2 + 4s^4 - 24s^5 - 16s^6 + 96s^7 + 64s^8$

R: [7, 8, 8, 7, 3, 3, A, B, B, 2, 1, 5]
B: [6, 7, 7, 6, A, A, B, C, C, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 + y_4 - y_5 - y_6 + y_7, y_1, y_2, 0, y_3, 0, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 0, y_5 - y_4 - y_3 - y_2 + y_1 + y_6, 0, y_5, y_4, 0, y_3, y_2, y_1, y_6]$$

$p = s^6 - s^7$

1819 . Coloring, {2, 3, 4, 5, 6, 7, 8, 11}

$\Omega p(\Delta)=0$: $p' = s^7$ $p' = s^6$ $p' = s^5$ $p' = s^4$ $p' = s^3$ $p' = s^2$ $p = s^2$

R: [7, 8, 8, 7, 3, 3, A, B, B, C, 4, 5]
B: [6, 7, 7, 6, A, A, B, C, C, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
1 *vs* 8	1 *vs* 8	1 *vs* 8	1 *vs* 8	1 *vs* 8

Omega Rank for R : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_1, y_1, 0, y_1, y_1, 0, y_1, y_1, y_1]$$

$p' = s^6 - s^7$ $p' = s^5 - s^7$ $p' = s^4 - s^7$ $p' = s^3 - s^7$ $p' = s^2 - s^7$ $p' = s - s^7$ $p = s - s^8$

Omega Rank for B : cycles: {{9, 12}, {1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_1, 0, 0, 0, y_1, y_1, 0, y_1, y_1, y_1, y_1]$$

$p' = -s^3 + s^7$ $p' = -s^3 + s^6$ $p' = -s^3 + s^4$ $p' = -s^3 + s^5$ $p' = s^2 - s^3$ $p' = s - s^3$ $p = s - s^4$

` See 8-level graph

`

M \; N

$ [[0, 1, 0, 0, 0, 1, 1, 0, 1, 1, 1, 1] , [1, 0, 0, 0, 0, 1, 1, 0, 1, 1, 1, 1] , [0, 0, 0, 1, 1, 0, 1, 1, 0, 1, 1, 1] , [0, 0, 1, 0, 1, 0, 1, 1, 0, 1, 1, 1] , [0, 0, 1, 1, 0, 0, 1, 1, 0, 1, 1, 1] , [1, 1, 0, 0, 0, 0, 1, 0, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 0, 1, 1, 2, 2, 2] , [0, 0, 1, 1, 1, 0, 1, 0, 0, 1, 1, 1] , [1, 1, 0, 0, 0, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 0, 2, 2] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 0, 2] , [1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 2, 0]] $ $ [[0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] , [0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1] , [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0]] $

$\tau = 20$, $r' = 7/8$

R: [7, 8, 8, 7, 3, 3, A, B, B, C, 4, 5]
B: [6, 7, 7, 6, A, A, B, C, C, 2, 1, 9]

Ranges

Action of R on ranges, [[2], [2]]
Action of B on ranges, [[1], [1]]

Cycles: R , {{3, 4, 5, 7, 8, 10, 11, 12}}, B , {{9, 12}, {1, 2, 6, 7, 10, 11}}

β({1, 2, 6, 7, 9, 10, 11, 12}) = 1/2
β({3, 4, 5, 7, 8, 10, 11, 12}) = 1/2

Partitions
α([{12}, {10}, {11}, {2, 3}, {5, 6}, {1, 4}, {8, 9}, {7}]) = 1/1

b1 = {12} ` , ` b2 = {10} ` , ` b3 = {11} ` , ` b4 = {2, 3} ` , ` b5 = {5, 6} ` , ` b6 = {1, 4} ` , ` b7 = {8, 9} ` , ` b8 = {7}

Action of R and B on the blocks of the partitions: = [2, 8, 7, 5, 1, 3, 4, 6] [7, 5, 8, 2, 6, 3, 1, 4]
with invariant measure [1, 1, 1, 1, 1, 1, 1, 1]

N by blocks, check: true . ` See partition graph.

` ` See level-8 partition graph.

`

Right Group	
Coloring	{2, 3, 4, 5, 6, 7, 8, 11}
Rank	8
R,B	[7, 8, 8, 7, 3, 3, A, B, B, C, 4, 5], [6, 7, 7, 6, A, A, B, C, C, 2, 1, 9]
π_2	[1, 0, 0, 0, 1, 1, 0, 1, 1, 1, 1, 0, 0, 0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 2, 2, 2, 0, 1, 1, 1, 1, 1, 1, 2, 2, 2]
u_2	[1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1] (dim 1)
wpp	[2, 2, 2, 2, 2, 2, 1, 2, 2, 1, 1, 1]
π_8	[0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
u_8	[0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,

	0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]

1820 . Coloring, {2, 3, 4, 5, 6, 7, 8, 12}

$\Omega p(\Delta)=0$: $p = 3s^2 - 10s^3 - 40s^5 + 32s^6 - 32s^7 + 128s^8$ $p' = 3s^2 + 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, 3, A, B, B, C, 1, 9]
B: [6, 7, 7, 6, A, A, B, C, C, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, 0, 0, y_6, -y_2 + y_1 + y_6 - y_4 - y_5 + y_3 + y_7, y_4, y_5, y_3, y_7]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_2, 0, y_1, -y_2 + y_1 - y_7 + y_6 + y_5 - y_4 + y_3, y_7, y_6, 0, 0, y_5, y_4, y_3]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1821 . Coloring, {2, 3, 4, 5, 6, 7, 9, 10}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^5 + 32s^7$ $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, 3, A, C, C, 2, 1, 5]
B: [6, 7, 7, 6, A, A, B, B, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_2 + y_5 - y_3, -y_1 + y_2 + y_5, y_1, 0, y_2 + y_5 - y_4, 0, y_2, y_3, 0, y_4, 0, y_5]$$

$p' = s^5 - s^7$ $p' = s^6 - s^7$ $p = s^5 - s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_6, 0, y_4, y_5, 0, y_2, y_3, y_1, y_6 - y_4 + y_5 + y_2 + y_3 - y_1]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

1822 . Coloring, {2, 3, 4, 5, 6, 7, 9, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 - 8s^5 + 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, 3, A, C, C, C, 4, 5]
B: [6, 7, 7, 6, A, A, B, B, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, 0, -y_2 + y_4, y_4 - y_1, y_1, 0, y_2, y_4 - y_3, 0, y_3, 0, y_4]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1 + y_4 - y_5 - y_6 - y_3 + y_2, y_1, 0, 0, 0, y_4, y_5, 0, y_6, y_3, y_2, 0]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

1823 . Coloring, {2, 3, 4, 5, 6, 7, 9, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 + 8s^5 + 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, 3, 3, A, C, C, C, 1, 9]
B: [6, 7, 7, 6, A, A, B, B, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[y_1, 0, y_1, 0, 0, 0, y_4, y_4, y_3, y_2, 0, y_3 + y_2]$$

$p = -s^4 + s^5$ $p = -s^4 + s^6$ $p = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_7, 0, y_6, y_5, y_4, y_3, 0, 0, y_2, y_1, 0]$$

1824 . Coloring, {2, 3, 4, 5, 6, 7, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, A, C, B, 2, 4, 5]
B: [6, 7, 7, 6, A, A, B, B, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_2, y_1, y_2 + y_1 - y_8 + y_7 - y_6 - y_5 + y_4 + y_3, y_8, 0, y_7, y_6, 0, y_5, y_4, y_3]$$

$p = s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1 - y_2 - y_4 - y_5 + y_6 + y_3, 0, 0, 0, 0, y_1, y_2, 0, y_4, y_5, y_6, y_3]$$

$p = s^6 - s^7$

1825 . Coloring, {2, 3, 4, 5, 6, 7, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, A, C, B, 2, 1, 9]
B: [6, 7, 7, 6, A, A, B, B, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_8, y_7, y_6, 0, 0, 0, y_5, y_4, y_3, y_2, y_1, y_8 - y_7 - y_6 - y_5 + y_4 + y_3 + y_2 - y_1]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

1826 . Coloring, {2, 3, 4, 5, 6, 7, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, A, C, B, C, 4, 9]
B: [6, 7, 7, 6, A, A, B, B, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1 - y_2 + y_3 + y_4 + y_5 - y_6 - y_7, y_1, 0, 0, y_2, y_3, y_4, y_5, y_6, y_7]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

1827 . Coloring, {2, 3, 4, 5, 6, 8, 9, 10}

Ωp(Δ)=0: $p' = s^3 + 8s^5 + 8s^6 + 16s^7$ $p = s^3 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, 3, 3, B, B, C, 2, 1, 5]
B: [6, 7, 7, 6, A, A, A, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}} order: 6

See Matrix

$$[y_1, 2\,y_7, y_2, 0, y_3, 0, y_4, y_5, 0, 0, y_6, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2 + y_1 - y_6 - y_4 + y_5 + y_3, 0, y_2, y_1, 0, y_6, y_4, y_5, y_3]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

1828 . Coloring, {2, 3, 4, 5, 6, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, B, B, C, C, 4, 5]
B: [6, 7, 7, 6, A, A, A, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, 0, y_1, y_6, y_7, 0, y_5, y_4, 0, 0, y_3, y_2]$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$[y_1, y_2, 0, 0, 0, y_5, y_6, 0, y_3, y_4, y_7, y_8]$

1829 . Coloring, {2, 3, 4, 5, 6, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, B, B, C, C, 1, 9]
B: [6, 7, 7, 6, A, A, A, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$[5 y_2, 0, 5 y_1, 0, 0, 0, -5 y_2 - 5 y_1 - 5 y_6 + 11 y_5 - 5 y_4 + 11 y_3, 5 y_6, 5 y_5, 0, 5 y_4, 5 y_3]$

$p = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_2, y_6, y_5, 0, 0, y_3, y_4, y_4]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1830 . Coloring, {2, 3, 4, 5, 6, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 + 56s^5 + 16s^6 - 64s^7 - 256s^8$ $p' = s^2 - 16s^4 - 8s^5 + 16s^6 + 64s^7$ $p' = s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, 3, B, B, B, 2, 4, 5]
B: [6, 7, 7, 6, A, A, A, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	4 *vs* 6

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_5, y_1, y_2, y_5, 0, y_3, y_4, 0, 0, y_6, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{9, 12}} order: 4

See Matrix

$$[y_1, 0, 0, 0, 0, y_2 + y_3 - y_4, y_1, 0, y_2, y_3, 0, y_4]$$

$p = -s^4 + s^6$ $p = -s^4 + s^5$

1831 . Coloring, {2, 3, 4, 5, 6, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 8s^5 + 48s^6 + 128s^8$ $p' = s^2 - 8s^4 - 24s^5 - 16s^6 - 64s^7$ $p' = s^3 + 4s^4 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, 3, 3, B, B, B, 2, 1, 9]
B: [6, 7, 7, 6, A, A, A, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
5 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 7	5 *vs* 6

Omega Rank for R : cycles: {{1, 7, 11}} order: 3

See Matrix

$[y_1, y_3, y_3, 0, 0, 0, y_4, y_5, y_3, 0, y_2, 0]$

$p' = s^3 - s^6 \quad p = s^3 - s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$[0, 0, 0, y_3, y_1, y_2, y_3, 0, 0, y_4, 0, y_5]$

$p = -s^3 + s^6$

1832 . Coloring, {2, 3, 4, 5, 6, 8, 11, 12}

$\Omega p(\Delta)=0: \quad p' = s^2 - 2s^3 + 8s^5 + 32s^7 \quad p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, 3, B, B, B, C, 4, 9]
B: [6, 7, 7, 6, A, A, A, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$[0, 0, y_5, y_2, 0, 0, y_4, y_3, y_3, 0, y_1, y_5]$

$p = s^3 - s^6 \quad p' = s^3 - s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 3

See Matrix

$[y_5, y_3, 0, 0, y_1, y_1, y_2, 0, 0, y_4, 0, y_5]$

$p' = -s^3 + s^6$ $p = -s^3 + s^6$

1833 . Coloring, {2, 3, 4, 5, 6, 9, 10, 11}

Ωp(Δ)=0: $p = s^2 - 8s^5 - 80s^6 - 64s^7 - 128s^8$ $p' = s^2 - 8s^4 - 8s^5 - 16s^6$ $p' = s^3 - 8s^5 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, 3, B, C, C, 2, 4, 5]
B: [6, 7, 7, 6, A, A, A, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, -y_1 + 5\,y_4 - y_2 - y_3 - y_5, y_1, y_4, y_2, 0, y_4, y_3, 0, 0, y_4, y_5]$$

$p = -s^2 + s^6$ $p' = -s^2 + s^6$ $p' = -s^3 + s^7$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 - y_6 + y_4 + y_5, 0, 0, 0, 0, y_1, y_2, 0, y_3, y_6, y_4, y_5]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1834 . Coloring, {2, 3, 4, 5, 6, 9, 10, 12}

Ωp(Δ)=0: $p = s^2 + 8s^5 + 16s^6$ $p' = s^2 + 8s^5 + 16s^6$ $p' = s^3 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, 3, 3, B, C, C, 2, 1, 9]
B: [6, 7, 7, 6, A, A, A, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[y_3, y_1, y_1, 0, 0, 0, y_3, 5\,y_3 - 2\,y_1 - y_2 - y_4, y_2, 0, y_3, y_4]$$

$p' = s^5 - s^7$ $p' = s^3 - s^7$ $p' = s^4 - s^6$ $p = s^3 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_3, y_5, 0, 0, y_4, y_5, y_6]$$

$p = s^4 - s^7$

1835 . Coloring, {2, 3, 4, 5, 6, 9, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^5 + 32s^7$ $p = s^2 - 4s^4 - 8s^5 + 16s^6 + 32s^7 - 64s^8$

R: [7, 8, 8, 7, 3, 3, B, C, C, C, 4, 9]
B: [6, 7, 7, 6, A, A, A, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 5\,y_4 - y_1 - y_2 - y_3, y_4, 0, 0, y_4, y_1, y_2, 0, y_4, y_3]$$

$p = -s^3 + s^5$ $p' = -s^3 + s^5$ $p = -s^3 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_3, 0, 0, y_6, y_1, y_4, 0, 0, y_5, y_6, 0]$$

$p = -s^4 + s^7$

1836 . Coloring, {2, 3, 4, 5, 6, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 9s^3 + 8s^5 - 8s^6 + 16s^7 - 64s^8$ $p = -3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, B, C, B, 2, 4, 9]
B: [6, 7, 7, 6, A, A, A, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_7, y_7, y_6, 0, 0, y_5, y_4, y_3, 0, y_2, y_1]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_2, 0, 0, 0, y_6, y_1, 2\,y_4, 0, 0, y_5, y_4, y_3]$$

$p = -s^4 + s^7$

1837 . Coloring, {2, 3, 4, 5, 7, 8, 9, 10}

Ωp(Δ)=0: $p' = s^2 - 2s^3 - 8s^5 - 32s^7$ $p = s^2 - 4s^4 - 8s^5 - 16s^6 - 32s^7 - 64s^8$

R: [7, 8, 8, 7, 3, A, A, B, C, 2, 1, 5]
B: [6, 7, 7, 6, A, 3, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_9, y_8, 0, y_7, 0, y_6, y_5, 0, y_4, y_3, y_2]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, 0, y_4, y_3, 0, y_2, y_1, 0, y_8, y_7, y_5, y_6]$$

1838 . Coloring, {2, 3, 4, 5, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 - 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 8, 8, 7, 3, A, A, B, C, C, 4, 5]
B: [6, 7, 7, 6, A, 3, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_3, y_4, y_2, 0, y_1, y_7, 0, y_6, y_5, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_3, y_6, y_2, 0, 0, y_1, y_7, 0, y_6, y_4, y_5, y_4]$$

$p = -s^3 + s^8$ $p' = -s^3 + s^8$

1839 . Coloring, {2, 3, 4, 5, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^4 + 8s^5 - 32s^7$ $p = s^2 + 4s^4 - 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, A, A, B, C, C, 1, 9]
B: [6, 7, 7, 6, A, 3, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[y_4, 0, y_5, 0, 0, 0, y_1, y_2, y_3, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5, y_6, 0, 0, y_7, y_8, y_9]$$

1840 . Coloring, {2, 3, 4, 5, 7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, A, B, B, 2, 4, 5]
B: [6, 7, 7, 6, A, 3, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, y_4, y_2, y_1, 0, y_7, y_6, 0, y_5, y_8, 0]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {9, 12}} order: 10

See Matrix

$$[7\,y_7, 0, 7\,y_6, 0, 0, 7\,y_5, 7\,y_4, 0, 7\,y_3, 7\,y_2, -7\,y_7 - 7\,y_6 - 7\,y_5 - 7\,y_4 + 9\,y_3 + 9\,y_2 + 9\,y_1, 7\,y_1]$$

$p = -s^2 - s^3 + s^7 + s^8$

1841 . Coloring, {2, 3, 4, 5, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, A, A, B, B, 2, 1, 9]
B: [6, 7, 7, 6, A, 3, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_3, y_2, 0, 0, 0, y_5, y_4, 2\,y_2, y_7, y_6, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {3, 4, 6, 7, 11}}

See Matrix

$$[0, 0, -7\,y_1 + 9\,y_4 - 7\,y_2 - 7\,y_3 + 9\,y_5 - 7\,y_7 + 9\,y_6, 7\,y_1, 7\,y_4, 7\,y_2, 7\,y_3, 0, 0, 7\,y_5, 7\,y_7, 7\,y_6]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

1842 . Coloring, {2, 3, 4, 5, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, A, A, B, B, C, 4, 9]
B: [6, 7, 7, 6, A, 3, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_8, y_7, 0, 0, y_6, y_5, y_4, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_4, y_3, y_2, 0, y_1, y_8, y_7, 0, 0, y_6, y_5, y_9]$$

1843 . Coloring, {2, 3, 4, 5, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, A, C, C, 2, 4, 5]
B: [6, 7, 7, 6, A, 3, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$[0, y_6, y_5, y_4, y_3, 0, y_2, y_1, 0, y_8, 0, y_7]$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$[y_8, 0, y_7, 0, 0, y_6, y_5, 0, y_4, y_3, y_2, y_1]$

1844 . Coloring, {2, 3, 4, 5, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, A, A, C, C, 2, 1, 9]
B: [6, 7, 7, 6, A, 3, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$[2\, y_2, y_1, y_2, 0, 0, 0, y_3, y_4, y_7, y_5, 0, y_6]$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {3, 4, 6, 7, 11}}

See Matrix

$$[0, 0, 5\,y_7, 5\,y_6, 5\,y_5, 5\,y_4, 5\,y_3, 0, 0, 5\,y_2, -5\,y_7 - 5\,y_6 + 11\,y_5 - 5\,y_4 - 5\,y_3 + 11\,y_2 + 11\,y_1, 5\,y_1]$$

$p = s + s^2 + s^3 - s^6 - s^7 - s^8$

1845 . Coloring, {2, 3, 4, 5, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, A, A, C, C, C, 4, 9]
B: [6, 7, 7, 6, A, 3, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_5, 2\,y_5, 0, 0, -2\,y_5 + 2\,y_4, y_4, y_3, y_2, 0, y_1]$$

$p = -s^4 + s^6$ $p' = s^4 - s^6$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_2, y_3, y_1, 0, y_4, y_5, y_6, 0, 0, y_7, y_8, 0]$$

1846 . Coloring, {2, 3, 4, 5, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^3 + 8s^5 - 8s^6 + 16s^7$ $p' = s^2 + 8s^4 - 8s^5 + 16s^6$ $p = s^2 - 8s^5 - 48s^6 + 64s^7 - 128s^8$

R: [7, 8, 8, 7, 3, A, A, C, B, 2, 4, 9]
B: [6, 7, 7, 6, A, 3, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

5 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_2, y_3, 0, 0, y_4, y_5, y_6, y_9, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[-3\,y_1 + 5\,y_2 - 3\,y_3 - 3\,y_4 + 5\,y_5 - 3\,y_6 + 5\,y_7, 0, 3\,y_1, 0, 3\,y_2, 3\,y_3, 3\,y_4, 0, 0, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

1847 . Coloring, {2, 3, 4, 5, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 + 8s^5 - 48s^6 - 64s^7 - 128s^8$ $p' = s^2 + 8s^4 + 8s^5 + 16s^6$ $p' = s^3 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, 3, A, B, B, C, 2, 4, 5]
B: [6, 7, 7, 6, A, 3, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_2, y_3, y_1, y_2, 0, y_7, y_6, 0, y_5, y_4, y_5]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_7, 0, y_6, 0, 0, y_5, y_4, 0, y_2, y_3, y_7 + y_6 - y_5 - y_4 + y_2 + y_3 - y_1, y_1]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1848 . Coloring, {2, 3, 4, 5, 8, 9, 10, 12}

Ωp(Δ)=0: $p = s^2 - 8s^5 - 16s^6$ $p' = s^3 - 8s^6 - 16s^7$ $p' = s^2 - 8s^5 - 16s^6$

R: [7, 8, 8, 7, 3, A, B, B, C, 2, 1, 9]
B: [6, 7, 7, 6, A, 3, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
5 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_7, -3\,y_7 - 3\,y_4 - 3\,y_5 + 13\,y_3 - 6\,y_6 - 3\,y_2 + 13\,y_1, 3\,y_6, 0, 0, 0, 3\,y_4, 3\,y_5, 3\,y_3, 3\,y_6, 3\,y_2, 3\,y_1]$$

$p = -s^4 - s^5 + s^7 + s^8$ $p = s^4 - s^6 - s^7 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_8, y_7, y_6, y_4, y_5, 0, 0, y_3, y_2, y_1]$$

1849 . Coloring, {2, 3, 4, 5, 8, 9, 11, 12}

Ωp(Δ)=0: $p' = s^2 + 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, A, B, B, C, C, 4, 9]
B: [6, 7, 7, 6, A, 3, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 3\,y_2, -3\,y_2 - 3\,y_1 - 3\,y_5 + 10\,y_3 - 3\,y_4, 0, 0, 3\,y_1, 3\,y_5, -3\,y_2 + 3\,y_3, 3\,y_2, 3\,y_4, 3\,y_3]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_4, y_1, 0, y_2, y_3, y_5, 0, 0, y_6, y_7, y_7]$$

$p' = -s^5 + s^8$ $p = -s^5 + s^8$

1850 . Coloring, {2, 3, 4, 5, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 8s^5 - 24s^6 - 16s^7 - 64s^8$ $p' = s^3 + 4s^4 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, 3, A, B, B, B, 2, 4, 9]
B: [6, 7, 7, 6, A, 3, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_3, y_6, 0, 0, y_5, y_4, 2\,y_3, y_3, y_2, 0]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_7, 0, y_6, y_5, y_4, 0, 0, y_3, 0, y_2]$$

1851 . Coloring, {2, 3, 4, 5, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 8s^6 + 16s^7$ $p' = s^3 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, 3, A, B, C, C, 2, 4, 9]
B: [6, 7, 7, 6, A, 3, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, -2\,y_1 + 2\,y_3 + 2\,y_2, 5\,y_4 - 2\,y_3 - 2\,y_2, 2\,y_4, 0, 0, 2\,y_4, 2\,y_3, 2\,y_2, 5\,y_4 - 2\,y_3 - 2\,y_2, 2\,y_4, 2\,y_1]$$

$p = -s^4 + s^8$ $p = -s^4 + s^5$ $p = -s^4 + s^9$ $p = -s^4 + s^7$ $p = -s^4 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_8, y_7, y_6, 0, 0, y_4, y_5, y_3]$$

1852 . Coloring, {2, 3, 4, 6, 7, 8, 9, 10}

$\Omega p(\Delta)=0$: $p' = 3s^2 - 2s^3 + 8s^4 + 8s^5 + 32s^7$ $p = 9s^2 + 20s^4 + 40s^5 + 16s^6 + 96s^7 + 64s^8$

R: [7, 8, 8, 7, A, 3, A, B, C, 2, 1, 5]
B: [6, 7, 7, 6, 3, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_7, y_6, y_5, 0, y_4, 0, y_3, y_2, 0, y_1, y_7 - y_6 - y_4 - y_3 + y_2 + y_1, y_5]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_2, 0, y_1, y_8, 0, y_7, y_6, y_5, y_4]$$

1853 . Coloring, {2, 3, 4, 6, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = 3s^2 + 5s^3 + 10s^4 - 8s^6 - 32s^7 - 32s^8$ $p' = 3s^2 + 2s^3 + 8s^4 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, 3, A, B, C, C, 4, 5]
B: [6, 7, 7, 6, 3, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_2, y_1, y_7, 0, 0, y_3, y_4, 0, y_8, y_5, y_6, y_7]$$

$p = -s^3 + s^9$

1854 . Coloring, {2, 3, 4, 6, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = -9s^2 + 4s^4 + 24s^5 - 16s^6 - 96s^7 + 64s^8$ $p = 3s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, 3, A, B, C, C, 1, 9]
B: [6, 7, 7, 6, 3, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, 0, y_3, y_6, y_4, y_5, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_6, y_3, y_4, y_5, 0, 0, y_7, y_8, y_9]$$

1855 . Coloring, {2, 3, 4, 6, 7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = -s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, B, B, 2, 4, 5]
B: [6, 7, 7, 6, 3, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, y_1, y_2, 2\,y_1, 0, y_4, y_5, 0, y_6, y_7, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_5, 0, y_4, y_6, y_7, y_8]$$

1856 . Coloring, {2, 3, 4, 6, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, B, B, 2, 1, 9]
B: [6, 7, 7, 6, 3, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_3, y_2, y_1, 0, 0, 0, y_6, y_4, 2\,y_1, y_5, y_7, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_8, y_7, y_6, y_5, 0, 0, y_4, y_3, y_2]$$

1857 . Coloring, {2, 3, 4, 6, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, 3, A, B, B, C, 4, 9]
B: [6, 7, 7, 6, 3, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_8, 0, 0, y_7, y_6, y_5, y_4, y_3, y_2]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_8, y_9, y_7, 0, y_6, y_5, y_4, 0, 0, y_2, y_3, y_1]$$

1858 . Coloring, {2, 3, 4, 6, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, 3, A, C, C, 2, 4, 5]
B: [6, 7, 7, 6, 3, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[0, y_1, y_2, 2\,y_2, y_3, 0, y_4, y_7, 0, y_6, 0, y_5]$$

$p = s^3 - s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_2, 0, y_1, 0, 0, y_8, y_7, 0, y_6, y_5, y_3, y_4]$$

1859 . Coloring, {2, 3, 4, 6, 7, 9, 10, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, C, C, 2, 1, 9]
B: [6, 7, 7, 6, 3, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_2, y_1, y_2, 0, 0, 0, y_6, y_7, y_5, y_4, 0, y_3]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_4, y_2, y_3, y_8, 0, 0, y_5, y_6, y_7]$$

1860 . Coloring, {2, 3, 4, 6, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, 3, A, C, C, C, 4, 9]
B: [6, 7, 7, 6, 3, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_1, 2\,y_1, 0, 0, -2\,y_1 + 2\,y_2, y_2, y_3, y_4, 0, y_5]$$

$p' = s^4 - s^6$ $p = s^4 - s^6$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_3, y_4, y_5, 0, y_6, y_7, y_8, 0, 0, y_1, y_2, 0]$$

1861 . Coloring, {2, 3, 4, 6, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 8s^5 + 48s^6 + 128s^8$ $p' = s^3 - 4s^4 + 8s^5 - 8s^6 + 16s^7$ $p' = s^2 - 8s^4 + 24s^5 - 16s^6 + 64s^7$

R: [7, 8, 8, 7, A, 3, A, C, B, 2, 4, 9]
B: [6, 7, 7, 6, 3, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_7, y_8, y_9, 0, 0, y_6, y_3, y_4, y_5, y_1, y_2]$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, y_7, y_8, y_6]$$

1862 . Coloring, {2, 3, 4, 6, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 - 8s^5 - 32s^7$ $p' = -s^2 + 8s^4 + 24s^5 + 16s^6 + 64s^7$ $p = s^2 + s^3 + 24s^6 - 16s^7 + 64s^8$

R: [7, 8, 8, 7, A, 3, B, B, C, 2, 4, 5]
B: [6, 7, 7, 6, 3, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_8, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^6 + s^9$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[-y_2 + y_1 + y_7 - y_5 - y_6 + y_3 + y_4, 0, y_2, 0, 0, y_1, y_7, 0, y_5, y_6, y_3, y_4]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1863 . Coloring, {2, 3, 4, 6, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^3 + 4s^4 - 8s^6 - 16s^7$ $p = s^2 + 56s^5 + 16s^6 - 64s^7 - 256s^8$ $p' = s^2 - 16s^4 - 8s^5 + 16s^6 + 64s^7$

R: [7, 8, 8, 7, A, 3, B, B, C, 2, 1, 9]
B: [6, 7, 7, 6, 3, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

5 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_7 - 6\,y_5 - 3\,y_6 - 3\,y_1 + 13\,y_2 - 3\,y_3 + 13\,y_4,\ 3\,y_7,\ 3\,y_5,\ 0,\ 0,\ 0,\ 3\,y_6,\ 3\,y_1,\ 3\,y_2,\ 3\,y_5,\ 3\,y_3,\ 3\,y_4]$$

$p = -s^4 - s^5 + s^7 + s^8$ $p = s^4 - s^6 - s^7 + s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0,\ 0,\ y_5,\ y_1,\ y_2,\ y_3,\ y_4,\ 0,\ 0,\ y_8,\ y_6,\ y_7]$$

1864 . Coloring, {2, 3, 4, 6, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, A, 3, B, B, C, C, 4, 9]
B: [6, 7, 7, 6, 3, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 9	8 *vs* 9	5 *vs* 8	6 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0,\ 0,\ 3\,y_2,\ 7\,y_2 - 3\,y_5 - 3\,y_4 + 10\,y_3 - 3\,y_1,\ 0,\ 0,\ 3\,y_5,\ 3\,y_4,\ 3\,y_3,\ 3\,y_2,\ 3\,y_1,\ 3\,y_2 + 3\,y_3]$$

$p' = s^4 - s^7$ $p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_4,\ y_6,\ y_5,\ 0,\ y_4,\ y_3,\ y_2,\ 0,\ 0,\ y_1,\ -y_5 + y_3,\ -y_5 + y_3]$$

$p' = s^5 - s^8$ $p' = s^4 - s^7$ $p = s^4 - s^7$

» SYNC'D !RANK'D

1865 . Coloring, {2, 3, 4, 6, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 8s^5 + 8s^6 + 16s^7$ $p' = s^3 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, A, 3, B, B, B, 2, 4, 9]
B: [6, 7, 7, 6, 3, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_6, y_5, y_4, 0, 0, y_2, y_3, 2\,y_5, y_5, y_1, 0]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_2, 0, y_1, 0, y_4, y_5, y_3, 0, 0, y_6, 0, y_7]$$

1866 . Coloring, {2, 3, 4, 6, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 9s^3 - 16s^5 - 24s^6 - 16s^7 + 64s^8$ $p' = 3s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, A, 3, B, C, C, 2, 4, 9]
B: [6, 7, 7, 6, 3, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	4 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 2\,y_4, 2\,y_3, 2\,y_2, 0, 0, 2\,y_2, 2\,y_1, -2\,y_3 + 5\,y_2 - 2\,y_1, 2\,y_3, 2\,y_2, -2\,y_4 - 2\,y_3 + 5\,y_2]$$

$p' = s^6 - s^8$ $p' = s^5 - s^8$ $p' = s^4 - s^8$ $p = s^4 - s^9$ $p' = s^7 - s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_3, 0, y_4, 0, y_5, y_6, y_7, 0, 0, y_8, y_1, y_2]$$

1867 . Coloring, {2, 3, 4, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, A, A, B, C, 2, 4, 5]
B: [6, 7, 7, 6, 3, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, 0, y_1, y_2, 0, y_8, y_7, 0, y_6, y_4, y_5]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_7, 0, y_6, 0, 0, y_5, y_4, 0, y_3, 0, y_1, y_2]$$

1868 . Coloring, {2, 3, 4, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, A, B, C, 2, 1, 9]
B: [6, 7, 7, 6, 3, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[2\,y_1,\ 11\,y_1 - 2\,y_4 + 11\,y_3 - 39\,y_2 + 11\,y_5 - 2\,y_6,\ 0,\ 0,\ 0,\ 0,\ 2\,y_4,\ 2\,y_3,\ 2\,y_2,\ 2\,y_5,\ 2\,y_6,\ 3\,y_1 + 3\,y_3 - 11\,y_2 + 3\,y_5]$$

$p' = -s + s^7$ $p = -s + s^7$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}} order: 5

See Matrix

$$[0,\ 0,\ y_1,\ y_2,\ y_3,\ y_4,\ y_5,\ 0,\ 0,\ 0,\ y_6,\ y_7]$$

1869 . Coloring, {2, 3, 4, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, A, B, C, C, 4, 9]
B: [6, 7, 7, 6, 3, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0,\ 0,\ 0,\ y_3,\ 0,\ 0,\ y_2,\ y_1,\ y_7,\ y_6,\ y_5,\ y_4]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_2,\ 2\,y_3,\ y_1,\ 0,\ y_7,\ y_6,\ y_5,\ 0,\ 0,\ 0,\ y_4,\ y_3]$$

$p = s^3 - s^8$

1870 . Coloring, {2, 3, 4, 7, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 - 8s^5 - 32s^7$ $p = s^2 - 4s^4 - 8s^5 - 16s^6 - 32s^7 - 64s^8$

R: [7, 8, 8, 7, A, A, A, B, B, 2, 4, 9]
B: [6, 7, 7, 6, 3, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, 0]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_5, y_3, y_4, 0, 0, 0, y_6, y_7]$$

1871 . Coloring, {2, 3, 4, 7, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 + 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 - 16s^6 - 32s^7 + 64s^8$

R: [7, 8, 8, 7, A, A, A, C, C, 2, 4, 9]
B: [6, 7, 7, 6, 3, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, 0, y_7, 0, 0, y_6, y_5, y_4, y_3, 0, y_2]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_5, 0, y_4, 0, y_3, y_2, y_1, 0, 0, 0, y_7, y_6]$$

1872 . Coloring, {2, 3, 4, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 16s^5 - 8s^6 + 16s^7 + 64s^8$ $p' = s^3 + 4s^4 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, A, A, B, B, C, 2, 4, 9]
B: [6, 7, 7, 6, 3, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, -3y_1 - 3y_7 - 3y_6 + 13y_4 - 3y_5 - 3y_2 + 13y_3, 0, 3y_1, 0, 0, 3y_7, 3y_6, 3y_4, 3y_5, 3y_2, 3y_3]$$

$p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_4, y_5, y_3, 0, 0, y_6, y_7, y_8]$$

1873 . Coloring, {2, 3, 5, 6, 7, 8, 9, 10}

R: [7, 8, 8, 6, 3, 3, A, B, C, 2, 1, 5]
B: [6, 7, 7, 7, A, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_6, y_5, y_4, 0, y_3, y_8, y_2, y_1, 0, y_9, y_7, y_8]$$

$p = -s^4 + s^{10}$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$[0, 0, 0, y_4, 0, y_5, y_1, 0, y_2, y_3, y_6, y_7]$

1874 . Coloring, {2, 3, 5, 6, 7, 8, 9, 11}

R: [7, 8, 8, 6, 3, 3, A, B, C, C, 4, 5]
B: [6, 7, 7, 7, A, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$[0, 0, y_6, y_5, y_4, y_3, y_2, y_1, 0, y_9, y_8, y_7]$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$[y_2, y_1, 0, 0, 0, y_4, y_3, 0, y_8, y_7, y_6, y_5]$

1875 . Coloring, {2, 3, 5, 6, 7, 8, 9, 12}

R: [7, 8, 8, 6, 3, 3, A, B, C, C, 1, 9]
B: [6, 7, 7, 7, A, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$[y_1, 0, y_5, 0, 0, y_2, y_3, y_4, y_6, y_7, y_8, y_9]$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, y_7, y_4, 0, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

1876 . Coloring, {2, 3, 5, 6, 7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = 6s^2 - 5s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, B, B, 2, 4, 5]
B: [6, 7, 7, 7, A, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, 2\,y_5, y_4, y_5, y_6, 0, y_7, y_8, 0]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_5, 0, 0, 0, 0, y_4, y_3, 0, y_2, y_1, y_6, y_7]$$

1877 . Coloring, {2, 3, 5, 6, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = 9s^3 - 2s^4 + 16s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, B, B, 2, 1, 9]
B: [6, 7, 7, 7, A, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	4 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_4, y_3, y_2, 0, 0, y_1, y_8, y_7, 2\,y_1, y_6, y_5, 0]$$

$p = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, 0, 4\,y_4 + 4\,y_3 + 3\,y_2 - 7\,y_1, 2\,y_4, 2\,y_3, 10\,y_4 + 10\,y_3 + 4\,y_2 - 16\,y_1, 0, 0, 2\,y_2, 2\,y_1, 16\,y_4 + 16\,y_3 - 27\,y_1 + 7\,y_2]$$

$p' = s^3 - s^6$ $p' = s^2 - s^5$ $p = s^2 - s^5$

1878 . Coloring, {2, 3, 5, 6, 7, 8, 11, 12}

Ωp(Δ)=0: $p = 9s^3 + 2s^4 + 16s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, A, B, B, C, 4, 9]
B: [6, 7, 7, 7, A, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 0, y_7, y_6, 0, y_4, y_5, y_3, y_1, y_2, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_6, y_7, y_8, 0, 0, y_5, y_3, y_4]$$

1879 . Coloring, {2, 3, 5, 6, 7, 9, 10, 11}

Ωp(Δ)=0: $p = 2s^2 + s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, A, C, C, 2, 4, 5]
B: [6, 7, 7, 7, A, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 4

See Matrix

$$[0, y_3, y_2, 2\,y_5, y_1, -3\,y_5 + 2\,y_6, y_5, y_4, 0, y_6, 0, y_7]$$

$p = -s^4 + s^8$ $p' = -s^4 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_7, y_6, 0, y_5, y_4, y_3, y_2]$$

1880 . Coloring, {2, 3, 5, 6, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 16s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, C, C, 2, 1, 9]
B: [6, 7, 7, 7, A, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 9	4 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[2\,y_1, y_6, y_7, 0, 0, y_1, 2\,y_7 - 3\,y_1, y_2, y_3, y_4, 0, y_5]$$

$p = -s^6 + s^8$ $p' = -s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, 2\,y_4, 2\,y_3, 4\,y_4 - 2\,y_3 - 7\,y_2 + 3\,y_1, 16\,y_4 - 27\,y_2 + 7\,y_1, 0, 0, 2\,y_2, 2\,y_1, 10\,y_4 - 16\,y_2 + 4\,y_1]$$

$p' = s^3 - s^6$ $p = s^2 - s^5$ $p' = s^2 - s^5$

» SYNC'D !RANK'D

1881 . Coloring, {2, 3, 5, 6, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 16s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, C, C, C, 4, 9]
B: [6, 7, 7, 7, A, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_1, 2\,y_2, 0, -3\,y_2 + 2\,y_5, y_2, y_3, y_4, y_5, 0, y_6]$$

$p' = -s^5 + s^7$ $p = -s^5 + s^7$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_5, 0, 0, y_4, y_2, y_3, 0, 0, y_7, y_6, 0]$$

1882 . Coloring, {2, 3, 5, 6, 7, 10, 11, 12}

R: [7, 8, 8, 6, 3, 3, A, C, B, 2, 4, 9]
B: [6, 7, 7, 7, A, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	10 *vs* 10	7 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

1883 . Coloring, {2, 3, 5, 6, 8, 9, 10, 11}

R: [7, 8, 8, 6, 3, 3, B, B, C, 2, 4, 5]
B: [6, 7, 7, 7, A, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 2\,y_6, y_5, y_4, y_3, y_2, y_6, y_1, 0, 0, y_7, y_6]$$

$p' = -s^3 + s^8$ $p = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_6 + y_5 - y_4 - y_3 + y_2 + y_1, 0, 0, 0, 0, y_6, y_5, 0, y_4, y_3, y_2, y_1]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

1884 . Coloring, {2, 3, 5, 6, 8, 9, 10, 12}

R: [7, 8, 8, 6, 3, 3, B, B, C, 2, 1, 9]
B: [6, 7, 7, 7, A, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_1 - 9\,y_2 - 3\,y_5 - 3\,y_3 + 13\,y_4 - 3\,y_6 + 13\,y_7,\ 6\,y_2,\ 3\,y_1,\ 0,\ 0,\ 3\,y_2,\ 3\,y_5,\ 3\,y_3,\ 3\,y_4,\ 0,\ 3\,y_6,\ 3\,y_7]$$

$p = s^4 + s^5 - s^7 - s^8$ $p = -s^4 + s^6 + s^7 - s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1, y_2, y_5, y_3, 0, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

1885 . Coloring, {2, 3, 5, 6, 8, 9, 11, 12}

R: [7, 8, 8, 6, 3, 3, B, B, C, C, 4, 9]
B: [6, 7, 7, 7, A, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, -5\,y_1 - 5\,y_2 - 5\,y_3 - 5\,y_4 + 11\,y_5 - 5\,y_6 + 11\,y_7,\ 5\,y_1,\ 0,\ 5\,y_2,\ 5\,y_3,\ 5\,y_4,\ 5\,y_5,\ 0,\ 5\,y_6,\ 5\,y_7]$$

$p = s^2 + s^3 - s^7 - s^8$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6, y_5, 0, 0, y_6, y_4, y_3, 0, 0, y_1, y_2, y_2]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

1886 . Coloring, {2, 3, 5, 6, 8, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, B, B, B, 2, 4, 9]
B: [6, 7, 7, 7, A, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 8	5 *vs* 6

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, 2\,y_2, y_6, y_5, 0, y_4, y_2, y_3, 2\,y_2, 0, y_1, 0]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\,y_3, 0, 0, 0, 2\,y_1, 2\,y_2, 3\,y_3, 0, 0, 2\,y_4, 0, 2\,y_5]$$

$p = s^3 - s^6$

» SYNC'D !RANK'D

1887 . Coloring, {2, 3, 5, 6, 9, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, B, C, C, 2, 4, 9]
B: [6, 7, 7, 7, A, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 2\,y_4, y_1, y_2, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8]$$

$p = s^7 - s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\,y_1, 0, 0, 0, 2\,y_2, 2\,y_3, 3\,y_4, 0, 0, 2\,y_6, 2\,y_4, 2\,y_5]$$

$p = -s^4 + s^7$

1888 . Coloring, {2, 3, 5, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, A, A, B, C, 2, 4, 5]
B: [6, 7, 7, 7, A, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	9 *vs* 10	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, y_8, y_7, y_4, y_5, 0, y_6, y_9, y_4]$$

$p = -s^4 + s^{10}$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_4, 0, y_3, 0, 0, y_2, y_1, 0, y_8, y_7, y_6, y_5]$$

1889 . Coloring, {2, 3, 5, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = -2s^2 + 5s^3 + 2s^4 - 16s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, A, B, C, 2, 1, 9]
B: [6, 7, 7, 7, A, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	5 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_5, 3\,y_6, 3\,y_7, 0, 0, 3\,y_7, -3\,y_6 - 6\,y_7 + 5\,y_1 - 3\,y_3 + 8\,y_4, -3\,y_5 + 8\,y_1 - 3\,y_2 + 5\,y_4, 3\,y_1, 3\,y_2, 3\,y_3, 3\,y_4]$$

$p' = -s^2 + s^8$ $p' = -s^3 + s^9$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0, 0, y_2, y_1, -2\,y_2 - 2\,y_1 + 5\,y_3 + 5\,y_4 - 4\,y_5, y_3, 4\,y_2 + 4\,y_1 - 6\,y_3 - 6\,y_4 + 5\,y_5, 0, 0, 5\,y_2 + 5\,y_1 - 8\,y_3 - 8\,y_4 + 6\,y_5, y_4, y_5]$$

$p = s^3 - s^6$ $p' = s^3 - s^6$ $p' = s^4 - s^7$

1890 . Coloring, {2, 3, 5, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = -2s^2 - 5s^3 + 2s^4 + 16s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, A, B, C, C, 4, 9]
B: [6, 7, 7, 7, A, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_8, y_6, 0, y_7, y_8, y_4, y_5, y_1, y_2, y_3]$$

$p = s^7 - s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_4, y_5, y_1, 0, y_2, y_3, y_9, 0, 0, y_6, y_7, y_8]$$

1891 . Coloring, {2, 3, 5, 7, 8, 10, 11, 12}

R: [7, 8, 8, 6, 3, A, A, B, B, 2, 4, 9]
B: [6, 7, 7, 7, A, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, y_6, y_7, y_5, 0, y_4, y_7, y_3, 2\,y_7, y_2, y_1, 0]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[-7\,y_1 + 9\,y_5 - 7\,y_6 - 7\,y_7 + 9\,y_2 - 7\,y_3 + 9\,y_4, 0, 7\,y_1, 0, 7\,y_5, 7\,y_6, 7\,y_7, 0, 0, 7\,y_2, 7\,y_3, 7\,y_4]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

1892 . Coloring, {2, 3, 5, 7, 9, 10, 11, 12}

R: [7, 8, 8, 6, 3, A, A, C, C, 2, 4, 9]
B: [6, 7, 7, 7, A, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_3, y_2, 2\,y_2, 0, y_1, y_2, y_5, y_6, y_7, 0, y_4]$$

$p = -s^6 + s^8 \quad p' = s^6 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[-5\,y_1 + 11\,y_2 - 5\,y_3 - 5\,y_4 + 11\,y_5 - 5\,y_6 + 11\,y_7,\ 0,\ 5\,y_1,\ 0,\ 5\,y_2,\ 5\,y_3,\ 5\,y_4,\ 0,\ 0,\ 5\,y_5,\ 5\,y_6,\ 5\,y_7]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

1893 . Coloring, {2, 3, 5, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0: \quad p = 2s^2 + s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, B, B, C, 2, 4, 9]
B: [6, 7, 7, 7, A, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 10	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0,\ 3\,y_7,\ 3\,y_5,\ 3\,y_6,\ 0,\ 3\,y_4,\ 3\,y_5,\ -3\,y_5 - 3\,y_6 + 5\,y_2 - 3\,y_3 + 8\,y_1,\ 3\,y_2,\ 3\,y_3,\ -3\,y_7 - 3\,y_5 - 3\,y_4 + 8\,y_2 + 5\,y_1,\ 3\,y_1]$$

$p' = -s^3 + s^9 \quad p' = -s^2 + s^8 \quad p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_4,\ 0,\ y_5,\ 0,\ y_3,\ y_1,\ y_2,\ 0,\ 0,\ y_6,\ y_7,\ y_8]$$

1894 . Coloring, {2, 3, 6, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0: \quad p = 3s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, B, C, 2, 4, 5]
B: [6, 7, 7, 7, 3, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_9, y_8, y_7, y_6, y_4, y_5, y_2, 0, y_3, y_1, y_5]$$

$p = s^5 - s^{10}$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 - y_4 - y_5 + y_6 + y_7, 0, y_1, 0, 0, y_2, y_3, 0, y_4, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1895 . Coloring, {2, 3, 6, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = 6s^2 + s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, B, C, 2, 1, 9]
B: [6, 7, 7, 7, 3, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[2 y_1, 2 y_8, 2 y_7, 0, 0, 2 y_6, 2 y_4, 2 y_5, 2 y_2, 2 y_3, 11 y_1 - 2 y_8 - 2 y_7 + 11 y_6 - 2 y_4 + 11 y_5 - 39 y_2 + 11 y_3, 3 y_1 + 3 y_6 + 3 y_5 - 11 y_2 + 3 y_3]$$

$p = -s^3 + s^9$ $p' = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 0, y_5, y_4, y_3, y_2, y_1, 0, 0, y_8, y_7, y_6]$$

1896 . Coloring, {2, 3, 6, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = -6s^2 + s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, A, 3, A, B, C, C, 4, 9]
B: [6, 7, 7, 7, 3, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, 7y_2, 7y_1, 0, 7y_6, 9y_2 + 9y_1 + 9y_6 + 9y_3 - 7y_4 - 7y_5 + 9y_8 - 7y_7, 7y_3, 7y_4, 7y_5, 7y_8, 7y_7]$$

$p = s^3 + s^4 - s^8 - s^9$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 + y_4 - y_5 - y_6 + y_7 + y_8, y_1, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

1897 . Coloring, {2, 3, 6, 7, 8, 10, 11, 12}

R: [7, 8, 8, 6, A, 3, A, B, B, 2, 4, 9]
B: [6, 7, 7, 7, 3, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_5, 0, y_6, y_4, y_3, 2y_4, y_8, y_7, 0]$$

$p = s^4 - s^9$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_7 - y_6 + y_5 - y_4 - y_3 + y_2 + y_1, 0, y_7, 0, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

$p = s - s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1898 . Coloring, {2, 3, 6, 7, 9, 10, 11, 12}

R: [7, 8, 8, 6, A, 3, A, C, C, 2, 4, 9]
B: [6, 7, 7, 7, 3, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_4, y_5, 8\,y_4 - 4\,y_5 - 10\,y_3, 0, y_3, 4\,y_4 - 2\,y_5 - 5\,y_3, y_2, y_1, 10\,y_4 - 5\,y_5 - 12\,y_3, 0, -3\,y_4 + 4\,y_3 + y_2 + y_1]$$

$p' = -s^5 + s^8$ $p' = -s^5 + s^6$ $p' = -s^5 + s^7$ $p = s^5 - s^6$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_6, 0, y_7, 0, y_3, y_4, y_5, 0, 0, -y_6 + y_7 - y_3 + y_4 - y_5 + y_1 + y_2, y_1, y_2]$$

$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1899 . Coloring, {2, 3, 6, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p = 2s^2 + s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, B, B, C, 2, 4, 9]
B: [6, 7, 7, 7, 3, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[0, 3\,y_8, 3\,y_7, 3\,y_6, 0, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2, 3\,y_4, -3\,y_8 - 3\,y_7 - 3\,y_6 - 3\,y_5 - 6\,y_4 - 3\,y_3 + 13\,y_2 + 13\,y_1, 3\,y_1]$$

$p = -s^3 + s^5 + s^8 - s^{10}$ $p = s^3 + s^4 - s^8 - s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_8, 0, 0, y_5, y_6, y_7]$$

1900 . Coloring, {2, 3, 7, 8, 9, 10, 11, 12}

R: [7, 8, 8, 6, A, A, A, B, C, 2, 4, 9]
B: [6, 7, 7, 7, 3, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 6, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, -2\,y_3 - 2\,y_2 - 39\,y_6 - 2\,y_7 + 11\,y_1 + 11\,y_5 + 11\,y_4, 0, 2\,y_1, 0, 2\,y_3, 2\,y_2, 2\,y_5, 2\,y_6, 2\,y_4, 2\,y_7, 3\,y_1 + 3\,y_5 - 11\,y_6 + 3\,y_4]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_5, y_3, y_4, 0, 0, 0, y_6, y_7]$$

1901 . Coloring, {2, 4, 5, 6, 7, 8, 9, 10}

R: [7, 8, 7, 7, 3, 3, A, B, C, 2, 1, 5]
B: [6, 7, 8, 6, A, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_1 + y_4 - y_3 - y_2 + y_6 + y_8 - y_5 + y_7, y_4, 0, y_3, 0, y_2, y_6, 0, y_8, y_5, y_7]$$

$$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, 0, y_2 + 2\,y_1 + y_6 + y_5 - y_4 - y_3, y_1, y_1, y_6, y_5, y_4, y_3]$$

$$p = -s^2 + s^8 \quad p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$$

1902 . Coloring, {2, 4, 5, 6, 7, 8, 9, 11}

R: [7, 8, 7, 7, 3, 3, A, B, C, C, 4, 5]
B: [6, 7, 8, 6, A, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[0, 0, y_1, y_8, y_7, 0, y_6, y_5, 0, y_4, y_3, y_2]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_8, y_7, 0, 0, 0, y_6, y_4, y_5, y_3, y_2, y_1, y_8 - y_7 - y_6 + y_4 + y_5 + y_3 + y_2 - y_1]$$

$$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$$

1903 . Coloring, {2, 4, 5, 6, 7, 8, 9, 12}

R: [7, 8, 7, 7, 3, 3, A, B, C, C, 1, 9]
B: [6, 7, 8, 6, A, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_3, 0, 2\,y_2, 0, 0, 0, y_1, y_2, y_7, y_5, y_6, y_4]$$

$$p = s^6 - s^8$$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

1904 . Coloring, {2, 4, 5, 6, 7, 8, 10, 11}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, A, B, B, 2, 4, 5]
B: [6, 7, 8, 6, A, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, y_4, y_2, y_1, 0, y_7, y_6, 0, y_5, y_8, 0]$$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_6, 0, 0, 0, 0, y_4, y_5, y_5, y_1, y_2, y_3, y_6 - y_4 + 2\,y_5 + y_1 + y_2 - y_3]$$

$p = -s^6 + s^8$ $p = -s^6 + s^7$

1905 . Coloring, {2, 4, 5, 6, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, A, B, B, 2, 1, 9]
B: [6, 7, 8, 6, A, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, y_5, 0, 0, 0, y_3, y_4, y_5, y_6, y_7, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, y_1, y_4, y_3, y_3, 0, y_5, y_7, y_6]$$

$p = s^5 - s^8$

1906 . Coloring, {2, 4, 5, 6, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, A, B, B, C, 4, 9]
B: [6, 7, 8, 6, A, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 2\, y_4, y_6, 0, 0, y_5, y_4, y_1, y_2, y_3, y_7]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_6, y_3, y_4, y_7, 0, y_8, y_5, y_9]$$

1907 . Coloring, {2, 4, 5, 6, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, A, C, C, 2, 4, 5]
B: [6, 7, 8, 6, A, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 3, 5, 7, 8, 10, 12}} order: 7

See Matrix

$$[0, y_2, y_3, y_4, y_5, 0, y_6, y_7, 0, y_8, 0, y_1]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_4 - 2\, y_3 - y_2 - y_1 + y_6 + y_5, 0, 0, 0, 0, y_4, y_3, y_3, y_2, y_1, y_6, y_5]$$

$p = -s^2 + s^8$ $p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1908 . Coloring, {2, 4, 5, 6, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, A, C, C, 2, 1, 9]
B: [6, 7, 8, 6, A, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$[y_2, y_3, y_2, 0, 0, 0, y_1, y_7, y_5, y_6, 0, y_4]$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, 0, y_1, y_2, y_3, y_4, y_4, 0, y_5, y_6, y_7]$

$p = s^5 - s^8$

1909 . Coloring, {2, 4, 5, 6, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, A, C, C, C, 4, 9]
B: [6, 7, 8, 6, A, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, 2\,y_2, 2\,y_2, 0, 0, y_1, y_2, y_3, y_5, 0, y_4]$$

$p = -s^4 + s^6$ $p' = -s^4 + s^6$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, 2\,y_6, y_7, y_5, y_6, 0, y_3, y_4, 0]$$

$p = -s^2 + s^8$

1910 . Coloring, {2, 4, 5, 6, 7, 10, 11, 12}

R: [7, 8, 7, 7, 3, 3, A, C, B, 2, 4, 9]
B: [6, 7, 8, 6, A, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, y_1, y_3, y_2, 0, 0, y_5, y_4, y_7, y_6, y_9, y_8]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_5, y_4, y_3, y_3, 0, y_2, y_6, y_7]$$

$p = s^5 - s^8$

1911 . Coloring, {2, 4, 5, 6, 8, 9, 10, 11}

R: [7, 8, 7, 7, 3, 3, B, B, C, 2, 4, 5]
B: [6, 7, 8, 6, A, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_6, y_5, y_4, y_3, 0, y_2, 2\,y_3 - 3\,y_6, 0, 0, y_1, y_6]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_2, y_3, y_3, y_4, y_5, y_6, y_7]$$

$p = -s^2 + s^8$

1912 . Coloring, {2, 4, 5, 6, 8, 9, 10, 12}

R: [7, 8, 7, 7, 3, 3, B, B, C, 2, 1, 9]
B: [6, 7, 8, 6, A, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-6\,y_4 - 3\,y_3 - 3\,y_2 + 13\,y_1 - 3\,y_6 + 13\,y_5, 3\,y_4, 3\,y_4, 0, 0, 0, 3\,y_3, 3\,y_2, 3\,y_1, 0, 3\,y_6, 3\,y_5]$$

$p' = -s^3 - s^4 + s^6 + s^7$ $p = -s^3 + s^5 + s^6 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, y_2, y_1, y_5, y_5, 0, y_4, y_5, y_6]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

1913 . Coloring, {2, 4, 5, 6, 8, 9, 11, 12}

R: [7, 8, 7, 7, 3, 3, B, B, C, C, 4, 9]
B: [6, 7, 8, 6, A, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 7	6 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, 10\, y_2, -5\, y_1 - 15\, y_2 + 11\, y_5 - 5\, y_3 + 11\, y_4, 0, 0, 5\, y_1, 5\, y_2, 5\, y_5, 0, 5\, y_3, 5\, y_4]$$

$p = s^2 - s^4 - s^5 + s^7$ $p = -s^2 - s^3 + s^5 + s^6$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_5 + y_6, y_1, 0, 0, y_5 - y_6 + y_3, y_3, y_4, y_5, 0, y_2, y_5, y_6]$$

$p = s^4 - s^7$ $p' = s^4 - s^7$ $p' = s^5 - s^8$

1914 . Coloring, {2, 4, 5, 6, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, B, B, B, 2, 4, 9]
B: [6, 7, 8, 6, A, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_5, y_5, y_4, 0, 0, y_3, y_2, y_5, 0, y_1, 0]$$

$p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\,y_3, 0, 0, 0, y_1, y_2, y_3, y_3, 0, y_4, 0, y_5]$$

$p = -s^3 + s^6$ $p' = -s^3 + s^6$

1915 . Coloring, {2, 4, 5, 6, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, B, C, C, 2, 4, 9]
B: [6, 7, 8, 6, A, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 7\,y_1 + 7\,y_2 - 9\,y_3 - 9\,y_4 + 7\,y_5 - 9\,y_6, 7\,y_1 + 7\,y_2 - 9\,y_3 - 9\,y_4 + 7\,y_5 - 9\,y_6, 2\,y_1, 0, 0, 2\,y_2, 2\,y_3, 2\,y_4, 0, 2\,y_5, 2\,y_6]$$

$p = -s^3 + s^5 + s^6 - s^8$ $p = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, y_6, y_4, y_5, y_5, 0, y_3, y_2, y_1]$$

$p = s^5 - s^8$

1916 . Coloring, {2, 4, 5, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, A, B, C, 2, 4, 5]
B: [6, 7, 8, 6, A, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 + y_2 - y_3 - y_4 + y_5 + y_6 - y_7 + y_8, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 8, 9, 11, 12}} order: 7

See Matrix

$$[y_1, 0, y_2, 0, 0, y_3, y_6, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^2 + s^9$

1917 . Coloring, {2, 4, 5, 7, 8, 9, 10, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, A, B, C, 2, 1, 9]
B: [6, 7, 8, 6, A, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[3 y_7, 3 y_6, 3 y_5, 0, 0, 0, 3 y_4, 3 y_3, 3 y_2, -3 y_7 - 3 y_5 - 3 y_3 + 8 y_2 + 5 y_1, -3 y_6 - 3 y_4 + 5 y_2 + 8 y_1, 3 y_1]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[0, 0, y_5, y_4, y_3, y_2, y_1, y_9, 0, y_8, y_7, y_6]$$

1918 . Coloring, {2, 4, 5, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, A, B, C, C, 4, 9]
B: [6, 7, 8, 6, A, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$[0, 0, y_6, y_1, 0, 0, y_2, y_6, y_7, y_5, y_3, y_4]$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{1, 2, 3, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$[y_2, y_1, y_{10}, 0, y_9, y_7, y_8, y_6, 0, y_5, y_4, y_3]$

1919 . Coloring, {2, 4, 5, 7, 8, 10, 11, 12}

R: [7, 8, 7, 7, 3, A, A, B, B, 2, 4, 9]
B: [6, 7, 8, 6, A, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$[0, y_1, y_2, y_6, 0, 0, y_3, y_5, 2\,y_2, y_4, y_7, 0]$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_2, 0, y_1, 0, y_6, y_5, y_4, y_3, 0, y_9, y_7, y_8]$$

1920 . Coloring, {2, 4, 5, 7, 9, 10, 11, 12}

R: [7, 8, 7, 7, 3, A, A, C, C, 2, 4, 9]
B: [6, 7, 8, 6, A, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_6, y_4, 2\,y_4, 0, 0, y_5, y_3, y_1, y_2, 0, y_7]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 8, 11}, {5, 10, 12}}

See Matrix

$$[-5\,y_4 + 11\,y_1 - 5\,y_2 - 5\,y_3 - 5\,y_5 + 11\,y_6 - 5\,y_7 + 11\,y_8, 0, 5\,y_4, 0, 5\,y_1, 5\,y_2, 5\,y_3, 5\,y_5, 0, 5\,y_6, 5\,y_7, 5\,y_8]$$

$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$

1921 . Coloring, {2, 4, 5, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, A, B, B, C, 2, 4, 9]
B: [6, 7, 8, 6, A, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 3\,y_6, 3\,y_7, 3\,y_5, 0, 0, 3\,y_4, 3\,y_2, 3\,y_3, 3\,y_7, -3\,y_6 - 3\,y_5 - 3\,y_4 - 3\,y_2 + 13\,y_3 - 6\,y_7 + 13\,y_1, 3\,y_1]$$

$p' = s^4 + s^5 - s^7 - s^8$ $p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_4, y_3, y_7, y_5, 0, y_8, y_7, y_6]$$

$p = s^6 - s^9$

1922 . Coloring, {2, 4, 6, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, A, B, C, 2, 4, 5]
B: [6, 7, 8, 6, 3, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, 2\,y_2 + y_7 - y_6 - y_5 + y_4 + y_3 - y_1, y_2, y_7, y_6, 0, y_5, y_4, 0, y_3, y_1, y_2]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$ $p = -s^3 + s^9$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, 0, y_5, y_2, y_3, y_4, y_8, y_7, y_6]$$

$p = s^3 - s^9$

1923 . Coloring, {2, 4, 6, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0: \quad p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, 3, A, B, C, 2, 1, 9]
B: [6, 7, 8, 6, 3, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_7 + 8\,y_3 - 3\,y_4 + 5\,y_6, -3\,y_2 + 5\,y_3 - 3\,y_5 + 8\,y_6, 3\,y_1, 0, 0, 0, 3\,y_2, 3\,y_7, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6]$$

$p = -s^2 + s^8 \quad p' = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, 0, y_5, y_1, y_2, y_3, y_4, y_6, 0, y_7, y_8, y_9]$$

1924 . Coloring, {2, 4, 6, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0: \quad p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 7, 7, A, 3, A, B, C, C, 4, 9]
B: [6, 7, 8, 6, 3, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, y_3, y_2, 0, 0, y_1, y_3, y_6, y_7, y_4, y_5]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}, {1, 2, 6, 7, 10, 11}} order: 12

See Matrix

$$[33\,y_2 - 2\,y_4 + 33\,y_6 - 2\,y_5 - 13\,y_1 - 13\,y_3 - 13\,y_7,\ 2\,y_1,\ -5\,y_1 + 13\,y_2 - 5\,y_3 + 13\,y_6 - 5\,y_7 - 2\,y_8,\ 0,\ 2\,y_2,\ 2\,y_3,\ 2\,y_4,\ 2\,y_6,\ 0,\ 2\,y_5,\ 2\,y_7,\ 2\,y_8]$$

$p = -s - s^3 + s^7 + s^9 \quad p' = -s - s^3 + s^7 + s^9$

1925 . Coloring, {2, 4, 6, 7, 8, 10, 11, 12}

R: [7, 8, 7, 7, A, 3, A, B, B, 2, 4, 9]
B: [6, 7, 8, 6, 3, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0,\ y_6,\ y_7,\ y_1,\ 0,\ 0,\ y_2,\ y_3,\ 2\,y_7,\ y_4,\ y_5,\ 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_2,\ 0,\ y_3,\ 0,\ y_1,\ y_5,\ y_6,\ y_7,\ 0,\ y_4,\ y_8,\ y_9]$$

1926 . Coloring, {2, 4, 6, 7, 9, 10, 11, 12}

R: [7, 8, 7, 7, A, 3, A, C, C, 2, 4, 9]
B: [6, 7, 8, 6, 3, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_2, y_1, 2\,y_1, 0, 0, y_7, y_6, y_5, y_4, 0, y_3]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{1, 3, 5, 6, 8, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_6, 0, y_5, y_2, y_3, y_4, 0, y_7, y_8, y_9]$$

1927 . Coloring, {2, 4, 6, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, 3, B, B, C, 2, 4, 9]
B: [6, 7, 8, 6, 3, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	5 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, -6\,y_5 - 3\,y_1 - 3\,y_2 - 3\,y_3 + 13\,y_4 - 3\,y_6 + 13\,y_7, 3\,y_5, 3\,y_1, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = s^4 + s^5 - s^7 - s^8$ $p' = s^4 + s^5 - s^7 - s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[-y_3 + y_4 + y_5, 0, y_2, 0, y_3, -y_2 + y_4, y_5, y_4 + y_5 - y_1, 0, y_1, y_5, y_4]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$ $p = -s^5 + s^8$ $p = -s^5 + s^9$

1928 . Coloring, {2, 4, 7, 8, 9, 10, 11, 12}

R: [7, 8, 7, 7, A, A, A, B, C, 2, 4, 9]
B: [6, 7, 8, 6, 3, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_2, 0, 3\,y_1, 0, 0, -3\,y_2 + 5\,y_6 - 3\,y_4 + 8\,y_3, -3\,y_1 + 8\,y_6 - 3\,y_5 + 5\,y_3, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3]$$

$p' = -s + s^7$ $p = -s + s^7$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[-y_1 + y_2 + y_5 - y_3 + y_4 + y_6 - y_7, 0, y_1, 0, y_2, y_5, y_3, y_4, 0, 0, y_6, y_7]$$

$p = -s^5 + s^6 - s^7 + s^8$

1929 . Coloring, {2, 5, 6, 7, 8, 9, 10, 11}

R: [7, 8, 7, 6, 3, 3, A, B, C, 2, 4, 5]
B: [6, 7, 8, 7, A, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, y_9, y_9 - y_7 + y_8 + y_6 + y_4 - y_5 - y_2 + y_3 - y_1, y_7, y_8, y_6, y_4, y_5, 0, y_2, y_3, y_1]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9 - s^{10}$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, 0, y_6, 2\,y_5, y_5, y_4, y_3, y_2, y_1]$$

$p = -s^2 + s^8$

1930 . Coloring, {2, 5, 6, 7, 8, 9, 10, 12}

R: [7, 8, 7, 6, 3, 3, A, B, C, 2, 1, 9]
B: [6, 7, 8, 7, A, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	4 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[-3\,y_1 - 3\,y_4 + 8\,y_5 - 3\,y_6 + 5\,y_8,\ -3\,y_2 - 3\,y_3 + 5\,y_5 - 3\,y_7 + 8\,y_8,\ 3\,y_1,\ 0,\ 0,\ 3\,y_2,\ 3\,y_3,\ 3\,y_4,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$p = -s^3 + s^9$ $p' = -s^3 + s^9$

Omega Rank for B : cycles: {{4, 7, 11}, {5, 10, 12}} order: 3

See Matrix

$$[0,\ 0,\ 0,\ 3\,y_4,\ 3\,y_3,\ 3\,y_2,\ 3\,y_1,\ 3\,y_2,\ 0,\ 3\,y_3,\ -3\,y_4 + 7\,y_3 + 7\,y_2 - 3\,y_1,\ 3\,y_3 + 3\,y_2]$$

$p' = -s^4 + s^7$ $p' = -s^3 + s^6$ $p' = -s^2 + s^5$ $p = s^2 - s^5$

1931 . Coloring, {2, 5, 6, 7, 8, 9, 11, 12}

R: [7, 8, 7, 6, 3, 3, A, B, C, C, 4, 9]
B: [6, 7, 8, 7, A, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0,\ 0,\ y_1,\ y_2,\ 0,\ y_3,\ y_4,\ y_5,\ y_6,\ y_7,\ y_8,\ y_9]$$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_5, y_3, y_4, y_6, 0, y_7, y_8, y_9]$$

1932 . Coloring, {2, 5, 6, 7, 8, 10, 11, 12}

R: [7, 8, 7, 6, 3, 3, A, B, B, 2, 4, 9]
B: [6, 7, 8, 7, A, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, y_5, y_6, y_4, 0, y_7, y_9, y_8, y_3, y_1, y_2, 0]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_4, y_2, 2\,y_3, y_3, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

1933 . Coloring, {2, 5, 6, 7, 9, 10, 11, 12}

R: [7, 8, 7, 6, 3, 3, A, C, C, 2, 4, 9]
B: [6, 7, 8, 7, A, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, y_2, y_3, y_1, 0, y_4, y_5, y_6, y_8, y_7, 0, y_9]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_5, y_3, 2\,y_4, y_4, 0, y_2, y_6, y_7]$$

$p = -s^5 + s^8$

1934 . Coloring, {2, 5, 6, 8, 9, 10, 11, 12}

R: [7, 8, 7, 6, 3, 3, B, B, C, 2, 4, 9]
B: [6, 7, 8, 7, A, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {3, 4, 6, 7, 11}} order: 10

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_6 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_7 + 13\,y_8, 3\,y_1, 3\,y_2, 0, 3\,y_6, 3\,y_3, 3\,y_4, 3\,y_5, 0, 3\,y_7, 3\,y_8]$$

$p = s^3 + s^4 - s^8 - s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_4, y_3, 2\,y_6, y_6, 0, y_2, y_6, y_5]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

1935 . Coloring, {2, 5, 7, 8, 9, 10, 11, 12}

R: [7, 8, 7, 6, 3, A, A, B, C, 2, 4, 9]
B: [6, 7, 8, 7, A, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, -3\,y_6 - 3\,y_4 + 5\,y_3 - 3\,y_2 + 8\,y_8, -3\,y_7 - 3\,y_5 + 8\,y_3 - 3\,y_1 + 5\,y_8, 3\,y_7, 0, 3\,y_6, 3\,y_4, 3\,y_5, 3\,y_3, 3\,y_1, 3\,y_2, 3\,y_8]$$

$p' = -s^3 + s^9 \quad p = -s^3 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_3, 0, y_2, 0, y_1, y_8, y_9, y_7, 0, y_6, y_5, y_4]$$

1936 . Coloring, {2, 6, 7, 8, 9, 10, 11, 12}

R: [7, 8, 7, 6, A, 3, A, B, C, 2, 4, 9]
B: [6, 7, 8, 7, 3, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 3, 4, 6, 7, 8, 10, 11}, {9, 12}} order: 8

See Matrix

$$[0, 3\,y_7, 3\,y_8, 3\,y_6, 0, 3\,y_5, 3\,y_4, 3\,y_2, 3\,y_3, -3\,y_8 - 3\,y_6 - 3\,y_2 + 8\,y_3 + 5\,y_1, -3\,y_7 - 3\,y_5 - 3\,y_4 + 5\,y_3 + 8\,y_1, 3\,y_1]$$

$p' = -s + s^9 \quad p = -s + s^9$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_5, 0, y_4, 0, y_3, y_2, y_1, -y_5 + y_4 - y_3 + y_2 - y_1 - y_8 + y_7 + y_6, 0, y_8, y_7, y_6]$$

$p = -s^6 + s^7 - s^8 + s^9$

1937 . Coloring, {3, 4, 5, 6, 7, 8, 9, 10}

R: [7, 7, 8, 7, 3, 3, A, B, C, 2, 1, 5]
B: [6, 8, 7, 6, A, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[y_2, y_1, y_3, 0, y_4, 0, y_5, y_6, 0, y_8, y_7, y_9]$$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1 - 2\,y_3 - y_2 - y_4 + y_5 + y_6, 0, y_1, y_3, y_3, y_2, y_4, y_5, y_6]$$

$p' = s^2 - s^3 + s^4 - s^5 + s^6 - s^7 \quad p = s^2 - s^8$

1938 . Coloring, {3, 4, 5, 6, 7, 8, 9, 11}

R: [7, 7, 8, 7, 3, 3, A, B, C, C, 4, 5]
B: [6, 8, 7, 6, A, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, y_3, 0, y_5, y_4, 0, y_6, y_8, y_7]$$

Omega Rank for B : cycles: {{1, 2, 6, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[y_1 + y_3 - y_2 - y_4 - y_5 - y_6 + y_7 + y_8, y_1, 0, 0, 0, y_3, y_2, y_4, y_5, y_6, y_7, y_8]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

1939 . Coloring, {3, 4, 5, 6, 7, 8, 9, 12}

R: [7, 7, 8, 7, 3, 3, A, B, C, C, 1, 9]
B: [6, 8, 7, 6, A, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$[y_4, 0, y_3, 0, 0, 0, y_2, y_1, y_8, y_7, y_6, y_5]$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$[0, y_9, 0, y_8, y_7, y_6, y_5, y_4, 0, y_3, y_2, y_1]$

1940 . Coloring, {3, 4, 5, 6, 7, 8, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, A, B, B, 2, 4, 5]
B: [6, 8, 7, 6, A, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$[0, y_1, y_2, y_3, y_4, 0, y_5, y_6, 0, y_7, y_8, 0]$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_1 + 2\,y_6 + y_5 + y_4 - y_3 - y_2, y_6, y_6, y_5, y_4, y_3, y_2]$$

$p' = s^6 - s^7$ $p = s^6 - s^8$

1941 . Coloring, {3, 4, 5, 6, 7, 8, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, A, B, B, 2, 1, 9]
B: [6, 8, 7, 6, A, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_2, y_1, y_5, 0, 0, 0, y_7, y_6, y_5, y_4, y_3, 0]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, y_3, y_2, y_1, y_1, 0, y_7, y_6, y_5]$$

$p = -s^5 + s^8$

1942 . Coloring, {3, 4, 5, 6, 7, 8, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, A, B, B, C, 4, 9]
B: [6, 8, 7, 6, A, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_2, y_1, 0, 0, y_3, y_4, y_5, y_8, 0, y_6, y_7, y_9]$$

1943 . Coloring, {3, 4, 5, 6, 7, 9, 10, 11}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, A, C, C, 2, 4, 5]
B: [6, 8, 7, 6, A, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {3, 5, 8, 12}} order: 12

See Matrix

$$[0, 7y_7, 7y_5, 7y_6, 7y_4, 0, 7y_3, 7y_2, 0, -7y_7 + 9y_5 - 7y_6 + 9y_4 - 7y_3 + 9y_2 + 9y_1, 0, 7y_1]$$

$p = -s^2 - s^3 - s^4 + s^6 + s^7 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_6, 0, 0, 0, 0, y_5, y_4, y_4, y_3, y_2, y_1, y_6 - y_5 + 2y_4 + y_3 + y_2 - y_1]$$

$p = -s^2 + s^8$ $p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1944 . Coloring, {3, 4, 5, 6, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, A, C, C, 2, 1, 9]
B: [6, 8, 7, 6, A, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$[7 y_6 + 7 y_5 - 9 y_4 - 9 y_3 + 7 y_2 - 9 y_1, 2 y_6, 7 y_6 + 7 y_5 - 9 y_4 - 9 y_3 + 7 y_2 - 9 y_1, 0, 0, 0, 2 y_5, 2 y_4, 2 y_3, 2 y_2, 0, 2 y_1]$

$p = s^3 - s^5 - s^6 + s^8$ $p' = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, 0, y_1, y_3, y_4, y_2, y_2, 0, y_7, y_5, y_6]$

$p = -s^5 + s^8$

1945 . Coloring, {3, 4, 5, 6, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, A, C, C, C, 4, 9]
B: [6, 8, 7, 6, A, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	8 *vs* 9	5 *vs* 7	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$[0, 0, y_1 - y_2, y_1 - y_2, 0, 0, y_1, y_2, y_3, y_4, 0, y_5]$

$p' = -s^4 + s^6$ $p = -s^4 + s^6$

Omega Rank for B : cycles: {{1, 2, 6, 8, 10, 11}} order: 6

See Matrix

$$[y_2, y_1, 0, 0, 2\,y_5, y_6, y_5, y_3, 0, y_4, y_7, 0]$$

$$p = -s^2 + s^8$$

1946 . Coloring, {3, 4, 5, 6, 7, 10, 11, 12}

R: [7, 7, 8, 7, 3, 3, A, C, B, 2, 4, 9]
B: [6, 8, 7, 6, A, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_2, y_1, y_9, 0, 0, y_8, y_6, y_5, y_7, y_4, y_3]$$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, y_4, y_5, y_6, y_6, 0, y_3, y_1, y_2]$$

$$p = s^5 - s^8$$

1947 . Coloring, {3, 4, 5, 6, 8, 9, 10, 11}

R: [7, 7, 8, 7, 3, 3, B, B, C, 2, 4, 5]
B: [6, 8, 7, 6, A, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_1, y_7, y_6, y_5, 0, y_4, y_3, 0, 0, y_2, y_1]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, 0, y_2, y_3, y_3, y_4, y_5, y_6, y_1]$$

$p = -s^2 + s^8$

1948 . Coloring, {3, 4, 5, 6, 8, 9, 10, 12}

R: [7, 7, 8, 7, 3, 3, B, B, C, 2, 1, 9]
B: [6, 8, 7, 6, A, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[3\,y_5, 3\,y_6, 3\,y_6, 0, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 0, -3\,y_5 - 6\,y_6 - 3\,y_2 - 3\,y_3 + 13\,y_4 + 13\,y_1, 3\,y_1]$$

$p = -s^3 + s^5 + s^6 - s^8$ $p' = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, y_3, y_1, y_5, y_5, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

1949 . Coloring, {3, 4, 5, 6, 8, 9, 11, 12}

R: [7, 7, 8, 7, 3, 3, B, B, C, C, 4, 9]
B: [6, 8, 7, 6, A, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 7	8 *vs* 9

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 0, 5\,y_1, -5\,y_1 - 5\,y_4 - 5\,y_5 + 11\,y_3 - 5\,y_2 + 11\,y_6, 0, 0, 5\,y_4, 5\,y_5, 5\,y_3, 0, 5\,y_2, 5\,y_6]$$

$p = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_4, y_7, y_5, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

1950 . Coloring, {3, 4, 5, 6, 8, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, B, B, B, 2, 4, 9]
B: [6, 8, 7, 6, A, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	5 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_5, y_5, y_4, 0, 0, y_3, y_2, y_5, 0, y_1, 0]$$

$p' = s^3 - s^6$ $p = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[2\,y_3, 0, 0, 0, y_4, y_2, y_3, y_3, 0, y_1, 0, y_5]$$

$p = -s^3 + s^6 \quad p' = -s^3 + s^6$

1951 . Coloring, {3, 4, 5, 6, 9, 10, 11, 12}

$\Omega p(\Delta)=0: \quad p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, B, C, C, 2, 4, 9]
B: [6, 8, 7, 6, A, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$[0, 7y_6 + 7y_5 - 9y_1 - 9y_2 + 7y_3 - 9y_4, 7y_6 + 7y_5 - 9y_1 - 9y_2 + 7y_3 - 9y_4, 2y_6, 0, 0, 2y_5, 2y_1, 2y_2, 0, 2y_3, 2y_4]$

$p = -s^3 - s^4 + s^6 + s^7 \quad p = -s^3 + s^5 + s^6 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$[y_1, 0, 0, 0, y_2, y_3, y_4, y_4, 0, y_5, y_6, y_7]$

$p = -s^5 + s^8$

1952 . Coloring, {3, 4, 5, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0: \quad p = s^3 - 2s^4 + 8s^5 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, A, B, C, 2, 4, 5]
B: [6, 8, 7, 6, A, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_9, y_7, y_8, y_6, 0, y_5, y_4, 0, y_3, y_2, y_1]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_8, 0, y_7, 0, 0, y_6, y_4, y_5, y_3, y_5, y_2, y_1]$$

$p = s^4 - s^9$

1953 . Coloring, {3, 4, 5, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, A, B, C, 2, 1, 9]
B: [6, 8, 7, 6, A, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[3 y_8, 3 y_6, 3 y_7, 0, 0, 0, 3 y_5, 3 y_3, 3 y_4, -3 y_8 - 3 y_6 - 3 y_7 - 3 y_5 - 3 y_3 + 13 y_4 - 3 y_2 + 13 y_1, 3 y_2, 3 y_1]$$

$p = -s^5 - s^6 + s^8 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}, {3, 4, 6, 7, 11}}

See Matrix

$$[0, 0, 7 y_5, 7 y_4, 7 y_2, 7 y_3, -7 y_5 - 7 y_4 + 9 y_2 - 7 y_3 + 9 y_1 + 9 y_8 - 7 y_6 + 9 y_7, 7 y_1, 0, 7 y_8, 7 y_6, 7 y_7]$$

$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$

1954 . Coloring, {3, 4, 5, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, A, B, C, C, 4, 9]

B: [6, 8, 7, 6, A, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	5 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_7, y_6, 0, 0, y_4, y_5, y_3, y_1, y_2, -y_7 + y_6 - y_4 + y_5 + y_3 + y_1 - y_2]$$

$p = -s^7 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, 5\,y_1 + 3\,y_3 - 8\,y_2 - y_5, 24\,y_1 + 19\,y_3 - 37\,y_2 - 7\,y_5 - 8\,y_4, 0, 9\,y_1 + 7\,y_3 - 14\,y_2 - 2\,y_5 - 3\,y_4, 11\,y_1 + 7\,y_3 - 17\,y_2 - 3\,y_5 - y_4, y_3, 14\,y_1 + 11\,y_3 - 21\,y_2 - 4\,y_5 - 5\,y_4, 0, y_2, y_5, y_4]$$

$p' = s^2 - s^7$ $p' = s^4 - s^9$ $p' = s^3 - s^8$ $p = s - s^6$ $p' = s - s^6$

1955 . Coloring, {3, 4, 5, 7, 8, 10, 11, 12}

R: [7, 7, 8, 7, 3, A, A, B, B, 2, 4, 9]
B: [6, 8, 7, 6, A, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_7, y_6, 0, 0, y_5, y_4, 2\,y_7, y_3, y_2, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[y_4, 0, y_3, 0, y_1, y_2, -y_4 - y_3 + y_1 - y_2 + y_8 + y_7 - y_5 + y_6, y_8, 0, y_7, y_5, y_6]$$

$$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$$

1956 . Coloring, {3, 4, 5, 7, 9, 10, 11, 12}

R: [7, 7, 8, 7, 3, A, A, C, C, 2, 4, 9]
B: [6, 8, 7, 6, A, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 3y_1, 3y_5 + 3y_4 - 3y_2, 6y_5 + 6y_4 - 6y_2, 0, 0, -3y_1 + 4y_5 + 4y_4 + 6y_2 - 3y_3, 3y_5, 3y_4, 3y_3, 0, 3y_2]$$

$$p' = s^4 - s^7 \quad p' = s^3 - s^6 \quad p = s^3 - s^6$$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[-5y_1 + 11y_2 - 5y_3 - 5y_4 - 5y_5 + 11y_6 - 5y_7 + 11y_8, 0, 5y_1, 0, 5y_2, 5y_3, 5y_4, 5y_5, 0, 5y_6, 5y_7, 5y_8]$$

$$p = -s^2 - s^3 - s^4 + s^7 + s^8 + s^9$$

1957 . Coloring, {3, 4, 5, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, A, B, B, C, 2, 4, 9]
B: [6, 8, 7, 6, A, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 3\,y_6, 3\,y_5, 3\,y_4, 0, 0, 3\,y_3, 3\,y_6 - 3\,y_5, 3\,y_2, 3\,y_5, -6\,y_6 - 3\,y_5 - 3\,y_4 - 3\,y_3 + 13\,y_2 + 13\,y_1, 3\,y_1]$$

$p' = -s^4 - s^5 + s^7 + s^8$ $p' = s^3 + s^4 - s^6 - s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_2, 0, y_3, 0, y_1, y_5, y_6, y_7, 0, y_4, y_7, y_8]$$

$p = s^6 - s^9$

1958 . Coloring, {3, 4, 6, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, A, B, C, 2, 4, 5]
B: [6, 8, 7, 6, 3, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_5 - y_7, y_4, y_5, 0, y_6, y_7, 0, y_2, y_3, y_5 - y_7]$$

$p = -s^5 + s^8$ $p' = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, y_6, 0, 0, y_7, y_8, y_6, y_5, y_4, y_3, y_2]$$

$p = -s^3 + s^9$

1959 . Coloring, {3, 4, 6, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, A, B, C, 2, 1, 9]
B: [6, 8, 7, 6, 3, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, -3\,y_1 - 3\,y_2 - 3\,y_6 - 3\,y_7 + 13\,y_8 - 3\,y_3 - 3\,y_4 + 13\,y_5, 3\,y_2, 0, 0, 0, 3\,y_6, 3\,y_7, 3\,y_8, 3\,y_3, 3\,y_4, 3\,y_5]$$

$p = -s^5 - s^6 + s^8 + s^9$

Omega Rank for B : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_6, y_5, y_2, y_3, y_4, y_1, 0, y_7, y_8, y_9]$$

1960 . Coloring, {3, 4, 6, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 8, 7, A, 3, A, B, C, C, 4, 9]
B: [6, 8, 7, 6, 3, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	10 *vs* 10

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_4, y_3, 0, 0, y_2, y_1, y_4 - y_3 + y_2 - y_1 - y_7 + y_6 + y_5, y_7, y_6, y_5]$$

$p = s^7 - s^8$

Omega Rank for B : cycles: {{1, 2, 3, 5, 6, 7, 8, 10, 11, 12}} order: 10

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, y_7, 0, y_8, y_9, y_{10}]$$

1961 . Coloring, {3, 4, 6, 7, 8, 10, 11, 12}

R: [7, 7, 8, 7, A, 3, A, B, B, 2, 4, 9]
B: [6, 8, 7, 6, 3, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_5, y_6, y_4, 0, 0, y_3, y_2, 2\,y_6, y_1, y_7, 0]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_5, 0, y_4, 0, y_3, y_2, y_1, y_9, 0, y_8, y_7, y_6]$$

1962 . Coloring, {3, 4, 6, 7, 9, 10, 11, 12}

R: [7, 7, 8, 7, A, 3, A, C, C, 2, 4, 9]
B: [6, 8, 7, 6, 3, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	5 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_4 + 4\,y_1 + 4\,y_2 - 3\,y_3 + 6\,y_5, 3\,y_1 + 3\,y_2 - 3\,y_5, 6\,y_1 + 6\,y_2 - 6\,y_5, 0, 0, 3\,y_4, 3\,y_1, 3\,y_2, 3\,y_3, 0, 3\,y_5]$$

$p' = s^3 - s^6$ $p' = s^4 - s^7$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_8, y_5, 0, y_6, y_7, y_9]$$

1963 . Coloring, {3, 4, 6, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, B, B, C, 2, 4, 9]
B: [6, 8, 7, 6, 3, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 3\,y_2 + 3\,y_6, 3\,y_2, 3\,y_1, 0, 0, -9\,y_2 - 6\,y_6 - 3\,y_1 + 13\,y_5 - 3\,y_3 + 13\,y_4, 3\,y_6, 3\,y_5, 3\,y_2, 3\,y_3, 3\,y_4]$$

$p' = s^4 + s^5 - s^7 - s^8$ $p = s^3 - s^9$ $p' = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_1, 0, y_5, 0, y_2, y_3, y_4, y_7, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^9$

1964 . Coloring, {3, 4, 7, 8, 9, 10, 11, 12}

R: [7, 7, 8, 7, A, A, A, B, C, 2, 4, 9]
B: [6, 8, 7, 6, 3, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_7 - 3\,y_6 + 13\,y_5 - 3\,y_4 - 3\,y_3 + 13\,y_2, 0, 3\,y_1, 0, 0, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3, 3\,y_2]$$

$p = -s^4 - s^5 + s^7 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_5, 0, y_4, y_2, y_3, y_6, 0, 0, y_8, y_7]$$

1965 . Coloring, {3, 5, 6, 7, 8, 9, 10, 11}

R: [7, 7, 8, 6, 3, 3, A, B, C, 2, 4, 5]
B: [6, 8, 7, 7, A, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[0, y_5, -y_1 - y_2 - y_3 + 5\,y_5 - y_4 - y_6 - y_7, y_1, y_2, y_3, y_5, y_4, 0, y_5, y_6, y_7]$$

$p = s^3 - s^8$ $p' = -s^4 + s^9$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_5, 2\,y_2, y_2, y_3, y_4, y_6, y_7]$$

$p = -s^2 + s^8$

1966 . Coloring, {3, 5, 6, 7, 8, 9, 10, 12}

R: [7, 7, 8, 6, 3, 3, A, B, C, 2, 1, 9]
B: [6, 8, 7, 7, A, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	4 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[3\,y_1, 3\,y_2, -3\,y_1 - 3\,y_2 - 3\,y_9 - 3\,y_7 - 3\,y_8 + 13\,y_6 - 3\,y_5 - 3\,y_4 + 13\,y_3, 0, 0, 3\,y_9, 3\,y_7, 3\,y_8, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3]$$

$$p = s^6 + s^7 - s^9 - s^{10}$$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, -3\,y_1 - 3\,y_4 + 7\,y_3, 3\,y_2, -3\,y_2 + 3\,y_3, 3\,y_1, -3\,y_2 + 3\,y_3, 0, 3\,y_2, 3\,y_4, 3\,y_3]$$

$$p = s^2 - s^8 \quad p' = s^3 - s^6 \quad p' = s^4 - s^7 \quad p' = s^2 - s^5$$

1967 . Coloring, {3, 5, 6, 7, 8, 9, 11, 12}

R: [7, 7, 8, 6, 3, 3, A, B, C, C, 4, 9]
B: [6, 8, 7, 7, A, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[0, 0, 7\,y_2, 7\,y_1, 0, 7\,y_6, 7\,y_5, 7\,y_4, 9\,y_2 + 9\,y_1 + 9\,y_6 - 7\,y_5 + 9\,y_4 - 7\,y_3 + 9\,y_8 - 7\,y_7, 7\,y_3, 7\,y_8, 7\,y_7]$$

$$p = -s^3 - s^4 + s^8 + s^9$$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_4, y_5, y_6, 0, y_7, y_8, y_9]$$

1968 . Coloring, {3, 5, 6, 7, 8, 10, 11, 12}

R: [7, 7, 8, 6, 3, 3, A, B, B, 2, 4, 9]
B: [6, 8, 7, 7, A, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {3, 4, 6, 8, 11}}

See Matrix

$$[0, y_5, 5\,y_5 - y_1 - y_2 - y_3 - y_4 - y_6, y_1, 0, y_2, y_5, y_3, y_4, y_5, y_6, 0]$$

$p = -s^2 + s^7$ $p' = -s^2 + s^7$ $p' = -s^3 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_3, y_2, 2\,y_4, y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

1969 . Coloring, {3, 5, 6, 7, 9, 10, 11, 12}

R: [7, 7, 8, 6, 3, 3, A, C, C, 2, 4, 9]
B: [6, 8, 7, 7, A, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, y_6, y_5, y_4, 0, y_3, y_6, y_2, y_1, y_6, 0, -y_5 - y_4 - y_3 - y_2 - y_1 + 5\, y_6]$$

$p' = s^6 - s^8$ $p' = s^5 - s^7$ $p = s^5 - s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_2, 0, 0, 0, y_1, y_7, 2\, y_6, y_6, 0, y_5, y_4, y_3]$$

$p = s^5 - s^8$

1970 . Coloring, {3, 5, 6, 8, 9, 10, 11, 12}

R: [7, 7, 8, 6, 3, 3, B, B, C, 2, 4, 9]
B: [6, 8, 7, 7, A, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[0, 3\, y_8, 3\, y_7, 3\, y_6, 0, 3\, y_5, 3\, y_4, 3\, y_3, 3\, y_2, 0, -3\, y_8 - 3\, y_7 - 3\, y_6 - 3\, y_5 - 3\, y_4 - 3\, y_3 + 13\, y_2 + 13\, y_1, 3\, y_1]$$

$p = -s^3 - s^4 + s^8 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, 2\, y_5, y_5, 0, y_4, y_5, y_6]$$

$p = s^4 - s^7$ $p' = -s^4 + s^7$

1971 . Coloring, {3, 5, 7, 8, 9, 10, 11, 12}

R: [7, 7, 8, 6, 3, A, A, B, C, 2, 4, 9]
B: [6, 8, 7, 7, A, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	8 *vs* 9

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_2, 3\,y_3, 3\,y_4, 0, -3\,y_2 - 3\,y_3 - 3\,y_4 - 3\,y_1 - 3\,y_8 + 13\,y_9 - 3\,y_5 - 3\,y_6 + 13\,y_7, 3\,y_1, 3\,y_8, 3\,y_9, 3\,y_5, 3\,y_6, 3\,y_7]$$

$$p = -s^6 - s^7 + s^9 + s^{10}$$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[-7\,y_1 + 9\,y_2 - 7\,y_3 - 7\,y_4 + 9\,y_5 + 9\,y_6 - 7\,y_7 + 9\,y_8, 0, 7\,y_1, 0, 7\,y_2, 7\,y_3, 7\,y_4, 7\,y_5, 0, 7\,y_6, 7\,y_7, 7\,y_8]$$

$$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$$

1972 . Coloring, {3, 6, 7, 8, 9, 10, 11, 12}

R: [7, 7, 8, 6, A, 3, A, B, C, 2, 4, 9]
B: [6, 8, 7, 7, 3, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	4 *vs* 9

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {2, 7, 10}, {9, 12}}

See Matrix

$$[0, -3\,y_3 + 7\,y_5 - 3\,y_8 + 7\,y_7, -3\,y_1 - 3\,y_2 - 3\,y_4 + 6\,y_5 - 3\,y_6 + 6\,y_7, 3\,y_1, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_8, 3\,y_6, 3\,y_7]$$

$$p = -2s - 3s^2 - 2s^3 + s^5 + 2s^6 + 3s^7 + 2s^8 - s^{10} \quad p = s + 2s^2 + 2s^3 + s^4 - s^6 - 2s^7 - 2s^8 - s^9$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_1 + y_4 + y_3 - y_2, 0, y_1, y_1 + y_4 + y_3 - y_2, y_4 + y_3, y_4, 0, y_3, y_2, y_2]$$

$$p = -s^2 + s^6 \quad p = -s^2 + s^5 + s^7 - s^8 \quad p' = s^3 - s^7 \quad p' = s^2 - s^6 \quad p = -s^2 + s^7 - s^8 + s^9$$

1973 . Coloring, {4, 5, 6, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, A, B, C, 2, 4, 5]
B: [6, 8, 8, 6, A, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_2, y_4, y_4, 0, y_3, 0, 0, y_5, y_6, y_6]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1 - y_6 - y_5 - y_4 + y_3 + y_2, 0, 0, 0, 0, y_1, 0, y_6, y_5, y_4, y_3, y_2]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

1974 . Coloring, {4, 5, 6, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, A, B, C, 2, 1, 9]
B: [6, 8, 8, 6, A, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[3\,y_4, 3\,y_5, 6\,y_1, 0, 0, 0, 3\,y_3, 0, 3\,y_2, -3\,y_4 - 3\,y_5 - 3\,y_3 + 13\,y_2 - 9\,y_1 + 13\,y_6, 3\,y_1, 3\,y_6]$$

$p = s^3 + s^4 - s^6 - s^7$ $p' = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, 2\,y_5, 2\,y_4, 2\,y_3, 0, 2\,y_2, 0, 2\,y_1, 3\,y_2, 2\,y_6]$$

$p = s^4 - s^7$

1975 . Coloring, {4, 5, 6, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 7, 7, 3, 3, A, B, C, C, 4, 9]
B: [6, 8, 8, 6, A, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 2\,y_3, y_1, 0, 0, y_1 + y_5 + y_4 + y_3 - y_2, 0, y_5, y_4, y_3, y_2]$$

$p' = s^5 - s^6$ $p = s^5 - s^7$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$$[y_2, y_1, 0, 0, y_4, y_3, 0, y_5, 0, y_8, y_7, y_6]$$

1976 . Coloring, {4, 5, 6, 7, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -9s^2 + 4s^4 + 24s^5 + 16s^6 + 96s^7 + 64s^8$ $p = -3s^2 + 2s^3 + 8s^5 + 32s^7$

R: [7, 7, 7, 7, 3, 3, A, B, B, 2, 4, 9]
B: [6, 8, 8, 6, A, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_1, y_6, y_2, 0, 0, y_5, 0, y_6, y_3, y_4, 0]$$

$p = -s^4 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_6, 0, 0, 0, y_5, y_4, 0, y_3, 0, y_2, y_3, y_1]$$

$p = s^4 - s^7$

1977 . Coloring, {4, 5, 6, 7, 9, 10, 11, 12}

Ωp(Δ)=0: $p' = s^2 - 2s^3 - 8s^5 + 32s^7$ $p = s^2 - 4s^4 - 8s^5 - 16s^6 + 32s^7 + 64s^8$

R: [7, 7, 7, 7, 3, 3, A, C, C, 2, 4, 9]
B: [6, 8, 8, 6, A, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, -2y_1 - y_2 + 6y_4 - y_3, y_1, y_1, 0, 0, y_2, 0, y_4, y_3, 0, y_4]$$

$p = -s^2 + s^5$ $p' = -s^2 + s^5$ $p' = -s^3 + s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, y_6, y_5, 0, y_4, 0, y_3, y_2, y_1]$$

1978 . Coloring, {4, 5, 6, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, B, B, C, 2, 4, 9]
B: [6, 8, 8, 6, A, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 7	6 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3y_4, 3y_4, 3y_5, 0, 0, 3y_3, 0, 3y_1, 0, -6y_4 - 3y_5 - 3y_3 + 13y_1 + 13y_2, 3y_2]$$

$p = -s^2 - s^3 + s^5 + s^6$ $p = s^2 - s^4 - s^5 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, 0, 2y_5, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

1979 . Coloring, {4, 5, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^5 - 32s^7$ $p = s^2 - 4s^4 + 8s^5 + 16s^6 - 32s^7 - 64s^8$

R: [7, 7, 7, 7, 3, A, A, B, C, 2, 4, 9]
B: [6, 8, 8, 6, A, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_2 - 3\,y_1 + 13\,y_6 - 3\,y_5 - 6\,y_4 + 13\,y_3, 3\,y_4, 3\,y_2, 0, 0, 3\,y_1, 0, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3]$$

$p' = s^3 + s^4 - s^6 - s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_5, 0, y_4, y_3, 0, y_2, 0, y_8, y_7, y_6]$$

1980 . Coloring, {4, 6, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 9s^2 - 28s^4 - 40s^5 - 16s^6 + 96s^7 + 64s^8$ $p' = 3s^2 - 2s^3 - 8s^4 - 8s^5 + 32s^7$

R: [7, 7, 7, 7, A, 3, A, B, C, 2, 4, 9]
B: [6, 8, 8, 6, 3, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 3\,y_1, 3\,y_6, -3\,y_1 - 6\,y_6 - 3\,y_2 + 13\,y_4 - 3\,y_5 + 13\,y_3, 0, 0, 3\,y_2, 0, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_3]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, 0, y_5, 0, y_6, y_7, y_8]$$

1981 . Coloring, {5, 6, 7, 8, 9, 10, 11, 12}

R: [7, 7, 7, 6, 3, 3, A, B, C, 2, 4, 9]
B: [6, 8, 8, 7, A, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, 3\,y_8, 3\,y_7, 3\,y_6, 0, 3\,y_5, 3\,y_4, 0, 3\,y_3, 3\,y_2, -3\,y_8 - 3\,y_7 - 3\,y_6 - 3\,y_5 - 3\,y_4 + 13\,y_3 - 3\,y_2 + 13\,y_1, 3\,y_1]$$

$p = s^5 + s^6 - s^8 - s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, y_4, 2\,y_4, 0, y_5, y_6, y_7]$$

$p = s^5 - s^8$

1982 . Coloring, {2, 3, 4, 5, 6, 7, 8, 9, 10}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, A, B, C, 2, 1, 5]
B: [6, 7, 7, 6, A, A, B, C, B, C, 4, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_5, y_4, y_3, 0, y_2, 0, y_1, -y_5 + y_4 + y_3 - y_2 + y_1 - y_8 + y_7 + y_6, 0, y_8, y_7, y_6]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{4, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, 0, y_1 - y_2 - y_3 - y_4 + y_5 + y_6, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1983 . Coloring, {2, 3, 4, 5, 6, 7, 8, 9, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, A, B, C, C, 4, 5]
B: [6, 7, 7, 6, A, A, B, C, B, 2, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	5 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 5, 7, 8, 10, 11, 12}} order: 8

See Matrix

$$[0, 0, y_4 + y_5 - y_2, -y_1 + y_4 + y_5, y_1, 0, y_2, -y_3 + y_4 + y_5, 0, y_3, y_4, y_5]$$

$p = -s + s^2 - s^5 + s^6$ $p = -s + s^3 - s^5 + s^7$ $p = -s + s^4 - s^5 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_1 - y_2 + y_3 + y_4 + y_5 - y_7 - y_6, 0, 0, 0, y_2, y_3, 0, y_4, y_5, y_7, y_6]$$

$p = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$

1984 . Coloring, {2, 3, 4, 5, 6, 7, 8, 9, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, A, B, C, C, 1, 9]
B: [6, 7, 7, 6, A, A, B, C, B, 2, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[y_1, 0, y_1 - y_7 + y_6 + y_5 + y_3 - y_4 - y_2, 0, 0, 0, y_7, y_6, y_5, y_3, y_4, y_2]$$

$p = -s^7 + s^8$

Omega Rank for B : cycles: {{2, 4, 6, 7, 10, 11}} order: 6

See Matrix

$$[0, y_1, 0, y_2, y_5, y_3, y_4, 0, 0, y_6, y_7, y_8]$$

1985 . Coloring, {2, 3, 4, 5, 6, 7, 8, 10, 11}

Ωp(Δ)=0: $p = -3s^2 + 2s^3 - 8s^5 + 32s^7$ $p = -9s^2 + 4s^4 - 24s^5 - 16s^6 + 96s^7 + 64s^8$

R: [7, 8, 8, 7, 3, 3, A, B, B, 2, 4, 5]
B: [6, 7, 7, 6, A, A, B, C, C, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_7, y_6, y_5, y_4, 0, y_3, y_2, 0, y_1, -y_7 - y_6 + y_5 + y_4 - y_3 + y_2 + y_1, 0]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1 - y_2 - y_3 - y_4 + y_5 + y_6, 0, 0, 0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^6 + s^7$

1986 . Coloring, {2, 3, 4, 5, 6, 7, 8, 10, 12}

Ωp(Δ)=0: $p = 3s^2 + 10s^3 + 40s^5 + 32s^6 + 32s^7 + 128s^8$ $p' = -3s^2 + 2s^3 - 8s^4 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, 3, A, B, B, 2, 1, 9]
B: [6, 7, 7, 6, A, A, B, C, C, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 - y_3 - y_5 + y_4, y_1, y_6, 0, 0, 0, y_2, y_3, y_6, y_5, y_4, 0]$$

$p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_3, y_1, y_2, y_7, 0, 0, y_6, y_4, y_5]$$

1987 . Coloring, {2, 3, 4, 5, 6, 7, 8, 11, 12}

Ωp(Δ)=0: $p' = 3s^2 + 2s^3 + 8s^4 - 8s^5 - 32s^7$ $p = 3s^2 - 10s^3 - 40s^5 + 32s^6 - 32s^7 + 128s^8$

R: [7, 8, 8, 7, 3, 3, A, B, B, C, 4, 9]
B: [6, 7, 7, 6, A, A, B, C, C, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{4, 7, 9, 10, 11, 12}} order: 6

See Matrix

$$[0, 0, y_1 - y_2 + y_3 + y_4 + y_7 - y_5 - y_6, y_1, 0, 0, y_2, y_3, y_4, y_7, y_5, y_6]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1 + y_4 + y_2 - y_3 - y_6 + y_7 - y_5, y_1, 0, 0, y_4, y_2, y_3, 0, 0, y_6, y_7, y_5]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

1988 . Coloring, {2, 3, 4, 5, 6, 7, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^2 - 4s^4 + 8s^5 + 16s^6 + 32s^7 + 64s^8$ $p' = s^2 - 2s^3 + 8s^5 + 32s^7$

R: [7, 8, 8, 7, 3, 3, A, C, C, 2, 4, 5]
B: [6, 7, 7, 6, A, A, B, B, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[0, y_4, -y_4 + y_3 + y_2, -y_1 + y_3 + y_2, y_3, 0, -y_5 + y_3 + y_2, y_1, 0, y_2, 0, y_5]$$

$p = -s^5 + s^6$ $p = -s^5 + s^7$ $p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_6, 0, 0, 0, 0, y_3, y_4, 0, y_5, y_2, y_6 - y_3 + y_4 + y_5 + y_2 - y_1, y_1]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1989 . Coloring, {2, 3, 4, 5, 6, 7, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, 3, A, C, C, 2, 1, 9]
B: [6, 7, 7, 6, A, A, B, B, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[y_1, -y_2 + y_3 + y_4 + y_5 - y_6, y_1, 0, 0, 0, y_2, y_3, y_4, y_5, 0, y_6]$$

$p' = s^6 - s^7$ $p = s^6 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_7, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

1990 . Coloring, {2, 3, 4, 5, 6, 7, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 - 12s^4 + 8s^5 + 16s^6 + 32s^7 - 64s^8$ $p' = s^2 + 2s^3 - 8s^4 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, 3, 3, A, C, C, C, 4, 9]
B: [6, 7, 7, 6, A, A, B, B, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 7	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 4

See Matrix

$$[0, 0, y_4, y_4, 0, 0, y_3, y_3, y_2, y_1, 0, y_2 + y_1]$$

$p' = s^4 - s^6$ $p' = s^5 - s^6$ $p = s^4 - s^7$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_7, y_6, y_5, 0, 0, y_4, y_3, 0]$$

1991 . Coloring, {2, 3, 4, 5, 6, 7, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, A, C, B, 2, 4, 9]
B: [6, 7, 7, 6, A, A, B, B, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 7, 8, 9, 10, 11, 12}} order: 8

See Matrix

$$[0, -y_1 + y_2 - y_3 + y_7 + y_8 + y_6 - y_4 - y_5, y_1, y_2, 0, 0, y_3, y_7, y_8, y_6, y_4, y_5]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, y_5, y_6, y_4, 0, 0, y_3, y_1, y_2]$$

1992 . Coloring, {2, 3, 4, 5, 6, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = s^3 + 8s^5 + 8s^6 + 16s^7$ $p' = s^3 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, 3, 3, B, B, C, 2, 4, 5]
B: [6, 7, 7, 6, A, A, A, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{4, 7, 11}} order: 6

See Matrix

$$[0, 2\,y_7, y_1, y_5, y_6, 0, y_4, y_3, 0, 0, y_2, y_7]$$

$p = -s^5 + s^8$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, 0, y_1 - y_2 + y_3 + y_4 - y_5 - y_6, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

1993 . Coloring, {2, 3, 4, 5, 6, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^3 - 8s^6 - 16s^7$ $p = s^3 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, 3, B, B, C, 2, 1, 9]
B: [6, 7, 7, 6, A, A, A, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{1, 7, 11}, {9, 12}} order: 6

See Matrix

$$[-6 y_1 - 3 y_3 - 3 y_4 + 13 y_2 - 3 y_6 + 13 y_5, 3 y_1, 3 y_1, 0, 0, 0, 3 y_3, 3 y_4, 3 y_2, 0, 3 y_6, 3 y_5]$$

$p' = - s^3 - s^4 + s^6 + s^7$ $p = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_5, y_4, y_3, 2 y_1, 0, 0, y_2, y_1, y_6]$$

$p = - s^4 + s^7$

1994 . Coloring, {2, 3, 4, 5, 6, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, B, B, C, C, 4, 9]
B: [6, 7, 7, 6, A, A, A, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 7	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 0, -5\,y_1 - 5\,y_6 - 5\,y_2 + 11\,y_3 - 5\,y_4 + 11\,y_5, 5\,y_1, 0, 0, 5\,y_6, 5\,y_2, 5\,y_3, 0, 5\,y_4, 5\,y_5]$$

$p = s^3 + s^4 - s^6 - s^7$

Omega Rank for B : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[y_6, y_5, 0, 0, y_6, y_4, y_3, 0, 0, y_2, y_1, y_1]$$

$p' = -s^4 + s^7$ $p = -s^4 + s^7$

1995 . Coloring, {2, 3, 4, 5, 6, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 8s^5 + 48s^6 + 128s^8$ $p' = s^2 - 8s^4 - 24s^5 - 16s^6 - 64s^7$ $p' = s^3 + 4s^4 + 8s^5 + 8s^6 + 16s^7$

R: [7, 8, 8, 7, 3, 3, B, B, B, 2, 4, 9]
B: [6, 7, 7, 6, A, A, A, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 8	8 *vs* 8	5 *vs* 7	5 *vs* 6

Omega Rank for R : cycles: {{4, 7, 11}} order: 3

See Matrix

$$[0, y_1, y_1, y_4, 0, 0, y_3, y_2, y_1, 0, y_5, 0]$$

$p' = s^3 - s^6$ $p = s^3 - s^6$

Omega Rank for B : cycles: {{5, 10, 12}} order: 3

See Matrix

$$[y_5, 0, 0, 0, y_4, y_3, y_5, 0, 0, y_2, 0, y_1]$$

$p = -s^3 + s^6$

1996 . Coloring, {2, 3, 4, 5, 6, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^3 + 8s^6 + 16s^7$ $p' = s^2 + 8s^5 + 16s^6$ $p = s^2 + 8s^5 + 16s^6$

R: [7, 8, 8, 7, 3, 3, B, C, C, 2, 4, 9]
B: [6, 7, 7, 6, A, A, A, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
5 *vs* 8	8 *vs* 8	8 *vs* 8	4 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, y_1, y_1, y_4, 0, 0, y_4, y_2, y_3, 0, y_4, -2\,y_1 + 5\,y_4 - y_2 - y_3]$$

$p' = -s^3 + s^5$ $p = s^3 - s^7$ $p' = s^4 - s^6$ $p' = -s^3 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, y_5, 0, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

1997 . Coloring, {2, 3, 4, 5, 7, 8, 9, 10, 11}

Ωp(Δ)=0: $p = s^2 - 4s^4 - 8s^5 - 16s^6 - 32s^7 - 64s^8$ $p' = s^2 - 2s^3 - 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, A, A, B, C, 2, 4, 5]
B: [6, 7, 7, 6, A, 3, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	9 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_4, y_3, 0, y_6, y_5, 0, y_9, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_8, 0, y_7, 0, 0, y_5, y_6, 0, y_1, y_2, y_4, y_3]$$

1998 . Coloring, {2, 3, 4, 5, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p' = s^2 - 2s^3 + 8s^4 - 8s^5 + 32s^7$ $p = s^2 + 4s^4 + 8s^5 - 16s^6 + 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, A, A, B, C, 2, 1, 9]
B: [6, 7, 7, 6, A, 3, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-3 y_2 + 8 y_6 - 3 y_5 + 5 y_7, -3 y_1 - 3 y_3 + 5 y_6 - 3 y_4 + 8 y_7, 3 y_1, 0, 0, 0, 3 y_3, 3 y_2, 3 y_6, 3 y_5, 3 y_4, 3 y_7]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 4, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[0, 0, 3 y_2, 3 y_3, 3 y_4, -3 y_2 - 3 y_3 + 5 y_4 - 3 y_1 + 5 y_6 - 3 y_7 + 5 y_5, 3 y_1, 0, 0, 3 y_6, 3 y_7, 3 y_5]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

1999 . Coloring, {2, 3, 4, 5, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 4s^4 - 8s^5 - 16s^6 - 32s^7 + 64s^8$ $p' = s^2 + 2s^3 + 8s^4 + 8s^5 - 32s^7$

R: [7, 8, 8, 7, 3, A, A, B, C, C, 4, 9]
B: [6, 7, 7, 6, A, 3, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_2, 0, 0, y_3, y_4, y_5, y_6, y_7, y_8]$$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, y_2, y_3, 0, y_4, y_5, y_6, 0, 0, y_7, y_8, y_9]$$

2000 . Coloring, {2, 3, 4, 5, 7, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = - 3s^3 + 2s^4 - 8s^5 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, A, A, B, B, 2, 4, 9]
B: [6, 7, 7, 6, A, 3, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 0, 0, y_4, y_5, 2\,y_2, y_6, y_7, 0]$$

$p = - s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[7\,y_6, 0, 7\,y_5, 0, 7\,y_4, 7\,y_3, 7\,y_2, 0, 0, 7\,y_1, -7\,y_6 - 7\,y_5 + 9\,y_4 - 7\,y_3 - 7\,y_2 + 9\,y_1 + 9\,y_7, 7\,y_7]$$

$p = s + s^2 + s^3 - s^6 - s^7 - s^8$

2001 . Coloring, {2, 3, 4, 5, 7, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, A, A, C, C, 2, 4, 9]
B: [6, 7, 7, 6, A, 3, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_5, y_6, 2\,y_6, 0, 0, y_4, y_2, y_3, y_1, 0, y_7]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[-5\,y_2 + 11\,y_3 - 5\,y_1 - 5\,y_7 + 11\,y_6 - 5\,y_4 + 11\,y_5, 0, 5\,y_2, 0, 5\,y_3, 5\,y_1, 5\,y_7, 0, 0, 5\,y_6, 5\,y_4, 5\,y_5]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

2002 . Coloring, {2, 3, 4, 5, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p' = s^3 - 8s^6 - 16s^7$ $p = s^2 - 8s^5 - 16s^6$ $p' = s^2 - 8s^5 - 16s^6$

R: [7, 8, 8, 7, 3, A, B, B, C, 2, 4, 9]
B: [6, 7, 7, 6, A, 3, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
5 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, -6\,y_5 - 3\,y_2 - 3\,y_1 - 3\,y_3 + 13\,y_4 - 3\,y_6 + 13\,y_7, 3\,y_5, 3\,y_2, 0, 0, 3\,y_1, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = s^4 - s^6 - s^7 + s^9$ $p' = s^4 + s^5 - s^7 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, y_2, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

2003 . Coloring, {2, 3, 4, 6, 7, 8, 9, 10, 11}

$\Omega p(\Delta)=0$: $p = 9s^2 + 20s^4 + 40s^5 + 16s^6 + 96s^7 + 64s^8$ $p' = 3s^2 - 2s^3 + 8s^4 + 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, 3, A, B, C, 2, 4, 5]
B: [6, 7, 7, 6, 3, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_7, y_6, y_5, y_4, 0, y_3, y_2, 0, y_1, -y_7 + y_5 - y_4 - y_3 + y_2 + y_1, y_6]$$

$p' = s^3 - s^4 + s^5 - s^6 + s^7 - s^8$ $p = s^3 - s^9$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_5, 0, y_4, 0, 0, y_3, y_2, 0, y_1, y_8, y_7, y_6]$$

2004 . Coloring, {2, 3, 4, 6, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = -3s^2 + 2s^3 - 8s^5 + 32s^7$ $p = -9s^2 + 4s^4 - 24s^5 - 16s^6 + 96s^7 + 64s^8$

R: [7, 8, 8, 7, A, 3, A, B, C, 2, 1, 9]
B: [6, 7, 7, 6, 3, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {1, 2, 7, 8, 10, 11}} order: 6

See Matrix

$$[-3y_3 + 8y_4 - 3y_5 + 5y_7, -3y_1 - 3y_2 + 5y_4 - 3y_6 + 8y_7, 3y_1, 0, 0, 0, 3y_2, 3y_3, 3y_4, 3y_5, 3y_6, 3y_7]$$

$p' = s^2 - s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 4, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$[0, 0, y_4, y_1, y_2, y_3, y_5, 0, 0, y_6, y_7, y_8]$

2005 . Coloring, {2, 3, 4, 6, 7, 8, 9, 11, 12}

Ωp(Δ)=0: $p = -9s^2 + 4s^4 + 24s^5 - 16s^6 - 96s^7 + 64s^8$ $p = 3s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, 3, A, B, C, C, 4, 9]
B: [6, 7, 7, 6, 3, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$[0, 0, y_4, y_3, 0, 0, y_2, y_1, y_6, y_7, y_8, y_5]$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$[y_1, y_6, y_5, 0, y_4, y_2, y_3, 0, 0, y_9, y_8, y_7]$

2006 . Coloring, {2, 3, 4, 6, 7, 8, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, B, B, 2, 4, 9]
B: [6, 7, 7, 6, 3, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_2, y_3, 0, 0, y_4, y_5, 2\,y_2, y_6, y_7, 0]$$

$p = s^2 - s^8$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_5, 0, y_4, y_3, y_2, 0, 0, y_7, y_8, y_6]$$

2007 . Coloring, {2, 3, 4, 6, 7, 9, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, A, 3, A, C, C, 2, 4, 9]
B: [6, 7, 7, 6, 3, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, y_2, 2\,y_2, 0, 0, y_5, y_4, y_3, y_6, 0, y_7]$$

$p = s^6 - s^8$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_6, y_3, y_4, 0, 0, y_5, y_8, y_7]$$

2008 . Coloring, {2, 3, 4, 6, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p = s^2 + 56s^5 + 16s^6 - 64s^7 - 256s^8$ $p' = s^3 + 4s^4 - 8s^6 - 16s^7$ $p' = s^2 - 16s^4 - 8s^5 + 16s^6 + 64s^7$

R: [7, 8, 8, 7, A, 3, B, B, C, 2, 4, 9]

B: [6, 7, 7, 6, 3, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
5 *vs* 8	8 *vs* 9	8 *vs* 9	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, -6\,y_5 - 3\,y_1 - 3\,y_2 - 3\,y_3 + 13\,y_4 - 3\,y_7 + 13\,y_6, 3\,y_5, 3\,y_1, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_7, 3\,y_6]$$

$p = s^4 + s^5 - s^7 - s^8$ $p = s^4 - s^6 - s^7 + s^9$

Omega Rank for B : cycles: {{3, 5, 7, 10, 12}} order: 5

See Matrix

$$[y_6, 0, y_7, 0, y_5, y_3, y_4, 0, 0, y_1, y_2, y_8]$$

2009 . Coloring, {2, 3, 4, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, A, A, A, B, C, 2, 4, 9]
B: [6, 7, 7, 6, 3, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}, {2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, 2\,y_5, 0, 2\,y_4, 0, 0, -2\,y_5 + 11\,y_4 + 11\,y_3 - 39\,y_2 + 11\,y_1 - 2\,y_6, 2\,y_3, 2\,y_2, 2\,y_1, 2\,y_6, 3\,y_4 + 3\,y_3 - 11\,y_2 + 3\,y_1]$$

$p = -s + s^7$ $p' = -s + s^7$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}} order: 5

See Matrix

$$[y_1, 0, y_2, 0, y_5, y_6, y_7, 0, 0, 0, y_3, y_4]$$

2010 . Coloring, {2, 3, 5, 6, 7, 8, 9, 10, 11}

R: [7, 8, 8, 6, 3, 3, A, B, C, 2, 4, 5]
B: [6, 7, 7, 7, A, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	7 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_8, y_7, y_6, y_5, y_4, y_3, y_2, 0, y_5, y_1, y_3]$$

$p' = s^4 - s^9$ $p = s^4 - s^9$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_5, 0, 0, 0, 0, y_1, y_2, 0, y_3, y_4, y_6, y_7]$$

2011 . Coloring, {2, 3, 5, 6, 7, 8, 9, 10, 12}

$\Omega p(\Delta)=0$: $p = s^2 + 3s^3 - 6s^4 + 8s^5 - 24s^6 + 32s^7 - 32s^8$

R: [7, 8, 8, 6, 3, 3, A, B, C, 2, 1, 9]
B: [6, 7, 7, 7, A, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	8 *vs* 10	4 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-3 y_4 - 3 y_2 + 8 y_8 - 3 y_7 + 5 y_5, 3 y_1, -3 y_1 - 3 y_3 + 5 y_8 - 3 y_6 + 8 y_5, 0, 0, 3 y_4, 3 y_3, 3 y_2, 3 y_8, 3 y_7, 3 y_6, 3 y_5]$$

$p' = -s^3 + s^9 \quad p = -s^3 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}, {4, 7, 11}} order: 3

See Matrix

$$[0, 0, 0, y_2, -y_1 + y_3, y_1, y_4, 0, 0, y_2, y_3, y_4]$$

$p = -s^2 + s^5 \quad p' = -s^2 + s^5 \quad p' = s^3 - s^6$

M \; N

$ [[0, 308, 332, 0, 0, 0, 60, 0, 384, 0, 120, 0] , [308, 0, 0, 0, 0, 166, 0, 286, 0, 223, 0, 221] , [332, 0, 0, 0, 0, 222, 0, 194, 0, 349, 0, 107] , [0, 0, 0, 0, 384, 60, 0, 0, 0, 332, 0, 428] , [0, 0, 0, 384, 0, 0, 378, 0, 0, 0, 442, 0] , [0, 166, 222, 60, 0, 0, 320, 0, 214, 0, 222, 0] , [60, 0, 0, 0, 378, 320, 0, 320, 0, 446, 0, 884] , [0, 286, 194, 0, 0, 0, 320, 0, 164, 0, 240, 0] , [384, 0, 0, 0, 0, 214, 0, 164, 0, 442, 0, 0] , [0, 223, 349, 332, 0, 0, 446, 0, 442, 0, 616, 0] , [120, 0, 0, 0, 442, 222, 0, 240, 0, 616, 0, 768] , [0, 221, 107, 428, 0, 0, 884, 0, 0, 0, 768, 0]] $ $ [[0, 1, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0] , [1, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 1] , [1, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 1] , [1, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 1] , [0, 1, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0] , [0, 1, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0] , [1, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 1] , [0, 1, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0] , [1, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 1] , [0, 1, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0] , [1, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 1] , [0, 1, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0]] $

$\tau = 72$, $r' = 1/2$

R: [7, 8, 8, 6, 3, 3, A, B, C, 2, 1, 9]
B: [6, 7, 7, 7, A, A, B, C, B, C, 4, 5]

Ranges

Action of R on ranges, [[23], [23], [24], [25], [3], [11], [27], [7], [26], [11], [27], [7], [26], [10], [10], [6], [21], [12], [2], [12], [13], [2], [29], [8], [28], [30], [5], [9], [1], [4]]
Action of B on ranges, [[20], [20], [22], [22], [15], [24], [25], [25], [18], [24], [25], [25], [18], [24], [24], [25], [18], [29], [16], [29], [29], [16], [30], [30], [19], [30], [17], [30], [17], [14]]

Cycles: R , {{1, 2, 7, 8, 10, 11}, {9, 12}}, B , {{5, 10, 12}, {4, 7, 11}}

β({1, 2}) = 11/344
β({1, 3}) = 83/2408
β({1, 7}) = 15/2408
β({1, 9}) = 12/301
β({1, 11}) = 15/1204
β({2, 6}) = 83/4816
β({2, 8}) = 143/4816
β({2, 10}) = 223/9632
β({2, 12}) = 221/9632
β({3, 6}) = 111/4816
β({3, 8}) = 97/4816
β({3, 10}) = 349/9632
β({3, 12}) = 107/9632
β({4, 5}) = 12/301
β({4, 6}) = 15/2408
β({4, 10}) = 83/2408
β({4, 12}) = 107/2408
β({5, 7}) = 27/688
β({5, 11}) = 221/4816
β({6, 7}) = 10/301
β({6, 9}) = 107/4816
β({6, 11}) = 111/4816

β({7, 8}) = 10/301
β({7, 10}) = 223/4816
β({7, 12}) = 221/2408
β({8, 9}) = 41/2408
β({8, 11}) = 15/602
β({9, 10}) = 221/4816
β({10, 11}) = 11/172
β({11, 12}) = 24/301

Partitions
α([{2, 3, 4, 7, 9, 11}, {1, 5, 6, 8, 10, 12}]) = 1/1

b1 = {2, 3, 4, 7, 9, 11} ` , ` b2 = {1, 5, 6, 8, 10, 12}

Action of R and B on the blocks of the partitions: = [2, 1] [1, 2]
with invariant measure [1, 1]

N by blocks, check: true . ` See partition graph.

` ` See level-2 partition graph.

`

Right Group	
Coloring	{2, 3, 5, 6, 7, 8, 9, 10, 12}
Rank	2
R,B	[7, 8, 8, 6, 3, 3, A, B, C, 2, 1, 9], [6, 7, 7, 7, A, A, B, C, B, C, 4, 5]
π_2	[308, 332, 0, 0, 0, 60, 0, 384, 0, 120, 0, 0, 0, 0, 166, 0, 286, 0, 223, 0, 221, 0, 0, 222, 0, 194, 0, 349, 0, 107, 384, 60, 0, 0, 0, 332, 0, 428, 0, 378, 0, 0, 0, 442, 0, 320, 0, 214, 0, 222, 0, 320, 0, 446, 0, 884, 164, 0, 240, 0, 442, 0, 0, 616, 0, 768]
u_2	[1, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 1, 0, 1] (dim 1)
wpp	[6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6]

2012 . Coloring, {2, 3, 5, 6, 7, 8, 9, 11, 12}

Ωp(Δ)=0: $p = s^2 - 3s^3 - 6s^4 - 8s^5 - 24s^6 - 32s^7 - 32s^8$

R: [7, 8, 8, 6, 3, 3, A, B, C, C, 4, 9]
B: [6, 7, 7, 7, A, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 10	9 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {3, 4, 6, 8, 11}} order: 10

See Matrix

$$[0, 0, -y_1 - y_2 + 2\,y_4 + 2\,y_5 - y_3 - y_6, y_1, 0, y_2, y_4 + y_5 - y_7, y_3, y_4, y_5, y_6, y_7]$$

$p' = -s^3 + s^8 \quad p = -s^3 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1 + y_2 + y_3 - y_4 - y_5 + y_6 - y_7, y_1, 0, 0, y_2, y_3, y_4, 0, 0, y_5, y_6, y_7]$$

$p = -s^3 + s^4 - s^5 + s^6 - s^7 + s^8$

M \ ; N

$ [[0, 956, 0, 0, 1260, 1164, 0, 0, 0, 0, 2328, 0] , [956, 0, 0, 0, 0, 0, 2328, 0, 0, 1539, 0, 885] , [0, 0, 0, 0, 0, 0, 1212, 0, 1284, 1305, 0, 1907] , [0, 0, 0, 0, 0, 0, 1164, 0, 1260, 1812, 0, 1472] , [1260, 0, 0, 0, 0, 0, 2132, 0, 0, 1284, 0, 1032] , [1164, 0, 0, 0, 0, 0, 478, 0, 736, 1794, 0, 1536] , [0, 2328, 1212, 1164, 2132, 478, 0, 478, 0, 0, 3624, 0] , [0, 0, 0, 0, 0, 0, 478, 0, 1396, 1770, 0, 2064] , [0, 0, 1284, 1260, 0, 736, 0, 1396, 0, 0, 1032, 0] , [0, 1539, 1305, 1812, 1284, 1794, 0, 1770, 0, 0, 1912, 0] , [2328, 0, 0, 0, 0, 0, 3624, 0, 1032, 1912, 0, 2520] , [0, 885, 1907, 1472, 1032, 1536, 0, 2064, 0, 0, 2520, 0]] $ $ [[0, 1, 1, 1, 1, 1, 0, 1, 0, 0, 1, 0] , [1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 1] , [1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 1] , [1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 1] , [1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 1] , [1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 1] , [0, 1, 1, 1, 1, 1, 0, 1, 0, 0, 1, 0] , [1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 1] , [0, 1, 1, 1, 1, 1, 0, 1, 0, 0, 1, 0] , [0, 1, 1, 1, 1, 1, 0, 1, 0, 0, 1, 0] , [1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 1] , [0, 1, 1, 1, 1, 1, 0, 1, 0, 0, 1, 0]] $

$\tau = 74$, $r' = 1/2$

R: [7, 8, 8, 6, 3, 3, A, B, C, C, 4, 9]
B: [6, 7, 7, 7, A, A, B, C, B, 2, 1, 5]

Ranges

Action of R on ranges, [[23], [8], [8], [12], [26], [27], [25], [26], [27], [27], [25], [21], [22], [22], [20], [10], [11], [9], [10], [11], [11], [9], [29], [14], [30], [30], [28], [15], [15], [13]]
Action of B on ranges, [[19], [21], [21], [3], [24], [5], [16], [24], [24], [5], [16], [24], [24], [5], [16], [29], [6], [17], [29], [29], [6], [17], [30], [4], [30], [7], [18], [4], [1], [2]]

Cycles: R , {{9, 12}, {3, 4, 6, 8, 11}}, B , {{1, 2, 6, 7, 10, 11}}

β({1, 2}) = 239/11416
β({1, 5}) = 315/11416
β({1, 6}) = 291/11416
β({1, 11}) = 291/5708
β({2, 7}) = 291/5708
β({2, 10}) = 1539/45664
β({2, 12}) = 885/45664
β({3, 7}) = 303/11416
β({3, 9}) = 321/11416
β({3, 10}) = 1305/45664
β({3, 12}) = 1907/45664
β({4, 7}) = 291/11416
β({4, 9}) = 315/11416
β({4, 10}) = 453/11416
β({4, 12}) = 46/1427
β({5, 7}) = 533/11416

β({5, 10}) = 321/11416
β({5, 12}) = 129/5708
β({6, 7}) = 239/22832
β({6, 9}) = 23/1427
β({6, 10}) = 897/22832
β({6, 12}) = 48/1427
β({7, 8}) = 239/22832
β({7, 11}) = 453/5708
β({8, 9}) = 349/11416
β({8, 10}) = 885/22832
β({8, 12}) = 129/2854
β({9, 11}) = 129/5708
β({10, 11}) = 239/5708
β({11, 12}) = 315/5708

Partitions
α([{1, 7, 9, 10, 12}, {2, 3, 4, 5, 6, 8, 11}]) = 1/1

b1 = {1, 7, 9, 10, 12} ` , ` b2 = {2, 3, 4, 5, 6, 8, 11}

Action of R and B on the blocks of the partitions: = [1, 2] [2, 1]
with invariant measure [1, 1]

N by blocks, check: true . ` See partition graph.

` ` See level-2 partition graph.

`

Right Group	
Coloring	{2, 3, 5, 6, 7, 8, 9, 11, 12}
Rank	2
R,B	[7, 8, 8, 6, 3, 3, A, B, C, C, 4, 9], [6, 7, 7, 7, A, A, B, C, B, 2, 1, 5]
π_2	[956, 0, 0, 1260, 1164, 0, 0, 0, 0, 2328, 0, 0, 0, 0, 0, 2328, 0, 0, 1539, 0, 885, 0, 0, 0, 1212, 0, 1284, 1305, 0, 1907, 0, 0, 1164, 0, 1260, 1812, 0, 1472, 0, 2132, 0, 0, 1284, 0, 1032, 478, 0, 736, 1794, 0, 1536, 478, 0, 0, 3624, 0, 1396, 1770, 0, 2064, 0, 1032, 0, 1912, 0, 2520]
u_2	[1, 1, 1, 1, 1, 0, 1, 0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 1, 0, 1, 1, 0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 0, 1] (dim 1)
wpp	[5, 7, 7, 7, 7, 7, 5, 7, 5, 5, 7, 5]

2013 . Coloring, {2, 3, 5, 6, 7, 8, 10, 11, 12}

Ωp(Δ)=0: $p = 3s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, 3, A, B, B, 2, 4, 9]
B: [6, 7, 7, 7, A, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}} order: 5

See Matrix

$$[0, y_1, y_2, y_3, 0, y_4, y_5, y_6, 2\,y_5, y_7, y_8, 0]$$

$p = -s^4 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_7, 0, 0, 0, y_6, y_5, y_4, 0, 0, y_3, y_2, y_1]$$

2014 . Coloring, {2, 3, 5, 6, 7, 9, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 8, 8, 6, 3, 3, A, C, C, 2, 4, 9]
B: [6, 7, 7, 7, A, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
7 *vs* 8	8 *vs* 9	8 *vs* 9	6 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_2, y_1, 8\,y_2 - 4\,y_1 - 6\,y_3, 0, y_3, 4\,y_2 - 2\,y_1 - 3\,y_3, y_4, y_5, 6\,y_2 - 3\,y_1 - 4\,y_3, 0, y_6]$$

$p = s^5 - s^9$ $p' = -s^5 + s^7$ $p' = s^6 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_7, y_5, y_6, 0, 0, y_2, y_3, y_4]$$

2015 . Coloring, {2, 3, 5, 6, 8, 9, 10, 11, 12}

R: [7, 8, 8, 6, 3, 3, B, B, C, 2, 4, 9]
B: [6, 7, 7, 7, A, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[0, 6\,y_6, -3\,y_1 - 3\,y_7 - 9\,y_6 - 3\,y_4 + 13\,y_5 - 3\,y_3 + 13\,y_2, 3\,y_1, 0, 3\,y_7, 3\,y_6, 3\,y_4, 3\,y_5, 0, 3\,y_3, 3\,y_2]$$

$p = -s^2 - s^3 + s^7 + s^8$ $p = s^2 - s^4 - s^7 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_3, y_2, 3\,y_4, 0, 0, y_5, y_4, y_6]$$

$p = -s^4 + s^7$

2016 . Coloring, {2, 3, 5, 7, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p = 2s^2 - 7s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, 3, A, A, B, C, 2, 4, 9]
B: [6, 7, 7, 7, A, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 4, 6, 8, 10, 11}} order: 6

See Matrix

$$[0, 3\,y_2, 3\,y_1, 3\,y_3, 0, -3\,y_2 - 6\,y_1 + 5\,y_5 - 3\,y_7 + 8\,y_6, 3\,y_1, -3\,y_3 + 8\,y_5 - 3\,y_4 + 5\,y_6, 3\,y_5, 3\,y_4, 3\,y_7, 3\,y_6]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$ $p' = -s^3 + s^9$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[-3\,y_1 + 5\,y_2 - 3\,y_4 - 3\,y_3 + 5\,y_5 - 3\,y_7 + 5\,y_6, 0, 3\,y_1, 0, 3\,y_2, 3\,y_4, 3\,y_3, 0, 0, 3\,y_5, 3\,y_7, 3\,y_6]$$

$$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$$

2017 . Coloring, {2, 3, 6, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -6s^2 + 5s^3 - 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 6, A, 3, A, B, C, 2, 4, 9]
B: [6, 7, 7, 7, 3, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_8 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_9 + 13\,y_7, 3\,y_1, 3\,y_2, 0, 3\,y_3, 3\,y_8, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_9, 3\,y_7]$$

$$p = -s^4 - s^5 + s^9 + s^{10}$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1 - y_4 + y_2 - y_3 - y_5 + y_6 + y_7, 0, y_1, 0, y_4, y_2, y_3, 0, 0, y_5, y_6, y_7]$$

$$p = -s + s^2 - s^3 + s^4 - s^5 + s^6 - s^7 + s^8$$

2018 . Coloring, {2, 4, 5, 6, 7, 8, 9, 10, 11}

R: [7, 8, 7, 7, 3, 3, A, B, C, 2, 4, 5]
B: [6, 7, 8, 6, A, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1 + y_2 - y_3 - y_4 + y_5 + y_6 - y_7 + y_8, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = -s^4 + s^5 - s^6 + s^7 - s^8 + s^9$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_4, 0, 0, 0, 0, y_3, y_2, y_2, -y_4 + y_3 - 2\,y_2 - y_1 + y_6 + y_5, y_1, y_6, y_5]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$ $p = -s^2 + s^8$

2019 . Coloring, {2, 4, 5, 6, 7, 8, 9, 10, 12}

R: [7, 8, 7, 7, 3, 3, A, B, C, 2, 1, 9]
B: [6, 7, 8, 6, A, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-3\,y_4 - 3\,y_3 + 8\,y_1 - 3\,y_2 + 5\,y_7, -3\,y_5 + 5\,y_1 - 3\,y_6 + 8\,y_7, 3\,y_4, 0, 0, 0, 3\,y_5, 3\,y_3, 3\,y_1, 3\,y_2, 3\,y_6, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_2, y_1, y_7, y_6, y_6, 0, y_5, y_4, y_3]$$

$p = -s^5 + s^8$

2020 . Coloring, {2, 4, 5, 6, 7, 8, 9, 11, 12}

R: [7, 8, 7, 7, 3, 3, A, B, C, C, 4, 9]
B: [6, 7, 8, 6, A, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, 0, 2\,y_3, y_1, 0, 0, y_2, y_3, y_4, y_7, y_5, y_6]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_4, y_5, 0, 0, y_3, y_2, y_1, y_9, 0, y_7, y_8, y_6]$$

2021 . Coloring, {2, 4, 5, 6, 7, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 + 32s^8$

R: [7, 8, 7, 7, 3, 3, A, B, B, 2, 4, 9]
B: [6, 7, 8, 6, A, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_1, y_5, y_2, 0, 0, y_7, y_6, y_5, y_4, y_3, 0]$$

$p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, y_4, y_4, 0, y_5, y_6, y_7]$$

$p = -s^5 + s^8$

2022 . Coloring, {2, 4, 5, 6, 7, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, 3, A, C, C, 2, 4, 9]
B: [6, 7, 8, 6, A, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, y_1, y_2, y_2, 0, 0, y_3, y_4, y_5, y_6, 0, y_7]$$

$p = -s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_5, 0, 0, 0, y_1, y_2, y_3, y_3, 0, y_4, y_6, y_7]$$

$p = -s^5 + s^8$

2023 . Coloring, {2, 4, 5, 6, 8, 9, 10, 11, 12}

R: [7, 8, 7, 7, 3, 3, B, B, C, 2, 4, 9]
B: [6, 7, 8, 6, A, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 3\,y_1, 3\,y_1, -6\,y_1 - 3\,y_2 - 3\,y_4 + 13\,y_3 - 3\,y_5 + 13\,y_6, 0, 0, 3\,y_2, 3\,y_4, 3\,y_3, 0, 3\,y_5, 3\,y_6]$$

$p = s^3 + s^4 - s^6 - s^7$ $p = -s^3 + s^5 + s^6 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, y_6, y_6, 0, y_5, y_6, y_4]$$

$p' = s^4 - s^7$ $p = s^4 - s^7$

2024 . Coloring, {2, 4, 5, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 - 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, 3, A, A, B, C, 2, 4, 9]
B: [6, 7, 8, 6, A, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_1, 3\,y_2, -3\,y_2 - 3\,y_3 + 8\,y_4 - 3\,y_5 + 5\,y_7, 0, 0, -3\,y_1 + 5\,y_4 - 3\,y_6 + 8\,y_7, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p' = -s^2 + s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 9

See Matrix

$$[y_8, 0, y_9, 0, y_1, y_2, y_3, y_4, 0, y_5, y_6, y_7]$$

2025 . Coloring, {2, 4, 6, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^6 - 32s^8$

R: [7, 8, 7, 7, A, 3, A, B, C, 2, 4, 9]
B: [6, 7, 8, 6, 3, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, -3\,y_2 + 5\,y_3 - 3\,y_5 + 8\,y_7, -3\,y_1 - 3\,y_6 + 8\,y_3 - 3\,y_4 + 5\,y_7, 3\,y_1, 0, 0, 3\,y_2, 3\,y_6, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{3, 5, 8, 12}} order: 8

See Matrix

$$[y_1, 0, y_2, 0, y_5, y_6, y_3, y_4, 0, y_7, y_8, y_9]$$

2026 . Coloring, {2, 5, 6, 7, 8, 9, 10, 11, 12}

R: [7, 8, 7, 6, 3, 3, A, B, C, 2, 4, 9]
B: [6, 7, 8, 7, A, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 3, 4, 6, 7, 8, 10, 11}} order: 8

See Matrix

$$[0, 3\,y_2, 3\,y_3, -3\,y_3 - 3\,y_4 + 8\,y_7 - 3\,y_8 + 5\,y_6, 0, -3\,y_2 - 3\,y_1 + 5\,y_7 - 3\,y_5 + 8\,y_6, 3\,y_1, 3\,y_4, 3\,y_7, 3\,y_8, 3\,y_5, 3\,y_6]$$

$p' = -s + s^9$ $p = -s + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_5, 0, 0, 0, y_6, y_4, 2\,y_1, y_1, 0, y_2, y_3, y_7]$$

$p = -s^5 + s^8$

2027 . Coloring, {3, 4, 5, 6, 7, 8, 9, 10, 11}

R: [7, 7, 8, 7, 3, 3, A, B, C, 2, 4, 5]
B: [6, 8, 7, 6, A, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 9	6 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 9

See Matrix

$$[0, y_1, y_2, y_3, y_4, 0, y_5, y_6, 0, y_7, y_8, y_9]$$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_6 - 2\,y_5 - y_4 - y_3 + y_2 + y_1, 0, 0, 0, 0, y_6, y_5, y_5, y_4, y_3, y_2, y_1]$$

$p = -s^2 + s^8$ $p = s^2 - s^3 + s^4 - s^5 + s^6 - s^7$

2028 . Coloring, {3, 4, 5, 6, 7, 8, 9, 10, 12}

R: [7, 7, 8, 7, 3, 3, A, B, C, 2, 1, 9]
B: [6, 8, 7, 6, A, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[3\,y_2, 3\,y_1, -3\,y_2 - 3\,y_1 - 3\,y_8 - 3\,y_7 + 13\,y_6 - 3\,y_5 - 3\,y_4 + 13\,y_3, 0, 0, 0, 3\,y_8, 3\,y_7, 3\,y_6, 3\,y_5, 3\,y_4, 3\,y_3]$$

$p = s^5 + s^6 - s^8 - s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$[0, 0, 0, y_4, y_5, y_6, y_3, y_3, 0, y_1, y_2, y_7]$

$p = s^5 - s^8$

2029 . Coloring, {3, 4, 5, 6, 7, 8, 9, 11, 12}

R: [7, 7, 8, 7, 3, 3, A, B, C, C, 4, 9]
B: [6, 8, 7, 6, A, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 8	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$[0, 0, y_5, y_4, 0, 0, y_3, y_1, y_2, y_8, y_6, y_7]$

Omega Rank for B : cycles: {{2, 5, 8, 10, 12}} order: 5

See Matrix

$[y_2, y_1, 0, 0, y_7, y_5, y_6, y_4, 0, y_3, y_9, y_8]$

2030 . Coloring, {3, 4, 5, 6, 7, 8, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 + 2s^4 - 8s^6 - 32s^8$

R: [7, 7, 8, 7, 3, 3, A, B, B, 2, 4, 9]
B: [6, 8, 7, 6, A, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}} order: 6

See Matrix

$$[0, y_3, y_4, y_2, 0, 0, y_1, y_5, y_4, y_7, y_6, 0]$$

$p = s^5 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, y_6, y_6, 0, y_7, y_4, y_5]$$

$p = -s^5 + s^8$

2031 . Coloring, {3, 4, 5, 6, 7, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^3 + 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, 3, A, C, C, 2, 4, 9]
B: [6, 8, 7, 6, A, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	7 *vs* 8

Omega Rank for R : cycles: {{2, 7, 10}, {9, 12}} order: 6

See Matrix

$$[0, 2y_1, 7y_1 + 7y_6 - 9y_5 - 9y_4 + 7y_3 - 9y_2, 7y_1 + 7y_6 - 9y_5 - 9y_4 + 7y_3 - 9y_2, 0, 0, 2y_6, 2y_5, 2y_4, 2y_3, 0, 2y_2]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p' = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_3, y_2, y_7, y_7, 0, y_5, y_6, y_4]$$

$p = -s^5 + s^8$

2032 . Coloring, {3, 4, 5, 6, 8, 9, 10, 11, 12}

R: [7, 7, 8, 7, 3, 3, B, B, C, 2, 4, 9]
B: [6, 8, 7, 6, A, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 8	6 *vs* 8

Omega Rank for R : cycles: {{4, 7, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_1, 3\,y_1, 3\,y_6, 0, 0, -6\,y_1 - 3\,y_6 - 3\,y_3 + 13\,y_5 - 3\,y_4 + 13\,y_2, 3\,y_3, 3\,y_5, 0, 3\,y_4, 3\,y_2]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = s^3 - s^5 - s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_2, 0, 0, 0, y_1, y_5, y_6, y_6, 0, y_4, y_6, y_3]$$

$p = -s^4 + s^7$ $p' = -s^4 + s^7$

2033 . Coloring, {3, 4, 5, 7, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, 3, A, A, B, C, 2, 4, 9]
B: [6, 8, 7, 6, A, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	8 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_2 - 3\,y_1 - 3\,y_3 - 3\,y_4 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8, 3\,y_2, 3\,y_1, 0, 0, 3\,y_3, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7, 3\,y_8]$$

$p = -s^5 - s^6 + s^8 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}, {1, 3, 6, 7, 11}}

See Matrix

$$[7\,y_1,\ 0,\ -7\,y_1 + 9\,y_5 - 7\,y_4 - 7\,y_3 + 9\,y_2 + 9\,y_8 - 7\,y_7 + 9\,y_6,\ 0,\ 7\,y_5,\ 7\,y_4,\ 7\,y_3,\ 7\,y_2,\ 0,\ 7\,y_8,\ 7\,y_7,\ 7\,y_6]$$

$$p = s^2 + s^3 + s^4 - s^7 - s^8 - s^9$$

2034 . Coloring, {3, 4, 6, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 - 8s^5 - 8s^6 + 32s^8$

R: [7, 7, 8, 7, A, 3, A, B, C, 2, 4, 9]
B: [6, 8, 7, 6, 3, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	9 *vs* 9

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0,\ -3\,y_1 - 3\,y_4 - 3\,y_2 - 3\,y_3 + 13\,y_5 - 3\,y_6 - 3\,y_7 + 13\,y_8,\ 3\,y_1,\ 3\,y_4,\ 0,\ 0,\ 3\,y_2,\ 3\,y_3,\ 3\,y_5,\ 3\,y_6,\ 3\,y_7,\ 3\,y_8]$$

$$p = -s^5 - s^6 + s^8 + s^9$$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$$[y_1,\ 0,\ y_4,\ 0,\ y_2,\ y_3,\ y_6,\ y_5,\ 0,\ y_7,\ y_9,\ y_8]$$

2035 . Coloring, {3, 5, 6, 7, 8, 9, 10, 11, 12}

R: [7, 7, 8, 6, 3, 3, A, B, C, 2, 4, 9]
B: [6, 8, 7, 7, A, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	6 *vs* 10	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {3, 4, 6, 8, 11}, {2, 7, 10}}

See Matrix

$$[0, 2\,y_4, 7\,y_4 - 2\,y_1 - 2\,y_2 - 2\,y_3 - 2\,y_5, 2\,y_1, 0, 2\,y_2, 2\,y_4, 2\,y_3, 3\,y_4 - 2\,y_6, 2\,y_4, 2\,y_5, 2\,y_6]$$

$p = -s - s^2 + s^6 + s^7$ $p = s - s^3 - s^6 + s^8$ $p = -s - s^4 + s^6 + s^9$ $p = s - s^5 - s^6 + s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_4, 0, 0, 0, y_3, y_2, 2\,y_1, y_1, 0, y_6, y_5, y_7]$$

$p = s^5 - s^8$

2036 . Coloring, {4, 5, 6, 7, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 + 8s^6 - 32s^8$

R: [7, 7, 7, 7, 3, 3, A, B, C, 2, 4, 9]
B: [6, 8, 8, 6, A, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_4 + 13\,y_3 - 3\,y_2 - 9\,y_5 + 13\,y_6, 6\,y_5, 3\,y_1, 0, 0, 3\,y_4, 0, 3\,y_3, 3\,y_2, 3\,y_5, 3\,y_6]$$

$p = -s^3 - s^4 + s^6 + s^7$ $p = -s^3 + s^5 + s^6 - s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[2\,y_1, 0, 0, 0, 2\,y_2, 2\,y_3, 0, 2\,y_4, 0, 2\,y_5, 3\,y_4, 2\,y_6]$$

$p = s^4 - s^7$

2037 . Coloring, {2, 3, 4, 5, 6, 7, 8, 9, 10, 11}

Ωp(Δ)=0: $p = s^3 - 2s^4 - 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, A, B, C, 2, 4, 5]
B: [6, 7, 7, 6, A, A, B, C, B, C, 1, 9]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	8 *vs* 9	6 *vs* 7

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, -y_1 + y_2 + y_3 - y_4 + y_5 + y_6 - y_7 - y_8, y_1, y_2, y_3, 0, y_4, y_5, 0, y_6, y_7, y_8]$$

$p = s^4 - s^5 + s^6 - s^7 + s^8 - s^9$

Omega Rank for B : cycles: {{1, 6, 9, 10, 11, 12}} order: 6

See Matrix

$$[y_1 - y_2 - y_3 - y_4 + y_5 + y_6, 0, 0, 0, 0, y_1, y_2, 0, y_3, y_4, y_5, y_6]$$

$p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

2038 . Coloring, {2, 3, 4, 5, 6, 7, 8, 9, 10, 12}

Ωp(Δ)=0: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, A, B, C, 2, 1, 9]
B: [6, 7, 7, 6, A, A, B, C, B, C, 4, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{1, 2, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[-3y_3 + 5y_4 - 3y_5 + 8y_7, -3y_1 - 3y_2 + 8y_4 - 3y_6 + 5y_7, 3y_1, 0, 0, 0, 3y_2, 3y_3, 3y_4, 3y_5, 3y_6, 3y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[0, 0, 0, y_4, y_1, y_2, y_3, 0, 0, y_7, y_5, y_6]$$

2039 . Coloring, {2, 3, 4, 5, 6, 7, 8, 9, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 + 2s^4 + 8s^5 + 8s^6 - 32s^8$

R: [7, 8, 8, 7, 3, 3, A, B, C, C, 4, 9]
B: [6, 7, 7, 6, A, A, B, C, B, 2, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 8	8 *vs* 8

Omega Rank for R : cycles: {{9, 12}} order: 8

See Matrix

$$[0, 0, y_1, y_1 + y_5 - y_2 - y_3 - y_4 + y_7 + y_6, 0, 0, y_5, y_2, y_3, y_4, y_7, y_6]$$

$p = - s^7 + s^8$

Omega Rank for B : cycles: {{1, 2, 6, 7, 10, 11}} order: 6

See Matrix

$$[y_1, y_2, 0, 0, y_3, y_4, y_5, 0, 0, y_6, y_7, y_8]$$

2040 . Coloring, {2, 3, 4, 5, 6, 7, 8, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = 3s^2 + 10s^3 + 40s^5 + 32s^6 + 32s^7 + 128s^8$ $p = 9s^2 + 20s^4 + 40s^5 + 16s^6 + 96s^7 + 64s^8$

R: [7, 8, 8, 7, 3, 3, A, B, B, 2, 4, 9]
B: [6, 7, 7, 6, A, A, B, C, C, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, y_3, y_4, y_3 + y_1 - y_2 - y_5 + y_6, 0, 0, y_1, y_2, y_4, y_5, y_6, 0]$$

$p = -s^2 + s^8$ $p = -s^2 + s^3 - s^4 + s^5 - s^6 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_2, 0, 0, 0, y_1, y_5, y_3, 0, 0, y_4, y_6, y_7]$$

2041 . Coloring, {2, 3, 4, 5, 6, 7, 9, 10, 11, 12}

Ωp(Δ)=0: $p' = s^2 - 2s^3 - 8s^4 + 8s^5 - 32s^7$ $p = s^2 - 12s^4 - 8s^5 + 16s^6 - 32s^7 - 64s^8$

R: [7, 8, 8, 7, 3, 3, A, C, C, 2, 4, 9]
B: [6, 7, 7, 6, A, A, B, B, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	8 *vs* 8	8 *vs* 8	6 *vs* 8	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}} order: 6

See Matrix

$$[0, -y_2 + y_3 + y_6 + y_4 - y_5, y_1, y_1, 0, 0, y_2, y_3, y_6, y_4, 0, y_5]$$

$p = -s^6 + s^7$ $p = -s^6 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, y_4, 0, 0, y_5, y_6, y_7]$$

2042 . Coloring, {2, 3, 4, 5, 6, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p = s^3 - 8s^6 - 16s^7$ $p' = s^3 - 8s^6 - 16s^7$

R: [7, 8, 8, 7, 3, 3, B, B, C, 2, 4, 9]
B: [6, 7, 7, 6, A, A, A, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	6 *vs* 8	6 *vs* 7

Omega Rank for R : cycles: {{9, 12}, {4, 7, 11}} order: 6

See Matrix

$$[0, 3\,y_1, 3\,y_1, -6\,y_1 - 3\,y_2 - 3\,y_3 + 13\,y_4 - 3\,y_5 + 13\,y_6, 0, 0, 3\,y_2, 3\,y_3, 3\,y_4, 0, 3\,y_5, 3\,y_6]$$

$p = -s^3 + s^5 + s^6 - s^8$ $p' = -s^3 - s^4 + s^6 + s^7$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_2, y_3, 2\,y_5, 0, 0, y_4, y_5, y_6]$$

$p = -s^4 + s^7$

2043 . Coloring, {2, 3, 4, 5, 7, 8, 9, 10, 11, 12}

Ωp(Δ)=0: $p' = s^2 - 2s^3 + 8s^4 - 8s^5 + 32s^7$ $p = s^2 + 4s^4 + 8s^5 - 16s^6 + 32s^7 + 64s^8$

R: [7, 8, 8, 7, 3, A, A, B, C, 2, 4, 9]
B: [6, 7, 7, 6, A, 3, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$$[0, 3\,y_7, 3\,y_6, 3\,y_5, 0, 0, 3\,y_4, 3\,y_3, 3\,y_2, -3\,y_5 - 3\,y_3 + 8\,y_2 + 5\,y_1, -3\,y_7 - 3\,y_6 - 3\,y_4 + 5\,y_2 + 8\,y_1, 3\,y_1]$$

$p' = s^2 - s^8$ $p = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 6, 7, 11}, {5, 10, 12}}

See Matrix

$$[-3\,y_3 + 5\,y_1 - 3\,y_2 - 3\,y_4 + 5\,y_6 - 3\,y_7 + 5\,y_5, 0, 3\,y_3, 0, 3\,y_1, 3\,y_2, 3\,y_4, 0, 0, 3\,y_6, 3\,y_7, 3\,y_5]$$

$p = -s - s^2 - s^3 + s^6 + s^7 + s^8$

2044 . Coloring, {2, 3, 4, 6, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = -9s^2 + 4s^4 - 24s^5 - 16s^6 + 96s^7 + 64s^8$ $p = -3s^2 + 2s^3 - 8s^5 + 32s^7$

R: [7, 8, 8, 7, A, 3, A, B, C, 2, 4, 9]
B: [6, 7, 7, 6, 3, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
6 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	8 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$[0, 3y_1, -3y_1 - 3y_2 + 5y_4 - 3y_6 + 8y_7, -3y_3 + 8y_4 - 3y_5 + 5y_7, 0, 0, 3y_2, 3y_3, 3y_4, 3y_5, 3y_6, 3y_7]$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{1, 3, 5, 6, 7, 10, 11, 12}} order: 8

See Matrix

$[y_1, 0, y_2, 0, y_7, y_3, y_4, 0, 0, y_6, y_8, y_5]$

2045 . Coloring, {2, 3, 5, 6, 7, 8, 9, 10, 11, 12}

R: [7, 8, 8, 6, 3, 3, A, B, C, 2, 4, 9]
B: [6, 7, 7, 7, A, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	9 *vs* 10	7 *vs* 7

Omega Rank for R : cycles: {{3, 4, 6, 8, 11}, {9, 12}} order: 10

See Matrix

$[0, -3y_1 - 3y_2 - 3y_3 - 3y_6 - 3y_7 + 13y_8 - 3y_4 - 3y_9 + 13y_5, 3y_1, 3y_2, 0, 3y_3, 3y_6, 3y_7, 3y_8, 3y_4, 3y_9, 3y_5]$

$p = -s^4 - s^5 + s^9 + s^{10}$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$[y_1, 0, 0, 0, y_6, y_5, y_4, 0, 0, y_2, y_3, y_7]$

2046 . Coloring, {2, 4, 5, 6, 7, 8, 9, 10, 11, 12}

R: [7, 8, 7, 7, 3, 3, A, B, C, 2, 4, 9]
B: [6, 7, 8, 6, A, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	7 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{2, 4, 7, 8, 10, 11}, {9, 12}} order: 6

See Matrix

$[0, -3y_2 + 5y_7 - 3y_4 + 8y_5, -3y_1 - 3y_3 + 8y_7 - 3y_6 + 5y_5, 3y_1, 0, 0, 3y_2, 3y_3, 3y_7, 3y_6, 3y_4, 3y_5]$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$[y_1, 0, 0, 0, y_2, y_7, y_6, y_6, 0, y_5, y_4, y_3]$

$p = -s^5 + s^8$

2047 . Coloring, {3, 4, 5, 6, 7, 8, 9, 10, 11, 12}

R: [7, 7, 8, 7, 3, 3, A, B, C, 2, 4, 9]
B: [6, 8, 7, 6, A, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
8 *vs* 8	10 *vs* 10	10 *vs* 10	8 *vs* 9	7 *vs* 8

Omega Rank for R : cycles: {{9, 12}, {2, 7, 10}} order: 6

See Matrix

$$[0, -3\,y_1 - 3\,y_2 - 3\,y_3 - 3\,y_8 + 13\,y_6 - 3\,y_7 - 3\,y_4 + 13\,y_5, 3\,y_1, 3\,y_2, 0, 0, 3\,y_3, 3\,y_8, 3\,y_6, 3\,y_7, 3\,y_4, 3\,y_5]$$

$p = -s^5 - s^6 + s^8 + s^9$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_1, 0, 0, 0, y_7, y_6, y_5, y_5, 0, y_4, y_3, y_2]$$

$p = -s^5 + s^8$

2048 . Coloring, {2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4 + 8s^5 - 8s^6 + 32s^8$

R: [7, 8, 8, 7, 3, 3, A, B, C, 2, 4, 9]
B: [6, 7, 7, 6, A, A, B, C, B, C, 1, 5]

` See graph

` ` See pair graph

`

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
7 *vs* 8	9 *vs* 9	9 *vs* 9	7 *vs* 9	7 *vs* 7

Omega Rank for R : cycles: {{9, 12}, {2, 4, 7, 8, 10, 11}} order: 6

See Matrix

$$[0, -3\,y_2 - 3\,y_1 + 8\,y_4 - 3\,y_6 + 5\,y_7, 3\,y_2, 3\,y_3, 0, 0, 3\,y_1, -3\,y_3 + 5\,y_4 - 3\,y_5 + 8\,y_7, 3\,y_4, 3\,y_5, 3\,y_6, 3\,y_7]$$

$p = -s^2 + s^8$ $p' = -s^2 + s^8$

Omega Rank for B : cycles: {{5, 10, 12}} order: 6

See Matrix

$$[y_4, 0, 0, 0, y_3, y_2, y_1, 0, 0, y_7, y_6, y_5]$$

SUMMARY

Graph Type	CC
ν(A)	4
ν(Δ)	4
π	[1, 1, 1, 1, 1, 1, 2, 1, 1, 2, 2, 2]
Dbly Stoch	false

SANDWICH		Total 0
No .	**Coloring**	**Rank**

RT GROUPS		Total 12	
No .	**Coloring**	**Rank**	**Solv**
1	{2, 3, 5, 6, 7, 8, 9, 11, 12}	2	Not Solvable
2	{2, 3, 5, 6, 7, 8, 9, 10, 12}	2	Not Solvable
3	{2, 3, 4, 5, 6, 7, 8, 11}	8	Not Solvable
4	{2, 3, 6, 7, 8, 10}	2	Not Solvable
5	{2, 3, 6, 7, 8, 11}	2	Not Solvable
6	{5, 9, 12}	2	Not Solvable
7	{2, 3, 4, 9, 10}	8	Not Solvable
8	{10, 11}	2	Not Solvable
9	{2, 3, 4, 9, 10, 11}	8	Not Solvable
10	{5, 9, 10, 11, 12}	2	Not Solvable
11	{}	2	Not Solvable
12	{2, 3, 4, 5, 6, 7, 8}	8	Not Solvable

Δ-RANK'D	SC'D !RK'D	τ-RANK'D	R/B RANK'D	NOT SYNC'D	Total Runs	2^{n-1}
998	60	1935 , 1927	433 , 585	12	2048	2048