

Transitive Groups of Degree 6

No	Group	Order	DimCA	CAZ	DimGA	GrAZ	Cycle_Index
1	$C_6 = 6 = 3[x]2$	6	6	T	6	T	$\frac{1}{6}x_1^6 + \frac{1}{6}x_2^3 + \frac{1}{3}x_3^2 + \frac{1}{3}x_6$
2	$D_{66} = [3]2$	6	6	F	6	F	$\frac{1}{6}x_1^6 + \frac{1}{2}x_2^3 + \frac{1}{3}x_3^2$
3	$D_6 = S_3[x]2$	12	4	T	10	F	$\frac{1}{12}x_1^6 + \frac{1}{4}x_1^2x_2^2 + \frac{1}{3}x_2^3 + \frac{1}{6}x_3^2 + \frac{1}{6}x_6$
4	$A_{46} = [2^2]3$	12	4	T	12	F	$\frac{1}{12}x_1^6 + \frac{1}{4}x_1^2x_2^2 + \frac{2}{3}x_3^2$
5	$F_{186} = [3^2]2 = 3$ wr 2	18	4	T	10	F	$\frac{1}{18}x_1^6 + \frac{2}{9}x_1^3x_3 + \frac{1}{6}x_2^3 + \frac{2}{9}x_3^2 + \frac{1}{3}x_6$
6	$2A_{46} = [2^3]3 = 2$ wr 3	24	4	T	12	F	$\frac{1}{24}x_1^6 + \frac{1}{8}x_1^4x_2 + \frac{1}{8}x_1^2x_2^2 + \frac{1}{24}x_2^3 + \frac{1}{3}x_3^2 + \frac{1}{3}x_6$
7	$S_{46d} = [2^2]S_3$	24	3	T	14	F	$\frac{1}{24}x_1^6 + \frac{3}{8}x_1^2x_2^2 + \frac{1}{4}x_2x_4 + \frac{1}{3}x_3^2$
8	$S_{46c} = 1/2[2^3]S_3$	24	3	T	14	F	$\frac{1}{24}x_1^6 + \frac{1}{8}x_1^2x_2^2 + \frac{1}{4}x_1^2x_4 + \frac{1}{4}x_2^3 + \frac{1}{3}x_3^2$
9	$F_{186}:2 = [1/2S_3^2]2$	36	3	T	18	F	$\frac{1}{36}x_1^6 + \frac{1}{9}x_1^3x_3 + \frac{1}{4}x_1^2x_2^2 + \frac{1}{6}x_2^3 + \frac{1}{9}x_3^2 + \frac{1}{3}x_6$
10	$F_{366} = 1/2[S_3^2]2$	36	3	T	18	F	$\frac{1}{36}x_1^6 + \frac{1}{9}x_1^3x_3 + \frac{1}{4}x_1^2x_2^2 + \frac{1}{2}x_2x_4 + \frac{1}{9}x_3^2$

11	2S_46 = [2^3]S3 = 2 wr S3	48	3	T	14	F	$\frac{1}{48}x_1^6 + \frac{1}{16}x_1^4x_2 + \frac{3}{16}x_1^2x_2^2 + \frac{1}{8}x_1^2x_4 + \frac{7}{48}x_2^3 + \frac{1}{8}x_2x_4 + \frac{1}{6}x_3^2 + \frac{1}{6}x_6$
12	L6 = PSL2,5 = A_56	60	2	T	26	F	$\frac{1}{60}x_1^6 + \frac{1}{4}x_1^2x_2^2 + \frac{2}{5}x_1x_5 + \frac{1}{3}x_3^2$
13	F_366:2 = [S3^2]2 = S3 wr 2	72	3	T	18	F	$\frac{1}{72}x_1^6 + \frac{1}{12}x_1^4x_2 + \frac{1}{18}x_1^3x_3 + \frac{1}{8}x_1^2x_2^2 + \frac{1}{6}x_1x_2x_3 + \frac{1}{12}x_2^3 + \frac{1}{4}x_2x_4 + \frac{1}{18}x_3^2 + \frac{1}{6}x_6$
14	L6:2 = PGL2,5 = S_56	120	2	T	26	F	$\frac{1}{120}x_1^6 + \frac{1}{8}x_1^2x_2^2 + \frac{1}{4}x_1^2x_4 + \frac{1}{12}x_2^3 + \frac{1}{5}x_1x_5 + \frac{1}{6}x_3^2 + \frac{1}{6}x_6$
15	A6	360	2	T	26	F	$\frac{1}{360}x_1^6 + \frac{1}{9}x_1^3x_3 + \frac{1}{8}x_1^2x_2^2 + \frac{2}{5}x_1x_5 + \frac{1}{4}x_2x_4 + \frac{1}{9}x_3^2$
16	S6	720	2	T	26	F	$\frac{1}{720}x_1^6 + \frac{1}{48}x_1^4x_2 + \frac{1}{18}x_1^3x_3 + \frac{1}{16}x_1^2x_2^2 + \frac{1}{8}x_1^2x_4 + \frac{1}{6}x_1x_2x_3 + \frac{1}{48}x_2^3 + \frac{1}{5}x_1x_5 + \frac{1}{8}x_2x_4 + \frac{1}{18}x_3^2 + \frac{1}{6}x_6$