Transitive Groups of Degree 8

No	Group	Order	DimCA	CAZ	DimGA	GrAZ	Cycle_Index
1	C8=8	8	8	T	8	T	$\frac{1}{8}x_1^8 + \frac{1}{8}x_2^4 + \frac{1}{4}x_4^2 + \frac{1}{2}x_8$
2	4[x]2	8	8	T	8	T	$\frac{1}{8}x_1^8 + \frac{3}{8}x_2^4 + \frac{1}{2}x_4^2$
3	E8=2[x]2[x]2	8	8	T	8	T	$\frac{1}{8}x_1^8 + \frac{7}{8}x_2^4$
4	D_88=[4]2	8	8	F	8	F	$\frac{1}{8}x_1^8 + \frac{5}{8}x_2^4 + \frac{1}{4}x_4^2$
5	Q_88	8	8	F	8	F	$\frac{1}{8}x_1^8 + \frac{1}{8}x_2^4 + \frac{3}{4}x_4^2$
6	D8	16	5	T	14	F	$\frac{1}{16}x_1^8 + \frac{1}{4}x_1^2 x_2^3 + \frac{5}{16}x_2^4 + \frac{1}{8}x_4^2 + \frac{1}{4}x_8$
7	1/2[2^3]4	16	6	T	12	F	$\frac{1}{16}x_1^8 + \frac{1}{8}x_1^4 x_2^2 + \frac{1}{16}x_2^4 + \frac{1}{4}x_4^2 + \frac{1}{2}x_8$
8	2D_88=[D4]2	16	5	T	14	F	$\frac{1}{16}x_1^8 + \frac{1}{4}x_1^2 x_2^3 + \frac{1}{16}x_2^4 + \frac{3}{8}x_4^2 + \frac{1}{4}x_8$
9	E8:2=D4[x]2	16	6	T	12	F	$\frac{1}{16}x_1^8 + \frac{1}{8}x_1^4 x_2^2 + \frac{9}{16}x_2^4 +$

							$\frac{1}{4}x_4^2$
10	[2^2]4	16	6	T	12	F	$\frac{1}{16}x_1^8 + \frac{1}{8}x_1^4 x_2^2 + \frac{5}{16}x_2^4 + \frac{1}{2}x_4^2$
11	1/2[2^3]E4=Q_8:2	16	6	T	12	F	$\frac{1}{16}x_1^8 + \frac{1}{8}x_1^4 x_2^2 + \frac{5}{16}x_2^4 + \frac{1}{2}x_4^2$
12	2A_48=[2]A4=SL2,3	24	4	T	18	F	$\frac{1}{24}x_1^8 + \frac{1}{3}x_1^2 x_3^2 + \frac{1}{24}x_2^4 + \frac{1}{3}x_2 x_6 + \frac{1}{4}x_4^2$
13	E8:3=A4[x]2	24	4	T	20	F	$\frac{1}{24}x_1^8 + \frac{1}{3}x_1^2 x_3^2 + \frac{7}{24}x_2^4 + \frac{1}{3}x_2 x_6$
14	S4[1/2]2=1/2S_4[x]2	24	4	T	20	F	$\frac{1}{24}x_1^8 + \frac{1}{3}x_1^2 x_3^2 + \frac{3}{8}x_2^4 + \frac{1}{4}x_4^2$
15	[1/4cD4^2]2	32	4	T	22	F	$\frac{1}{32}x_1^8 + \frac{1}{16}x_1^4 x_2^2 + \frac{1}{4}x_1^2 x_2^3 + \frac{5}{32}x_2^4 + \frac{1}{4}x_4^2 + \frac{1}{4}x_8$
16	1/2[2^4]4	32	5	T	20	F	$\frac{1}{32}x_1^8 + \frac{3}{16}x_1^4 x_2^2 + \frac{5}{32}x_2^4 + \frac{1}{8}x_4^2 + \frac{1}{2}x_8$

17	[4^2]2	32	5	T	14	F	$\frac{1}{32}x_1^8 + \frac{1}{16}x_1^4 x_2^2 + \frac{1}{8}x_1^4 x_4 + \frac{5}{32}x_2^4 + \frac{1}{8}x_2^2 x_4 + \frac{1}{4}x_4^2 + \frac{1}{4}x_8$
18	E8:E_4=[2^2]D4	32	5	T	14	F	$\frac{1}{32}x_1^8 + \frac{3}{16}x_1^4 x_2^2 + \frac{13}{32}x_2^4 + \frac{3}{8}x_4^2$
19	E8:4=[1/4eD4^2]2	32	4	T	22	F	$\frac{1}{32}x_1^8 + \frac{1}{16}x_1^4 x_2^2 + \frac{1}{4}x_1^2 x_2 x_4 + \frac{9}{32}x_2^4 + \frac{3}{8}x_4^2$
20	[2^3]4	32	5	T	20	F	$\frac{1}{32}x_1^8 + \frac{3}{16}x_1^4 x_2^2 + \frac{5}{32}x_2^4 + \frac{5}{8}x_4^2$
21	1/2[2^4]E4=[1/4dD4^2]2	32	5	T	20	F	$\frac{1}{32}x_1^8 + \frac{3}{16}x_1^4 x_2^2 + \frac{5}{32}x_2^4 + \frac{1}{2}x_2^2 x_4 + \frac{1}{8}x_4^2$
22	E8:D_4=[2^3]2^2	32	5	T	20	F	$\frac{1}{32}x_1^8 + \frac{3}{16}x_1^4 x_2^2 + \frac{13}{32}x_2^4 + \frac{3}{8}x_4^2$
23	2S_48=GL2,3	48	3	T	26	F	$\frac{1}{48}x_1^8 + \frac{1}{4}x_1^2$

							$x_2^3 + \frac{1}{6} x_1^2 x_3^2$ $+\frac{1}{48} x_2^4 + \frac{1}{6}$ $x_2 x_6 + \frac{1}{8} x_4^2$ $+\frac{1}{4} x_8$
24	E8:D_6=S4[x]2	48	4	T	20	F	$\frac{1}{48} x_1^8 + \frac{1}{8} x_1^4$ $x_2^2 + \frac{1}{6} x_1^2 x_3^2$ $+\frac{13}{48} x_2^4 + \frac{1}{6}$ $x_2 x_6 + \frac{1}{4} x_4^2$
25	E8:7=F_568	56	2	T	50	F	$\frac{1}{56} x_1^8 + \frac{1}{8} x_2^4$ $+\frac{6}{7} x_1 x_7$
26	1/2[2^4]eD4	64	4	T	22	F	$\frac{1}{64} x_1^8 + \frac{3}{32}$ $x_1^4 x_2^2 + \frac{1}{16} x_1^4$ $x_4 + \frac{1}{8} x_1^2 x_2^3$ $+\frac{13}{64} x_2^4 + \frac{1}{16}$ $x_2^2 x_4 + \frac{3}{16} x_4^2$ $+\frac{1}{4} x_8$
27	[2^4]4	64	5	T	20	F	$\frac{1}{64} x_1^8 + \frac{1}{16}$ $x_1^6 x_2 + \frac{3}{32} x_1^4$ $x_2^2 + \frac{1}{16} x_1^2 x_2^3$ $+\frac{5}{64} x_2^4 + \frac{1}{8}$ $x_2^2 x_4 + \frac{5}{16} x_4^2$ $+\frac{1}{4} x_8$
28	1/2[2^4]dD4	64	4	T	22	F	$\frac{1}{64} x_1^8 + \frac{5}{32}$

							$x_1^4 x_2^2 + \frac{1}{8} x_1^2 x_2 x_4 + \frac{9}{64} x_2^4 + \frac{1}{4} x_2^2 x_4 + \frac{1}{16} x_4^2 + \frac{1}{4} x_8$
29	E8:D_8=[2^3]D4	64	4	T	22	F	$\frac{1}{64} x_1^8 + \frac{5}{32} x_1^4 x_2^2 + \frac{1}{8} x_1^2 x_2 x_4 + \frac{17}{64} x_2^4 + \frac{7}{16} x_4^2$
30	1/2[2^4]cD4	64	4	T	22	F	$\frac{1}{64} x_1^8 + \frac{3}{32} x_1^4 x_2^2 + \frac{1}{16} x_1^4 x_4 + \frac{1}{8} x_1^2 x_2^3 + \frac{5}{64} x_2^4 + \frac{5}{16} x_2^2 x_4 + \frac{5}{16} x_4^2$
31	[2^4]E4	64	5	T	20	F	$\frac{1}{64} x_1^8 + \frac{1}{16} x_1^6 x_2 + \frac{3}{32} x_1^4 x_2^2 + \frac{1}{16} x_1^2 x_2^3 + \frac{13}{64} x_2^4 + \frac{3}{8} x_2^2 x_4 + \frac{3}{16} x_4^2$
32	[2^3]A4	96	3	T	26	F	$\frac{1}{96} x_1^8 + \frac{1}{16} x_1^4 x_2^2 + \frac{1}{3} x_3^2 + \frac{13}{96} x_2^4 + \frac{1}{3} x_2 x_6 + \frac{1}{8} x_4^2$
33	E8:A_4=[1/3A4^2]2=E4:6	96	3	T	38	F	$\frac{1}{96} x_1^8 + \frac{1}{16}$

						$x_1^4 x_2^2 + \frac{1}{3} x_1^2 x_3^2 + \frac{13}{96} x_2^4 + \frac{1}{3} x_2 x_6 + \frac{1}{8} x_4^2$
34	1/2[E4^2:S_3]2=E4^2:D_6	96	3	T	38	F	$\frac{1}{96} x_1^8 + \frac{1}{16} x_1^4 x_2^2 + \frac{1}{3} x_1^2 x_3^2 + \frac{7}{32} x_2^4 + \frac{3}{8} x_4^2$
35	[2^4]D4	128	4	T	22	F	$\frac{1}{128} x_1^8 + \frac{1}{32} x_1^6 x_2 + \frac{5}{64} x_1^4 x_2^2 + \frac{1}{32} x_1^4 x_4 + \frac{3}{32} x_1^2 x_2^3 + \frac{1}{16} x_1^2 x_2 x_4 + \frac{17}{128} x_2^4 + \frac{7}{32} x_2^2 x_4 + \frac{7}{32} x_4^2 + \frac{1}{8} x_8$
36	E8:F_21	168	2	T	50	F	$\frac{1}{168} x_1^8 + \frac{1}{3} x_1^2 x_3^2 + \frac{1}{24} x_2^4 + \frac{2}{7} x_1 x_7 + \frac{1}{3} x_2 x_6$
37	L8=PSL2,7	168	2	T	50	F	$\frac{1}{168} x_1^8 + \frac{1}{3} x_1^2 x_3^2 + \frac{1}{8} x_2^4 + \frac{2}{7} x_1 x_7 + \frac{1}{4} x_4^2$

38	[2^4]A4	192	3	T	26	F	$\frac{1}{192}x_1^8 + \frac{1}{48}x_1^6x_2 + \frac{1}{32}x_1^4x_2^2 + \frac{1}{48}x_1^2x_2^3 + \frac{1}{6}x_1^2x_3^2 + \frac{13}{192}x_2^4 + \frac{1}{6}x_1^2x_6 + \frac{1}{8}x_2^2x_4 + \frac{1}{6}x_2x_3^2 + \frac{1}{6}x_2x_6 + \frac{1}{16}x_4^2$
39	[2^3]S4	192	3	T	26	F	$\frac{1}{192}x_1^8 + \frac{3}{32}x_1^4x_2^2 + \frac{1}{8}x_1^2x_2x_4 + \frac{1}{6}x_1^2x_3^2 + \frac{25}{192}x_2^4 + \frac{1}{6}x_2x_6 + \frac{5}{16}x_4^2$
40	1/2[2^4]S4	192	3	T	26	F	$\frac{1}{192}x_1^8 + \frac{1}{32}x_1^4x_2^2 + \frac{1}{16}x_1^4x_4 + \frac{1}{8}x_1^2x_2^3 + \frac{1}{6}x_1^2x_3^2 + \frac{13}{192}x_2^4 + \frac{1}{16}x_2^2x_4 + \frac{1}{6}x_2x_6 + \frac{1}{16}x_4^2 + \frac{1}{4}x_8$

41	E8:S_4= [E4^2:S_3]2=E4^2:D_12	192	3	T	38	F	$\frac{1}{192}x_1^8 + \frac{3}{32}x_1^4 x_2^2 + \frac{1}{8}x_1^2 x_2 x_4 + \frac{1}{6}x_1^2 x_3^2 + \frac{25}{192}x_2^4 + \frac{1}{6}x_2 x_6 + \frac{5}{16}x_4^2$
42	[A4^2]2	288	3	T	38	F	$\frac{1}{288}x_1^8 + \frac{1}{18}x_1^5 x_3 + \frac{1}{48}x_1^4 x_2^2 + \frac{2}{9}x_1^2 x_3^2 + \frac{1}{6}x_1 x_2^2 x_3 + \frac{7}{96}x_2^4 + \frac{1}{3}x_2 x_6 + \frac{1}{8}x_4^2$
43	L8:2=PGL2,7	336	2	T	50	F	$\frac{1}{336}x_1^8 + \frac{1}{12}x_1^2 x_2^3 + \frac{1}{6}x_1^2 x_3^2 + \frac{1}{16}x_2^4 + \frac{1}{6}x_1^2 x_6 + \frac{1}{7}x_1 x_7 + \frac{1}{8}x_4^2 + \frac{1}{4}x_8$
44	[2^4]S4	384	3	T	26	F	$\frac{1}{384}x_1^8 + \frac{1}{96}x_1^6 x_2 + \frac{3}{64}x_1^4 x_2^2 + \frac{1}{32}x_1^4 x_4 + \frac{7}{96}x_1^2 x_2^3 + \frac{1}{16}x_1^2 x_2 x_4 +$

							$\frac{1}{12} x_1^2 x_3^2 + \frac{25}{384} x_2^4 + \frac{1}{12} x_1^2 x_6 + \frac{3}{32} x_2^2 x_4 + \frac{1}{12} x_2 x_3^2 + \frac{1}{12} x_2 x_6 + \frac{5}{32} x_4^2 + \frac{1}{8} x_8$
45	[1/2S4^2]2	576	3	T	38	F	$\frac{1}{576} x_1^8 + \frac{1}{36} x_1^5 x_3 + \frac{7}{96} x_1^4 x_2^2 + \frac{1}{8} x_1^2 x_2 x_4 + \frac{1}{9} x_1^2 x_3^2 + \frac{1}{12} x_1 x_2^2 x_3 + \frac{11}{192} x_2^4 + \frac{1}{3} x_2 x_6 + \frac{3}{16} x_4^2$
46	1/2[S4^2]2	576	3	T	38	F	$\frac{1}{576} x_1^8 + \frac{1}{36} x_1^5 x_3 + \frac{7}{96} x_1^4 x_2^2 + \frac{1}{8} x_1^2 x_2 x_4 + \frac{1}{9} x_1^2 x_3^2 + \frac{1}{12} x_1 x_2^2 x_3 + \frac{1}{64} x_2^4 + \frac{1}{4} x_2^2 x_4 + \frac{1}{16} x_4^2 + \frac{1}{4} x_8$
47	[S4^2]2	1152	3	T	38	F	$\frac{1}{1152} x_1^8 + \frac{1}{96} x_1^6 x_2 + \frac{1}{72} x_1^5$

							$x_3 + \frac{7}{192}x_1^4 x_2^2 + \frac{1}{96}x_1^4 x_4 + \frac{1}{12}x_1^3 x_2 x_3 + \frac{1}{32}x_1^2 x_2^3 + \frac{1}{16}x_1^2 x_2 x_4 + \frac{1}{18}x_1^2 x_3^2 + \frac{1}{24}x_1 x_2^2 x_3 + \frac{11}{384}x_2^4 + \frac{1}{12}x_1 x_3 x_4 + \frac{5}{32}x_2^2 x_4 + \frac{1}{6}x_2 x_6 + \frac{3}{32}x_4^2 + \frac{1}{8}x_8$
48	E8:L_7=AL8	1344	2	T	50	F	$\frac{1}{1344}x_1^8 + \frac{1}{32}x_1^4 x_2^2 + \frac{1}{8}x_1^2 x_2 x_4 + \frac{1}{6}x_1^2 x_3^2 + \frac{7}{192}x_2^4 + \frac{2}{7}x_1 x_7 + \frac{1}{6}x_2 x_6 + \frac{3}{16}x_4^2$
49	A8	20160	2	T	50	F	$\frac{1}{20160}x_1^8 + \frac{1}{180}x_1^5 x_3 + \frac{1}{96}x_1^4 x_2^2 + \frac{1}{15}x_1^3 x_5 + \frac{1}{8}x_1^2 x_2 x_4 + \frac{1}{18}x_1^2$

							$x_3^2 + \frac{1}{12} x_1 x_2^2$ $x_3 + \frac{1}{192} x_2^4$ $+ \frac{2}{7} x_1 x_7 + \frac{1}{6}$ $x_2 x_6 + \frac{2}{15} x_3$ $x_5 + \frac{1}{16} x_4^2$
50	S8	40320	2	T	50	F	$\frac{1}{40320} x_1^8 +$ $\frac{1}{1440} x_1^6 x_2 +$ $\frac{1}{360} x_1^5 x_3 +$ $\frac{1}{192} x_1^4 x_2^2 +$ $\frac{1}{96} x_1^4 x_4 + \frac{1}{36}$ $x_1^3 x_2 x_3 + \frac{1}{96}$ $x_1^2 x_2^3 + \frac{1}{30} x_1^3$ $x_5 + \frac{1}{16} x_1^2 x_2$ $x_4 + \frac{1}{36} x_1^2 x_3^2$ $+ \frac{1}{24} x_1 x_2^2 x_3$ $+ \frac{1}{384} x_2^4 + \frac{1}{12}$ $x_1^2 x_6 + \frac{1}{10} x_1$ $x_2 x_5 + \frac{1}{12} x_1$ $x_3 x_4 + \frac{1}{32} x_2^2$ $x_4 + \frac{1}{36} x_2 x_3^2$ $+ \frac{1}{7} x_1 x_7 + \frac{1}{12}$ $x_2 x_6 + \frac{1}{15} x_3$ $x_5 + \frac{1}{32} x_4^2 +$

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							$\frac{1}{8}x_8$