

## Transitive Groups of Degree 8

No	Group	Order	2-Index	Molien Series
1	"C8=8"	8	$1 + t + 4t^2 + 7t^3 + 10t^4 + 7t^5 + 4t^6 + t^7 + t^8$	$1 + t + 5t^2 + 15t^3 + 43t^4 + 99t^5 + 217t^6 + 429t^7 + 810t^8 + 1430t^9 + 2438t^{10}$
2	"4[x]2"	8	$1 + t + 5t^2 + 7t^3 + 12t^4 + 7t^5 + 5t^6 + t^7 + t^8$	$1 + t + 6t^2 + 15t^3 + 46t^4 + 99t^5 + 222t^6 + 429t^7 + 819t^8 + 1430t^9 + 2452t^{10}$
3	"E8=2[x]2[x]2"	8	$1 + t + 7t^2 + 7t^3 + 14t^4 + 7t^5 + 7t^6 + t^7 + t^8$	$1 + t + 8t^2 + 15t^3 + 50t^4 + 99t^5 + 232t^6 + 429t^7 + 835t^8 + 1430t^9 + 2480t^{10}$

4	"D_88=[4]2"	8	$1 + t + 6t^2 + 7t^3 + 13t^4 + 7t^5 + 6t^6 + t^7 + t^8$	$1 + t + 7t^2 + 15t^3 + 48t^4 + 99t^5 + 227t^6 + 429t^7 + 827t^8 + 1430t^9 + 2466t^{10}$
5	"Q_88"	8	$1 + t + 4t^2 + 7t^3 + 11t^4 + 7t^5 + 4t^6 + t^7 + t^8$	$1 + t + 5t^2 + 15t^3 + 44t^4 + 99t^5 + 217t^6 + 429t^7 + 811t^8 + 1430t^9 + 2438t^{10}$
6	"D8"	16	$1 + t + 4t^2 + 5t^3 + 8t^4 + 5t^5 + 4t^6 + t^7 + t^8$	$1 + t + 5t^2 + 10t^3 + 29t^4 + 57t^5 + 126t^6 + 232t^7 + 440t^8 + 750t^9 + 1282t^{10}$
7	"1/2[2^3]4"	16	$1 + t + 3t^2 + 5t^3 + 7t^4 + 5t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 11t^3 + 29t^4 + 63t^5 + 132t^6 + 253t^7 + 466t^8 +$

				$806t^9 + 1352t^{10}$
8	"2D_88=[D4]2"	16	$1 + t + 3t^2 + 5t^3 + 7t^4 + 5t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 10t^3 + 27t^4 + 57t^5 + 121t^6 + 232t^7 + 432t^8 + 750t^9 + 1268t^{10}$
9	"E8:2=D4[x]2"	16	$1 + t + 5t^2 + 5t^3 + 10t^4 + 5t^5 + 5t^6 + t^7 + t^8$	$1 + t + 6t^2 + 11t^3 + 34t^4 + 63t^5 + 142t^6 + 253t^7 + 483t^8 + 806t^9 + 1380t^{10}$
10	"[2^2]4"	16	$1 + t + 4t^2 + 5t^3 + 9t^4 + 5t^5 + 4t^6 + t^7 + t^8$	$1 + t + 5t^2 + 11t^3 + 32t^4 + 63t^5 + 137t^6 + 253t^7 + 475t^8 + 806t^9 + 1366t^{10}$
11	"1/2[2^3]E4=Q_8:2"	16	$1 + t + 4t^2 + 5t^3 + 9t^4 + 5t^5 + 4t^6 + t^7 + t^8$	$1 + t + 5t^2 + 11t^3 + 32t^4 + 63t^5 + 137t^6 +$

				$253t^7 +$ $475t^8 +$ $806t^9 +$ $1366t^{10}$
12	"2A_48=[2]A4=SL2,3"	24	$1 + t + 2t^2$ $+3t^3 + 5t^4$ $+3t^5 + 2t^6$ $+t^7 + t^8$	$1 + t + 3t^2$ $+7t^3 + 18$ $t^4 + 37t^5$ $+79t^6 +$ $151t^7 +$ $281t^8 +$ $490t^9 +$ $830t^{10}$
13	"E8:3=A4[x]2"	24	$1 + t + 3t^2$ $+3t^3 + 6t^4$ $+3t^5 + 3t^6$ $+t^7 + t^8$	$1 + t + 4t^2$ $+7t^3 + 20$ $t^4 + 37t^5$ $+84t^6 +$ $151t^7 +$ $289t^8 +$ $490t^9 +$ $844t^{10}$
14	"S4[1/2]2=1/2S_4[x]2"	24	$1 + t + 3t^2$ $+3t^3 + 7t^4$ $+3t^5 + 3t^6$ $+t^7 + t^8$	$1 + t + 4t^2$ $+7t^3 + 21$ $t^4 + 37t^5$ $+85t^6 +$ $151t^7 +$ $292t^8 +$ $490t^9 +$ $848t^{10}$
15	"[1/4cD4^2]2"	32	$1 + t + 3t^2$ $+4t^3 + 6t^4$	$1 + t + 4t^2$ $+8t^3 + 21$

			$  \begin{aligned}  &+4t^5 + 3t^6 \\  &+t^7 + t^8  \end{aligned}  $	$  \begin{aligned}  &t^4 + 39t^5 \\  &+81t^6 + \\  &144t^7 + \\  &264t^8 + \\  &438t^9 + \\  &732t^{10}  \end{aligned}  $
16	"1/2[2^4]4"	32	$  \begin{aligned}  &1 + t + 3t^2 \\  &+4t^3 + 6t^4 \\  &+4t^5 + 3t^6 \\  &+t^7 + t^8  \end{aligned}  $	$  \begin{aligned}  &1 + t + 4t^2 \\  &+9t^3 + 23 \\  &t^4 + 45t^5 \\  &+92t^6 + \\  &165t^7 + \\  &298t^8 + \\  &494t^9 + \\  &816t^{10}  \end{aligned}  $
17	"[4^2]2"	32	$  \begin{aligned}  &1 + t + 3t^2 \\  &+3t^3 + 5t^4 \\  &+3t^5 + 3t^6 \\  &+t^7 + t^8  \end{aligned}  $	$  \begin{aligned}  &1 + t + 4t^2 \\  &+8t^3 + 21 \\  &t^4 + 39t^5 \\  &+81t^6 + \\  &144t^7 + \\  &264t^8 + \\  &438t^9 + \\  &732t^{10}  \end{aligned}  $
18	"E8:E_4=[2^2]D4"	32	$  \begin{aligned}  &1 + t + 4t^2 \\  &+4t^3 + 8t^4 \\  &+4t^5 + 4t^6 \\  &+t^7 + t^8  \end{aligned}  $	$  \begin{aligned}  &1 + t + 5t^2 \\  &+9t^3 + 26 \\  &t^4 + 45t^5 \\  &+97t^6 + \\  &165t^7 + \\  &307t^8 + \\  &494t^9 + \\  &830t^{10}  \end{aligned}  $

19	"E8:4=[1/4eD4^2]2"	32	$1 + t + 3t^2 + 3t^3 + 6t^4 + 3t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 7t^3 + 20t^4 + 35t^5 + 76t^6 + 133t^7 + 251t^8 + 414t^9 + 704t^{10}$
20	"[2^3]4"	32	$1 + t + 3t^2 + 4t^3 + 7t^4 + 4t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 9t^3 + 24t^4 + 45t^5 + 92t^6 + 165t^7 + 299t^8 + 494t^9 + 816t^{10}$
21	"1/2[2^4]E4=[1/4dD4^2]2"	32	$1 + t + 4t^2 + 4t^3 + 7t^4 + 4t^5 + 4t^6 + t^7 + t^8$	$1 + t + 5t^2 + 9t^3 + 25t^4 + 45t^5 + 95t^6 + 165t^7 + 302t^8 + 494t^9 + 822t^{10}$
22	"E8:D_4=[2^3]2^2"	32	$1 + t + 4t^2 + 4t^3 + 8t^4 + 4t^5 + 4t^6 + t^7 + t^8$	$1 + t + 5t^2 + 9t^3 + 26t^4 + 45t^5 + 97t^6 + 165t^7 + 307t^8 + 494t^9 +$

				$830t^{10}$
23	"2S_48=GL2,3"	48	$1 + t + 2t^2 + 3t^3 + 4t^4 + 3t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 6t^3 + 14t^4 + 26t^5 + 52t^6 + 93t^7 + 167t^8 + 280t^9 + 464t^{10}$
24	"E8:D_6=S4[x]2"	48	$1 + t + 3t^2 + 3t^3 + 6t^4 + 3t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 7t^3 + 19t^4 + 32t^5 + 68t^6 + 114t^7 + 210t^8 + 336t^9 + 562t^{10}$
25	"E8:7=F_568"	56	$1 + t + t^2 + t^3 + 2t^4 + t^5 + t^6 + t^7 + t^8$	$1 + t + 2t^2 + 3t^3 + 8t^4 + 15t^5 + 34t^6 + 63t^7 + 121t^8 + 206t^9 + 356t^{10}$
26	"1/2[2^4]eD4"	64	$1 + t + 3t^2 + 3t^3 + 5t^4 + 3t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 7t^3 + 18t^4 + 30t^5 + 61t^6 + 100t^7 + 180t^8 + 282t^9 + 464t^{10}$

27	"[2^4]4"	64	$1 + t + 3t^2 + 4t^3 + 6t^4 + 4t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 9t^3 + 23t^4 + 44t^5 + 88t^6 + 156t^7 + 276t^8 + 450t^9 + 728t^{10}$
28	"1/2[2^4]dD4"	64	$1 + t + 3t^2 + 3t^3 + 5t^4 + 3t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 7t^3 + 18t^4 + 31t^5 + 63t^6 + 105t^7 + 188t^8 + 298t^9 + 488t^{10}$
29	"E8:D_8=[2^3]D4"	64	$1 + t + 3t^2 + 3t^3 + 6t^4 + 3t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 7t^3 + 19t^4 + 31t^5 + 64t^6 + 105t^7 + 191t^8 + 298t^9 + 492t^{10}$
30	"1/2[2^4]cD4"	64	$1 + t + 3t^2 + 3t^3 + 5t^4 + 3t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 7t^3 + 18t^4 + 30t^5 + 60t^6 + 100t^7 + 178t^8 +$

				$282t^9 + 460t^{10}$
31	"[2^4]E4"	64	$1 + t + 4t^2 + 4t^3 + 7t^4 + 4t^5 + 4t^6 + t^7 + t^8$	$1 + t + 5t^2 + 9t^3 + 25t^4 + 44t^5 + 92t^6 + 156t^7 + 282t^8 + 450t^9 + 738t^{10}$
32	"[2^3]A4"	96	$1 + t + 2t^2 + 2t^3 + 4t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 12t^4 + 19t^5 + 39t^6 + 63t^7 + 113t^8 + 178t^9 + 294t^{10}$
33	"E8:A_4=[1/3A4^2]2=E4:6"	96	$1 + t + 2t^2 + 2t^3 + 4t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 12t^4 + 19t^5 + 39t^6 + 63t^7 + 113t^8 + 178t^9 + 294t^{10}$
34	"1/2[E4^2:S_3]2=E4^2:D_6"	96	$1 + t + 2t^2 + 2t^3 + 5t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 13t^4 + 19t^5 + 40t^6 + 63t^7 + 116t^8 + 178t^9 +$

				$298t^{10}$
35	"[2^4]D4"	128	$1 + t + 3t^2 + 3t^3 + 5t^4 + 3t^5 + 3t^6 + t^7 + t^8$	$1 + t + 4t^2 + 7t^3 + 18t^4 + 30t^5 + 60t^6 + 98t^7 + 173t^8 + 268t^9 + 432t^{10}$
36	"E8:F_21"	168	$1 + t + t^2 + t^3 + 2t^4 + t^5 + t^6 + t^7 + t^8$	$1 + t + 2t^2 + 3t^3 + 6t^4 + 9t^5 + 18t^6 + 29t^7 + 51t^8 + 82t^9 + 136t^{10}$
37	"L8=PSL2,7"	168	$1 + t + t^2 + t^3 + 3t^4 + t^5 + t^6 + t^7 + t^8$	$1 + t + 2t^2 + 3t^3 + 7t^4 + 9t^5 + 19t^6 + 29t^7 + 54t^8 + 82t^9 + 140t^{10}$
38	"[2^4]A4"	192	$1 + t + 2t^2 + 2t^3 + 3t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 11t^4 + 18t^5 + 36t^6 + 58t^7 + 102t^8 + 160t^9 + 258t^{10}$

39	"[2^3]S4"	192	$1 + t + 2t^2 + 2t^3 + 4t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 12t^4 + 18t^5 + 35t^6 + 54t^7 + 94t^8 + 140t^9 + 224t^{10}$
40	"1/2[2^4]S4"	192	$1 + t + 2t^2 + 2t^3 + 3t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 11t^4 + 17t^5 + 32t^6 + 49t^7 + 83t^8 + 124t^9 + 196t^{10}$
41	"E8:S_4=[E4^2:S_3]2=E4^2:D_12"	192	$1 + t + 2t^2 + 2t^3 + 4t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 12t^4 + 18t^5 + 35t^6 + 54t^7 + 94t^8 + 140t^9 + 224t^{10}$
42	"[A4^2]2"	288	$1 + t + 2t^2 + 2t^3 + 3t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 11t^4 + 17t^5 + 32t^6 + 49t^7 + 82t^8 + 122t^9 + 190t^{10}$
43	"L8:2=PGL2,7"	336	$1 + t + t^2 + t^3 + 2t^4 +$	$1 + t + 2t^2 + 3t^3 + 6t^4$

			$t^5 + t^6 + t^7 + t^8$	$+8t^5 + 15t^6 + 22t^7 + 38t^8 + 55t^9 + 89t^{10}$
44	"[2^4]S4"	384	$1 + t + 2t^2 + 2t^3 + 3t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 11t^4 + 17t^5 + 32t^6 + 49t^7 + 83t^8 + 123t^9 + 192t^{10}$
45	"[1/2S4^2]2"	576	$1 + t + 2t^2 + 2t^3 + 3t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 11t^4 + 17t^5 + 31t^6 + 47t^7 + 77t^8 + 112t^9 + 170t^{10}$
46	"1/2[S4^2]2"	576	$1 + t + 2t^2 + 2t^3 + 3t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 11t^4 + 17t^5 + 31t^6 + 47t^7 + 77t^8 + 112t^9 + 170t^{10}$
47	"[S4^2]2"	1152	$1 + t + 2t^2 + 2t^3 + 3t^4 + 2t^5 + 2t^6 + t^7 + t^8$	$1 + t + 3t^2 + 5t^3 + 11t^4 + 17t^5 + 31t^6 + 47t^7 + 77t^8$

				$+112t^9 + 170t^{10}$
48	"E8:L_7=AL8"	1344	$1 + t + t^2 + t^3 + 2t^4 + t^5 + t^6 + t^7 + t^8$	$1 + t + 2t^2 + 3t^3 + 6t^4 + 8t^5 + 14t^6 + 20t^7 + 32t^8 + 44t^9 + 66t^{10}$
49	"A8"	20160	$1 + t + t^2 + t^3 + t^4 + t^5 + t^6 + t^7 + t^8$	$1 + t + 2t^2 + 3t^3 + 5t^4 + 7t^5 + 11t^6 + 15t^7 + 22t^8 + 29t^9 + 40t^{10}$
50	"S8"	40320	$1 + t + t^2 + t^3 + t^4 + t^5 + t^6 + t^7 + t^8$	$1 + t + 2t^2 + 3t^3 + 5t^4 + 7t^5 + 11t^6 + 15t^7 + 22t^8 + 29t^9 + 40t^{10}$