

**THE SUBGROUP LATTICE OF  $P\Gamma L_2(27) \cong L_2(27) : 3 : 2$**

THOMAS CONNOR AND DIMITRI LEEMANS

Nr.	Structure	Order	Length	Maximal Subgroups	Minimal Overgroups
1	$L_2(27) : 3 : 2$	58968	1	2, 3, 5 (28), 9 (351), 11 (378), 19 (819)	
2	$L_2(27) : 3$	29484	1	4, 6 (28), 12 (351), 16 (378), 28 (819)	1
3	$L_2(27) : 2$	19656	1	4, 7 (28), 20 (351), 23 (378), 38 (819)	1
4	$L_2(27)$	9828	1	8 (28), 29 (351), 35 (378), 47 (819)	2, 3
5	$3^3 : 13 : 3 : 2$	2106	28	6, 7, 10 (13), 17 (27)	1
6	$3^3 : 13 : 3$	1053	28	8, 15 (13), 27 (27)	2, 5
7	$3^3 : 13 : 2$	702	28	8, 21, 36 (27)	3, 5
8	$3^3 : 13$	351	28	32, 46 (27)	4, 6, 7
9	$7 : 3 : 2 \times 2 : 2$	168	351	13, 14, 12, 20, 39 (7)	1
10	$3^{1+2} : S_3$	162	364	15, 21, 22 (3)	5
11	$13 : 3 : 2 \times 2$	156	378	17, 18, 16, 23, 48 (13)	1
12	$7 : 3 : 2 \times 2$	84	351	24 (2), 25, 29, 49 (7)	2, 9
13	$7 : 3 \times 2 \cdot 2$	84	351	25, 30, 50 (7)	9
14	$7 : 3 : 2 \times 2$	84	351	26 (2), 25, 31, 48 (7)	9
15	$3^{1+2} : 3$	81	364	33, 34 (2), 32	6, 10
16	$13 : 3 : 2$	78	378	27, 35, 57 (13)	2, 11
17	$13 : 3 \times 2$	78	378	27, 36, 58 (13)	5 (2), 11
18	$13 : 3 : 2$	78	378	27, 37, 58 (13)	11
19	$2 \times 6 : S_3$	72	819	28, 38, 39 (3), 41 (4)	1
20	$D_{56}$	56	351	29, 30, 31, 55 (7)	3, 9
21	$3^2 : S_3$	54	28	32, 42 (39)	7, 10 (13)
22	$3^{1+2} : 2$	54	1092	33, 42, 41 (3)	10
23	$D_{52}$	52	378	35, 36, 37, 60 (13)	3, 11
24	$7 : 3 : 2$	42	702	40, 43, 57 (7)	12
25	$7 : 3 \times 2$	42	351	40, 44, 57 (7)	12, 13, 14
26	$7 : 3 : 2$	42	702	40, 45, 58 (7)	14
27	$13 : 3$	39	378	46, 63 (13)	6 (2), 16, 17, 18
28	$A_4 \times 3$	36	819	47, 49, 51 (2), 52 (4)	2, 19
29	$D_{28}$	28	351	43 (2), 44, 61 (7)	4, 12, 20
30	28	28	351	44, 62	13, 20

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Nr.	Structure	Order	Length	Maximal Subgroups	Minimal Overgroups
31	$D_{28}$	28	351	44, 45 (2), 60 (7)	14, 20
32	$3^3$	27	28	53 (13)	8, 15 (13), 21
33	$3^{1+2}$	27	364	52 (3), 53	15, 22 (3)
34	$3^{1+2}$	27	728	53, 54 (3)	15
35	$D_{26}$	26	378	46, 65 (13)	4, 16, 23
36	26	26	378	46, 66	7 (2), 17, 23
37	$D_{26}$	26	378	46, 66 (13)	18, 23
38	$2^2 : S_3$	24	819	47, 55 (3), 59 (4)	3, 19
39	$D_8 \times 3$	24	2457	50, 48, 49, 55	9, 19
40	$7 : 3$	21	351	56, 63 (7)	24 (2), 25, 26 (2)
41	$S_3 \times 3$	18	3276	52, 59, 58 (3)	19, 22
42	$3 : S_3$	18	1092	53, 59 (12)	21, 22
43	$D_{14}$	14	702	56, 65 (7)	24, 29
44	14	14	351	56, 65	25, 29, 30, 31
45	$D_{14}$	14	702	56, 66 (7)	26, 31
46	13	13	378	67	8 (2), 27, 35, 36, 37
47	$A_4$	12	819	61, 64 (4)	4, 28, 38
48	$2 \times 6$	12	2457	57, 58 (2), 60	11 (2), 14, 39
49	$2 \times 6$	12	819	57 (3), 61	12 (3), 28, 39 (3)
50	12	12	2457	57, 62	13, 39
51	$A_4$	12	1638	61, 63 (4)	28
52	$3^2$	9	1092	63 (3), 64	28 (3), 33, 41 (3)
53	$3^2$	9	364	64 (4)	32, 33, 34 (2), 42 (3)
54	9	9	2184	64	34
55	$D_8$	8	2457	60, 61, 62	20, 38, 39
56	7	7	351	67	40, 43 (2), 44, 45 (2)
57	6	6	2457	63, 65	16 (2), 24 (2), 25, 48, 49, 50
58	6	6	4914	63, 66	17, 18, 26, 41 (2), 48
59	$S_3$	6	3276	64, 66 (3)	38, 41, 42 (4)
60	$2^2$	4	2457	66 (2), 65	23 (2), 31, 48, 55
61	$2^2$	4	819	65 (3)	29 (3), 47, 49, 51 (2), 55 (3)
62	4	4	351	65	30, 50 (7), 55 (7)
63	3	3	819	67	27 (6), 40 (3), 51 (8), 52 (4), 57 (3), 58 (6)
64	3	3	364	67	47 (9), 52 (3), 53 (4), 54 (6), 59 (9)
65	2	2	351	67	35 (14), 43 (14), 44, 57 (7), 60 (7), 61 (7), 62

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Nr.	Structure	Order	Length	Maximal Subgroups	Minimal Overgroups
66	2	2	378	67	36, 37 (13), 45 (13), 58 (13), 59 (26), 60 (13)
67	1	1	1		46 (378), 56 (351), 63 (819), 64 (364), 65 (351), 66 (378)

TABLE 1. Subgroup lattice of  $L_2(27) : 3 : 2$ 

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