

The group G is isomorphic to the group labelled by [48, 28] in the Small Groups library.
 Ordinary character table of $G \cong C_2 . S_4 = \text{SL}(2,3) . C_2$:

	$1a$	$2a$	$4a$	$3a$	$6a$	$4b$	$8a$	$8b$
χ_1	1	1	1	1	1	1	1	1
χ_2	1	1	1	1	-1	-1	-1	-1
χ_3	2	2	-1	-1	0	0	0	0
χ_4	3	3	-1	0	0	-1	1	1
χ_5	3	3	-1	0	0	1	-1	-1
χ_6	2	-2	0	-1	1	0	$E(8) - E(8)^3$	$-E(8) + E(8)^3$
χ_7	2	-2	0	-1	1	0	$-E(8) + E(8)^3$	$E(8) - E(8)^3$
χ_8	4	-4	0	1	-1	0	0	0

Normalisers N_i	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8
p -subgroups of G up to conjugacy in G	P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8
Representatives $n_j \in N_i$	$1a$	$3a$	$1a$	$3a$	$1a$	$1a$	$1a$	$3a$
$1 \cdot \chi_1 + 1 \cdot \chi_2 + 0 \cdot \chi_3 + 1 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 2 \cdot \chi_8$	16	4	0	0	0	0	0	0
$0 \cdot \chi_1 + 0 \cdot \chi_2 + 1 \cdot \chi_3 + 1 \cdot \chi_4 + 1 \cdot \chi_5 + 1 \cdot \chi_6 + 1 \cdot \chi_7 + 1 \cdot \chi_8$	16	-2	0	0	0	0	0	0
$1 \cdot \chi_1 + 1 \cdot \chi_2 + 0 \cdot \chi_3 + 1 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	8	2	8	2	0	0	0	0
$0 \cdot \chi_1 + 0 \cdot \chi_2 + 1 \cdot \chi_3 + 1 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	8	-1	8	-1	0	0	0	0
$1 \cdot \chi_1 + 1 \cdot \chi_2 + 2 \cdot \chi_3 + 1 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	12	0	4	0	0	0	0	0
$1 \cdot \chi_1 + 0 \cdot \chi_2 + 0 \cdot \chi_3 + 0 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	4	1	4	1	0	2	0	0
$1 \cdot \chi_1 + 0 \cdot \chi_2 + 1 \cdot \chi_3 + 0 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	6	0	6	0	2	2	0	0
$1 \cdot \chi_1 + 1 \cdot \chi_2 + 0 \cdot \chi_3 + 0 \cdot \chi_4 + 0 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	2	2	2	2	2	0	2	0
$0 \cdot \chi_1 + 0 \cdot \chi_2 + 1 \cdot \chi_3 + 0 \cdot \chi_4 + 0 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	2	-1	2	-1	2	0	0	-1
$1 \cdot \chi_1 + 0 \cdot \chi_2 + 1 \cdot \chi_3 + 1 \cdot \chi_4 + 0 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	6	0	6	0	2	0	0	2
$1 \cdot \chi_1 + 0 \cdot \chi_2 + 0 \cdot \chi_3 + 0 \cdot \chi_4 + 0 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	1	1	1	1	1	1	1	1

$P_1 = \text{Group}([()]) \cong 1$
 $P_2 = \text{Group}([(1, 6)(2, 10)(3, 14)(4, 16)(5, 17)(7, 21)(8, 23)(9, 24)(11, 27)(12, 29)(13, 30)(15, 31)(18, 34)(19, 36)(20, 37)(22, 38)(25, 40)(26, 41)(28, 42)(32, 44)(33, 45)(35, 46)(39, 47)(43, 48)]) \cong C_2$
 $P_3 = \text{Group}([(1, 6)(2, 10)(3, 14)(4, 16)(5, 17)(7, 21)(8, 23)(9, 24)(11, 27)(12, 29)(13, 30)(15, 31)(18, 34)(19, 36)(20, 37)(22, 38)(25, 40)(26, 41)(28, 42)(32, 44)(33, 45)(35, 46)(39, 47)(43, 48)(44, 45)]) \cong C_4$
 $P_4 = \text{Group}([(1, 6)(2, 10)(3, 14)(4, 16)(5, 17)(7, 21)(8, 23)(9, 24)(11, 27)(12, 29)(13, 30)(15, 31)(18, 34)(19, 36)(20, 37)(22, 38)(25, 40)(26, 41)(28, 42)(32, 44)(33, 45)(35, 46)(39, 47)(43, 48), (1, 2, 6, 10)(3, 18, 14, 34)(4, 9, 16, 24)(5, 8, 17, 23)(7, 27, 21, 11)(12, 33, 29, 45)(13, 32, 30, 44)(15, 38, 31, 22)(19, 41, 36, 26)(20, 40, 37, 25)(28, 48, 42, 43)(35, 39, 46, 47)]) \cong C_4$
 $P_5 = \text{Group}([(1, 6)(2, 10)(3, 14)(4, 16)(5, 17)(7, 21)(8, 23)(9, 24)(11, 27)(12, 29)(13, 30)(15, 31)(18, 34)(19, 36)(20, 37)(22, 38)(25, 40)(26, 41)(28, 42)(32, 44)(33, 45)(35, 46)(39, 47)(43, 48), (1, 31, 6, 15)(2, 38, 10, 22)(3, 42, 14, 28)(4, 5, 16, 17)(7, 46, 21, 35)(8, 9, 23, 24)(11, 47, 27, 39)(12, 13, 29, 30)(18, 48, 34, 43)(19, 20, 36, 37)(25, 26, 40, 41)(32, 33, 44, 45), (1, 2, 6, 10)(3, 18, 14, 34)(4, 9, 16, 24)(5, 8, 17, 23)(7, 27, 21, 11)(12, 33, 29, 45)(13, 32, 30, 44)(15, 38, 31, 22)(19, 41, 36, 26)(20, 40, 37, 25)(28, 48, 42, 43)(35, 39, 46, 47)]) \cong Q_8$
 $P_6 = \text{Group}([(1, 6)(2, 10)(3, 14)(4, 16)(5, 17)(7, 21)(8, 23)(9, 24)(11, 27)(12, 29)(13, 30)(15, 31)(18, 34)(19, 36)(20, 37)(22, 38)(25, 40)(26, 41)(28, 42)(32, 44)(33, 45)(35, 46)(39, 47)(43, 48), (1, 2, 6, 10)(3, 18, 14, 34)(4, 9, 16, 24)(5, 8, 17, 23)(7, 27, 21, 11)(12, 33, 29, 45)(13, 32, 30, 44)(15, 38, 31, 22)(19, 41, 36, 26)(20, 40, 37, 25)(28, 48, 42, 43)(35, 39, 46, 47)]) \cong Q_8$
 $P_7 = \text{Group}([(1, 6)(2, 10)(3, 14)(4, 16)(5, 17)(7, 21)(8, 23)(9, 24)(11, 27)(12, 29)(13, 30)(15, 31)(18, 34)(19, 36)(20, 37)(22, 38)(25, 40)(26, 41)(28, 42)(32, 44)(33, 45)(35, 46)(39, 47)(43, 48), (1, 31, 6, 15)(2, 38, 10, 22)(3, 42, 14, 28)(4, 5, 16, 17)(7, 46, 21, 35)(8, 9, 23, 24)(11, 47, 27, 39)(12, 13, 29, 30)(18, 48, 34, 43)(19, 20, 36, 37)(25, 26, 40, 41)(32, 33, 44, 45), (1, 8, 15, 24, 6, 22, 31, 39)(2, 16, 22, 5, 10, 4, 38, 17)(3, 32, 28, 45, 14, 44, 42)(3, 7, 40, 35, 26, 21, 24, 36, 41)(11, 19, 39, 37, 27, 36, 47, 20)(12, 48, 30, 18, 29, 43, 13, 34)]) \cong C_8$
 $P_8 = \text{Group}([(1, 6)(2, 10)(3, 14)(4, 16)(5, 17)(7, 21)(8, 23)(9, 24)(11, 27)(12, 29)(13, 30)(15, 31)(18, 34)(19, 36)(20, 37)(22, 38)(25, 40)(26, 41)(28, 42)(32, 44)(33, 45)(35, 46)(39, 47)(43, 48), (1, 2, 6, 10)(3, 18, 14, 34)(4, 9, 16, 24)(5, 8, 17, 23)(7, 27, 21, 11)(12, 33, 29, 45)(13, 32, 30, 44)(15, 38, 31, 22)(19, 41, 36, 26)(20, 40, 37, 25)(28, 48, 42, 43)(35, 39, 46, 47), (1, 4, 6, 16)(2, 8, 10, 23)(3, 12, 14, 29)(5, 31, 17, 15)(7, 19, 21, 36)(9, 38, 24, 22)(11, 47, 27, 39)(12, 13, 29, 30)(18, 48, 34, 43)(19, 20, 36, 37)(25, 26, 40, 41)(32, 33, 44, 45)]) \cong Q_16$
 $N_1 = \text{Group}([(1, 2, 6, 10)(3, 18, 14, 34)(4, 9, 16, 24)(5, 8, 17, 23)(7, 27, 21, 11)(12, 33, 29, 45)(13, 32, 30, 44)(15, 38, 31, 22)(19, 41, 36, 26)(20, 40, 37, 25)(28, 48, 42, 43)(35, 39, 46, 47)(39, 47)(43, 48)]) \cong C_2 . S_4 = \text{SL}(2,3) . C_2$
 $N_2 = \text{Group}([(1, 2, 6, 10)(3, 18, 14, 34)(4, 9, 16, 24)(5, 8, 17, 23)(7, 27, 21, 11)(12, 33, 29, 45)(13, 32, 30, 44)(15, 38, 31, 22)(19, 41, 36, 26)(20, 40, 37, 25)(28, 48, 42, 43)(35, 39, 46, 47)(39, 47)(43, 48), (1, 2, 6, 10)(3, 18, 14, 34)(4, 9, 16, 24)(5, 8, 17, 23)(7, 27, 21, 11)(12, 33, 29, 45)(13, 32, 30, 44)(15, 38, 31, 22)(19, 41, 36, 26)(20, 40, 37, 25)(28, 48, 42, 43)(35, 39, 46, 47)(39, 47)(43, 48)]) \cong C_2 . S_4 = \text{SL}(2,3) . C_2$
 $N_3 = \text{Group}([(1, 31, 6, 15)(2, 38, 10, 22)(3, 42, 14, 28)(4, 5, 16, 17)(7, 46, 21, 35)(8, 9, 23, 24)(11, 47, 27, 39)(12, 13, 29, 30)(18, 48, 34, 43)(19, 20, 36, 37)(25, 26, 40, 41)(28, 42)(32, 44)(33, 45)(35, 46)(39, 47)(43, 48), (1, 2, 6, 10)(3, 18, 14, 34)(4, 9, 16, 24)(5, 8, 17, 23)(7, 27, 21, 11)(12, 33, 29, 45)(13, 32, 30, 44)(15, 38, 31, 22)(19, 41, 36, 26)(20, 40, 37, 25)(28, 48, 42, 43)(35, 39, 46, 47)(39, 47)(43, 48)]) \cong Q_16$
 $N_4 = \text{Group}([(1, 2, 6, 10)(3, 18, 14, 34)(4, 9, 16, 24)(5, 8, 17, 23)(7, 27, 21, 11)(12, 33, 29, 45)(13, 32, 30, 44)(15, 38, 31, 22)(19, 41, 36, 26)(20, 40, 37, 25)(28, 42)(32, 44)(33, 45)(35, 46)(39, 47)(43, 48), (1, 2, 6, 10)(3, 18, 14, 34)(4, 9, 16, 24)(5, 8, 17, 23)(7, 27, 21, 11)(12, 33, 29, 45)(13, 32, 30, 44)(15, 38, 31, 22)(19, 41, 36, 26)(20, 40, 37, 25)(28, 42)(32, 44)(33, 45)(35, 46)(39, 47)(43, 48)]) \cong Q_8$
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 $N_6 = \text{Group}([(1, 4, 6, 16)(2, 8, 10, 23)(3, 12, 14, 29)(5, 31, 17, 15)(7, 19, 21, 36)(9, 38, 24, 22)(11, 25, 27, 40)(13, 42, 30, 28)(18, 3$