

Number of vertices $n = 9$.

Adjacencies of Graph

1. vertex 1 adjacent to 2 4 5 9
2. vertex 2 adjacent to 1 3 6 9
3. vertex 3 adjacent to 2 4 7 9
4. vertex 4 adjacent to 1 3 8 9
5. vertex 5 adjacent to 1 6 8 9
6. vertex 6 adjacent to 2 5 7 9
7. vertex 7 adjacent to 3 6 8 9
8. vertex 8 adjacent to 4 5 7 9
9. vertex 9 adjacent to 1 2 3 4 5 6 7 8

Size of automorphism group of the graph=48

Full group: $|Aut(polytope)| = 12288$

Restricted group: $|Aut(G) \times switch| = 12288$

Number of orbits for the full group : 6

List of orbits of facets for the full group: Total number of orbits = 6 Total number of facets = 10464

1. Inequality 1 with incidence 192 and stabilizer of size 256. Orbit size is 48 nature: 3-cycle inequality, $C=[1, 2, 9]$ $F=[1, 2]$

(1,2) : -1	(1,4) : 0	(1,5) : 0	(1,9) : 1	(2,3) : 0	(2,6) : 0
(2,9) : 1	(3,4) : 0	(3,7) : 0	(3,9) : 0	(4,8) : 0	(4,9) : 0
(5,6) : 0	(5,8) : 0	(5,9) : 0	(6,7) : 0	(6,9) : 0	(7,8) : 0
(7,9) : 0	(8,9) : 0				

2. Inequality 2 with incidence 128 and stabilizer of size 256. Orbit size is 48 nature: 4-cycle inequality, $C=[1, 2, 3, 4]$ $F=[1, 2]$

(1,2) : -1	(1,4) : 1	(1,5) : 0	(1,9) : 0	(2,3) : 1	(2,6) : 0
(2,9) : 0	(3,4) : 1	(3,7) : 0	(3,9) : 0	(4,8) : 0	(4,9) : 0
(5,6) : 0	(5,8) : 0	(5,9) : 0	(6,7) : 0	(6,9) : 0	(7,8) : 0
(7,9) : 0	(8,9) : 0				

3. Inequality 3 with incidence 52 and stabilizer of size 12. Orbit size is 1024 nature: unknown

(1,2) : -1	(1,4) : 1	(1,5) : 1	(1,9) : -1	(2,3) : 1	(2,6) : 0
(2,9) : 0	(3,4) : 1	(3,7) : 1	(3,9) : -1	(4,8) : -1	(4,9) : 1
(5,6) : 0	(5,8) : 1	(5,9) : 0	(6,7) : 0	(6,9) : 0	(7,8) : 1
(7,9) : 0	(8,9) : 1				

4. Inequality 4 with incidence 48 and stabilizer of size 96. Orbit size is 128 nature: 6-cycle inequality, C=[2, 3, 4, 8, 5, 6] F=[2, 3]

(1,2) : 0	(1,4) : 0	(1,5) : 0	(1,9) : 0	(2,3) : -1	(2,6) : 1
(2,9) : 0	(3,4) : 1	(3,7) : 0	(3,9) : 0	(4,8) : 1	(4,9) : 0
(5,6) : 1	(5,8) : 1	(5,9) : 0	(6,7) : 0	(6,9) : 0	(7,8) : 0
(7,9) : 0	(8,9) : 0				

5. Inequality 5 with incidence 34 and stabilizer of size 4. Orbit size is 3072 nature: unknown

(1,2) : -1	(1,4) : 1	(1,5) : 1	(1,9) : -1	(2,3) : 1	(2,6) : 1
(2,9) : -1	(3,4) : 1	(3,7) : -1	(3,9) : 1	(4,8) : 2	(4,9) : 0
(5,6) : 1	(5,8) : -1	(5,9) : 1	(6,7) : 1	(6,9) : -1	(7,8) : 1
(7,9) : 1	(8,9) : 0				

6. Inequality 6 with incidence 32 and stabilizer of size 2. Orbit size is 6144 nature: unknown

(1,2) : -1	(1,4) : 1	(1,5) : 1	(1,9) : -1	(2,3) : 0	(2,6) : 1
(2,9) : 0	(3,4) : 1	(3,7) : 1	(3,9) : 0	(4,8) : 0	(4,9) : 0
(5,6) : 1	(5,8) : 1	(5,9) : 1	(6,7) : 1	(6,9) : -1	(7,8) : -1
(7,9) : 1	(8,9) : 0				