The Cone CUT7

13th January 2002

1 The intrisic informations concerning the graph of extreme rays of CUT7.ext

The graph considered is made of 63 elements.
The group acting on CUT7.ext is reprS7
Under the group action we have in fact only 3 orbits to consider.
The diameter of the graph is 1.
The list of orbits is with adjacency and Size info:

E1:	0	0	0	1	1	1	0	0	1	1	1	0	1	1	1	1	1	1	0	0	0	62	35
E2:	0	0	0	0	1	1	0	0	0	1	1	0	0	1	1	0	1	1	1	1	0	62	21
E3:	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	1	0	1	1	62	7

The representation matrix is:

	E1	E2	E3	Adj.	Size
E1	34	21	7	62	35
E2	35	20	7	62	21
E3	35	21	6	62	7
Size	35	21	7		63

No complemented local graph of size inferior to 20.

1.1 scalar product between elements of orbits

This subsection made sense only if the representation is orthogonal which is the usual case Considering Orbit 1

1. Orbit Size is 35.
2. Norm of elements is 12.
3. Possible scalar product : 6, 7, 9

Considering Orbit 2

1. Orbit Size is 21.
2. Norm of elements is 10.
3. Possible scalar product : 4, 5

Considering Orbit 3

1. Orbit Size is 7.
2. Norm of elements is 6.
3. Possible scalar product : 1

1.2 invariant group of Orbits

The invariant group of x is the set of g such that g(x)=x denoted b G_x.
If x and y are in the same orbit then the groups G_x and G_x are conjuguate.
Invariant group of Orbit 1

1. Group Size is 144.

2. Elements are : (4 3 2 1 7 6 5), (4 3 1 2 7 6 5), (4 2 3 1 7 6 5), (4 1 3 2 7 6 5), (4 2 1 3 7 6 5), (4 1 2 3 7 6 5), (3 4 2 1 7 6 5), (3 4 1 2 7 6 5), (2 4 3 1 7 6 5), (1 4 3 2 7 6 5), (2 4 1 3 7 6 5), (1 4 2 3 7 6 5), (3 2 4 1 7 6 5), (3 1 4 2 7 6 5), (2 3 4 1 7 6 5), (1 3 4 2 7 6 5), (2 1 4 3 7 6 5), (1 2 4 3 7 6 5), (3 2 1 4 7 6 5), (3 1 2 4 7 6 5), (2 3 1 4 7 6 5), (1 3 2 4 7 6 5), (2 1 3 4 7 6 5), (1 2 3 4 7 6 5), (4 3 2 1 7 5 6), (4 3 1 2 7 5 6), (4 2 3 1 7 5 6), (4 1 3 2 7 5 6), (4 2 1 3 7 5 6), (4 1 2 3 7 5 6), (3 4 2 1 7 5 6), (3 4 1 2 7 5 6), (2 4 3 1 7 5 6), (1 4 3 2 7 5 6), (2 4 1 3 7 5 6), (1 4 2 3 7 5 6), (3 2 4 1 7 5 6), (3 1 4 2 7 5 6), (2 3 4 1 7 5 6), (1 3 4 2 7 5 6), (2 1 4 3 7 5 6), (1 2 4 3 7 5 6), (3 2 1 4 7 5 6), (3 1 2 4 7 5 6), (2 3 1 4 7 5 6), (1 3 2 4 7 5 6), (2 1 3 4 7 5 6), (1 2 3 4 7 5 6), (4 3 2 1 6 7 5), (4 3 1 2 6 7 5), (4 2 3 1 6 7 5), (4 1 3 2 6 7 5), (4 2 1 3 6 7 5), (4 1 2 3 6 7 5), (3 4 2 1 6 7 5), (3 4 1 2 6 7 5), (2 4 3 1 6 7 5), (1 4 3 2 6 7 5), (2 4 1 3 6 7 5), (1 4 2 3 6 7 5), (3 2 4 1 6 7 5), (3 1 4 2 6 7 5), (2 3 4 1 6 7 5), (1 3 4 2 6 7 5), (2 1 4 3 6 7 5), (1 2 4 3 6 7 5), (3 2 1 4 6 7 5), (3 1 2 4 6 7 5), (2 3 1 4 6 7 5), (1 3 2 4 6 7 5), (2 1 3 4 6 7 5), (1 2 3 4 6 7 5), (4 3 2 1 5 7 6), (4 3 1 2 5 7 6), (4 2 3 1 5 7 6), (4 1 3 2 5 7 6), (4 2 1 3 5 7 6), (4 1 2 3 5 7 6), (3 4 2 1 5 7 6), (3 4 1 2 5 7 6), (2 4 3 1 5 7 6), (1 4 3 2 5 7 6), (2 4 1 3 5 7 6), (1 4 2 3 5 7 6), (3 2 4 1 5 7 6), (3 1 4 2 5 7 6), (2 3 4 1 5 7 6), (1 3 4 2 5 7 6), (2 1 4 3 5 7 6), (1 2 4 3 5 7 6), (3 2 1 4 5 7 6), (3 1 2 4 5 7 6), (2 3 1 4 5 7 6), (1 3 2 4 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (4 3 2 1 6 5 7), (4 3 1 2 6 5 7), (4 2 3 1 6 5 7), (4 1 3 2 6 5 7), (4 2 1 3 6 5 7), (4 1 2 3 6 5 7), (3 4 2 1 6 5 7), (3 4 1 2 6 5 7), (2 4 3 1 6 5 7), (1 4 3 2 6 5 7), (2 4 1 3 6 5 7), (1 4 2 3 6 5 7), (3 2 4 1 6 5 7), (3 1 4 2 6 5 7), (2 3 4 1 6 5 7), (1 3 4 2 6 5 7), (2 1 4 3 6 5 7), (1 2 4 3 6 5 7), (3 2 1 4 6 5 7), (3 1 2 4 6 5 7), (2 3 1 4 6 5 7), (1 3 2 4 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (4 2 3 1 5 6 7), (4 1 3 2 5 6 7), (4 2 1 3 5 6 7), (4 1 2 3 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 4 3 1 5 6 7), (1 4 3 2 5 6 7), (2 4 1 3 5 6 7), (1 4 2 3 5 6 7), (3 2 4 1 5 6 7), (3 1 4 2 5 6 7), (2 3 4 1 5 6 7), (1 3 4 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 2

1. Group Size is 240.

2. Elements are : (5 4 3 2 1 7 6), (5 4 3 1 2 7 6), (5 4 2 3 1 7 6), (5 4 1 3 2 7 6), (5 4 2 1 3 7 6), (5 4 1 2 3 7 6), (5 3 4 2 1 7 6), (5 3 4 1 2 7 6), (5 2 4 3 1 7 6), (5 1 4 3 2 7 6), (5 2 4 1 3 7 6), (5 1 4 2 3 7 6), (5 3 2 4 1 7 6), (5 3 1 4 2 7 6), (5 2 3 4 1 7 6), (5 1 3 4 2 7 6), (5 2 1 4 3 7 6), (5 1 2 4 3 7 6), (5 3 2 1 4 7 6), (5 3 1 2 4 7 6), (5 2 3 1 4 7 6), (5 1 3 2 4 7 6), (5 2 1 3 4 7 6), (5 1 2 3 4 7 6), (4 5 3 2 1 7 6), (4 5 3 1 2 7 6), (4 5 2 3 1 7 6), (4 5 1 3 2 7 6), (4 5 2 1 3 7 6), (4 5 1 2 3 7 6), (3 5 4 2 1 7 6), (3 5 4 1 2 7 6), (2 5 4 3 1 7 6), (1 5 4 3 2 7 6), (2 5 4 1 3 7 6), (1 5 4 2 3 7 6), (3 5 2 4 1 7 6), (3 5 1 4 2 7 6), (2 5 3 4 1 7 6), (1 5 3 4 2 7 6), (2 5 1 4 3 7 6), (1 5 2 4 3 7 6), (3 5 2 1 4 7 6), (3 5 1 2 4 7 6), (2 5 3 1 4 7 6), (1 5 3 2 4 7 6), (2 5 1 3 4 7 6), (1 5 2 3 4 7 6), (4 3 5 2 1 7 6), (4 3 5 1 2 7 6), (4 2 5 3 1 7 6), (4 1 5 3 2 7 6), (4 2 5 1 3 7 6), (4 1 5 2 3 7 6), (3 4 5 2 1 7 6), (3 4 5 1 2 7 6), (2 4 5 3 1 7 6), (1 4 5 3 2 7 6), (2 4 5 1 3 7 6), (1 4 5 2 3 7 6), (3 2 5 4 1 7 6), (3 1 5 4 2 7 6), (2 3 5 4 1 7 6), (1 3 5 4 2 7 6), (2 1 5 4 3 7 6), (1 2 5 4 3 7 6), (3 2 5 1 4 7 6), (3 1 5 2 4 7 6), (2 3 5 1 4 7 6), (1 3 5 2 4 7 6), (2 1 5 3 4 7 6), (1 2 5 3 4 7 6), (4 3 2 5 1 7 6), (4 3 1 5 2 7 6), (4 2 3 5 1 7 6), (4 1 3 5 2 7 6), (4 2 1 5 3 7 6), (4 1 2 5 3 7 6), (3 4 2 5 1 7 6), (3 4 1 5 2 7 6), (2 4 3 5 1 7 6), (1 4 3 5 2 7 6), (2 4 1 5 3 7 6), (1 4 2 5 3 7 6), (3 2 4 5 1 7 6), (3 1 4 5 2 7 6), (2 3 4 5 1 7 6), (1 3 4 5 2 7 6), (2 1 4 5 3 7 6), (1 2 4 5 3 7 6), (3 2 1 5 4 7 6), (3 1 2 5 4 7 6), (2 3 1 5 4 7 6), (1 3 2 5 4 7 6), (2 1 3 5 4 7 6), (1 2 3 5 4 7 6), (4 3 2 1 5 7 6), (4 3 1 2 5 7 6), (4 2 3 1 5 7 6), (4 1 3 2 5 7 6), (4 2 1 3 5 7 6), (4 1 2 3 5 7 6), (3 4 2 1 5 7 6), (3 4 1 2 5 7 6), (2 4 3 1 5 7 6), (1 4 3 2 5 7 6), (2 4 1 3 5 7 6), (1 4 2 3 5 7 6), (3 2 4 1 5 7 6), (3 1

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Invariant group of Orbit 3

1. Group Size is 720.

2. Elements are : (6 5 4 3 2 1 7), (6 5 4 3 1 2 7), (6 5 4 2 3 1 7), (6 5 4 1 3 2 7), (6 5 4 2 1 3 7), (6 5 4 1 2 3 7), (6 5 3 4 2 1 7), (6 5 3 4 1 2 7), (6 5 2 4 3 1 7), (6 5 1 4 3 2 7), (6 5 2 4 1 3 7), (6 5 1 4 2 3 7), (6 5 3 2 4 1 7), (6 5 3 1 4 2 7), (6 5 2 3 4 1 7), (6 5 1 3 4 2 7), (6 5 2 1 4 3 7), (6 5 1 2 4 3 7), (6 5 3 2 1 4 7), (6 5 3 1 2 4 7), (6 5 2 3 1 4 7), (6 5 1 3 2 4 7), (6 5 2 1 3 4 7), (6 5 1 2 3 4 7), (6 4 5 3 2 1 7), (6 4 5 3 1 2 7), (6 4 5 2 3 1 7), (6 4 5 1 3 2 7), (6 4 5 2 1 3 7), (6 4 5 1 2 3 7), (6 3 5 4 2 1 7), (6 3 5 4 1 2 7), (6 2 5 4 3 1 7), (6 1 5 4 3 2 7), (6 2 5 4 1 3 7), (6 1 5 4 2 3 7), (6 3 5 2 4 1 7), (6 3 5 1 4 2 7), (6 2 5 3 4 1 7), (6 1 5 3 4 2 7), (6 2 5 1 4 3 7), (6 1 5 2 4 3 7), (6 3 5 2 1 4 7), (6 3 5 1 2 4 7), (6 2 5 3 1 4 7), (6 1 5 3 2 4 7), (6 2 5 1 3 4 7), (6 1 5 2 3 4 7), (6 4 3 5 2 1 7), (6 4 3 5 1 2 7), (6 4 2 5 3 1 7), (6 4 1 5 3 2 7), (6 4 2 5 1 3 7), (6 4 1 5 2 3 7), (6 3 4 5 2 1 7), (6 3 4 5 1 2 7), (6 2 4 5 3 1 7), (6 1 4 5 3 2 7), (6 2 4 5 1 3 7), (6 1 4 5 2 3 7), (6 3 2 5 4 1 7), (6 3 1 5 4 2 7), (6 2 3 5 4 1 7), (6 1 3 5 4 2 7), (6 2 1 5 4 3 7), (6 1 2 5 4 3 7), (6 3 2 5 1 4 7), (6 3 1 5 2 4 7), (6 2 3 5 1 4 7), (6 1 3 5 2 4 7), (6 2 1 5 3 4 7), (6 1 2 5 3 4 7), (6 4 3 2 5 1 7), (6 4 3 1 5 2 7), (6 4 2 3 5 1 7), (6 4 1 3 5 2 7), (6 4 2 1 5 3 7), (6 4 1 2 5 3 7), (6 3 4 2 5 1 7), (6 3 4 1 5 2 7), (6 2 4 3 5 1 7), (6 1 4 3 5 2 7), (6 2 4 1 5 3 7), (6 1 4 2 5 3 7), (6 3 2 4 5 1 7), (6 3 1 4 5 2 7), (6 2 3 4 5 1 7), (6 1 3 4 5 2 7), (6 2 1 4 5 3 7), (6 1 2 4 5 3 7), (6 3 2 1 5 4 7), (6 3 1 2 5 4 7), (6 2 3 1 5 4 7), (6 1 3 2 5 4 7), (6 2 1 3 5 4 7), (6 1 2 3 5 4 7), (6 4 3 2 1 5 7), (6 4 3 1 2 5 7), (6 4 2 3 1 5 7), (6 4 1 3 2 5 7), (6 4 2 1 3 5 7), (6 4 1 2 3 5 7), (6 3 4 2 1 5 7), (6 3 4 1 2 5 7), (6 2 4 3 1 5 7), (6 1 4 3 2 5 7), (6 2 4 1 3 5 7), (6 1 4 2 3 5 7), (6 3 2 4 1 5 7), (6 3 1 4 2 5 7), (6 2 3 4 1 5 7), (6 1 3 4 2 5 7), (6 2 1 4 3 5 7), (6 1 2 4 3 5 7), (6 3 2 1 4 5 7), (6 3 1 2 4 5 7), (6 2 3 1 4 5 7), (6 1 3 2 4 5 7), (6 2 1 3 4 5 7), (6 1 2 3 4 5 7), (5 6 4 3 2 1 7), (5 6 4 3 1 2 7), (5 6 4 2 3 1 7), (5 6 4 1 3 2 7), (5 6 4 2 1 3 7), (5 6 4 1 2 3 7), (5 6 3 4 2 1 7), (5 6 3 4 1 2 7), (5 6 2 4 3 1 7), (5 6 1 4 3 2 7), (5 6 2 4 1 3 7), (5 6 1 4 2 3 7), (5 6 3 2 4 1 7), (5 6 3 1 4 2 7), (5 6 2 3 4 1 7), (5 6 1 3 4 2 7), (5 6 2 1 4 3 7), (5 6 1 2 4 3 7), (5 6 3 2 1 4 7), (5 6 3 1 2 4 7), (5 6 2 3 1 4 7), (5 6 1 3 2 4 7), (5 6 2 1 3 4 7), (5 6 1 2 3 4 7), (4 6 5 3 2 1 7), (4 6 5 3 1 2 7), (4 6 5 2 3 1 7), (4 6 5 1 3 2 7), (4 6 5 2 1 3 7), (4 6 5 1 2 3 7), (3 6 5 4 2 1 7), (3 6 5 4 1 2 7), (2 6 5 4 3 1 7), (1 6 5 4 3 2 7), (2 6 5 4 1 3 7), (1 6 5 4 2 3 7), (3 6 5 2 4 1 7), (3 6 5 1 4 2 7), (2 6

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2 The intrisic informations concerning the graph of facet rays of CUT7.ine

The graph considered is made of 38780 elements.
The group acting on CUT7.ine is reprS7
Under the group action we have in fact only 36 orbits to consider.
The diameter of the graph is 3.
The list of orbits is with adjacency and Size info:

F1:	-1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4928	105
F2:	-1	-1	0	0	1	1	-1	0	0	1	1	0	0	1	1	0	0	0	0	0	-1	1369	210
F3:	-1	-1	-1	1	1	1	-1	-1	1	1	1	-1	1	1	1	1	1	1	-1	-1	-1	552	35
F4:	-1	-1	0	1	1	2	-1	0	1	1	2	0	1	1	2	0	0	0	-1	-2	-2	173	420
F5:	-1	-1	-1	0	1	2	-1	-1	0	1	2	-1	0	1	2	0	1	2	0	0	-2	173	210
F6:	-1	-1	-1	1	2	2	-1	-1	1	2	2	-1	1	2	2	1	2	2	-2	-2	-4	75	105
F7:	-1	-1	-1	-1	2	2	-1	-1	-1	2	2	-1	-1	2	2	-1	2	2	2	2	-4	75	21
F8:	-1	-1	-2	1	1	2	-1	-2	1	1	2	-2	1	1	2	2	2	4	-1	-2	-2	60	420
F9:	-1	-1	-1	0	1	2	-1	0	1	1	2	0	1	1	2	-1	1	1	0	-1	-2	20	2520
F10:	-1	-1	-2	1	1	2	0	-1	1	1	2	-2	1	1	1	2	2	3	-1	-2	-2	20	2520
F11:	-1	-1	-2	2	2	2	1	-1	0	0	1	0	1	1	0	1	1	1	-1	-1	-1	20	2520
F12:	-1	-1	-1	0	1	2	-1	-1	0	1	2	0	-1	1	2	1	0	1	1	1	-2	20	2520
F13:	-1	-1	0	0	1	1	-1	0	1	0	1	1	0	1	0	1	-1	1	1	-1	0	20	2520
F14:	-1	-1	0	0	1	1	0	-1	0	1	1	1	-1	0	1	1	1	0	-1	1	0	20	2520
F15:	-1	-1	0	0	1	1	0	-1	1	0	1	1	-1	1	0	1	0	1	1	0	-1	20	2520
F16:	-1	-1	-1	1	1	1	-1	0	0	1	1	0	1	0	1	1	1	1	0	-1	-1	20	2520
F17:	-1	-1	0	1	1	2	0	-1	1	1	2	1	0	1	1	1	0	1	-1	-2	-2	20	2520
F18:	-1	-1	-1	0	1	2	-1	-2	1	1	2	-2	1	1	2	2	2	3	-1	-1	-2	20	2520
F19:	-1	-1	-1	1	1	1	-1	-1	1	1	1	0	0	1	1	1	0	1	-1	0	0	20	1260
F20:	-1	-1	0	0	1	1	1	-2	-2	2	2	1	1	0	0	-1	1	1	1	1	-1	20	1260
F21:	-1	-1	0	0	1	1	-1	1	1	0	2	1	1	0	2	-1	1	-2	1	-2	1	20	1260
F22:	-1	-1	0	0	1	1	-1	1	1	1	1	1	1	1	1	-1	-1	0	0	-1	0	20	1260
F23:	-1	-1	-1	1	2	2	-1	-1	1	2	2	0	1	1	2	1	2	1	-2	-2	-3	20	1260
F24:	-1	-1	-2	1	2	3	-1	-2	1	2	3	-2	1	2	3	2	3	5	-2	-3	-5	20	840
F25:	-1	-1	-1	0	1	2	-1	-1	1	2	2	-1	1	2	2	1	2	2	-2	-1	-3	20	840
F26:	-1	-1	-2	1	1	2	-1	-2	1	1	2	-2	1	1	2	1	2	3	0	-2	-1	20	840
F27:	-1	-2	-2	1	1	3	-2	-2	1	1	3	-3	2	2	5	2	2	5	-1	-3	-3	20	630
F28:	-1	-1	-1	0	1	2	-1	-1	0	1	2	-1	1	0	2	1	0	2	1	-1	-1	20	630
F29:	-1	-1	1	1	2	2	-1	1	1	2	2	1	1	2	2	0	-1	-2	-2	-1	-3	20	420
F30:	-1	-1	-3	1	2	2	-1	-3	1	2	2	-3	1	2	2	3	5	5	-2	-2	-3	20	420
F31:	-1	-1	-1	-1	2	2	-1	-1	-1	2	2	-1	-1	2	2	0	1	2	2	1	-3	20	420
F32:	-1	-1	0	0	1	1	0	-1	0	1	1	0	-1	1	1	-1	1	1	1	1	-1	20	252
F33:	-1	-1	-1	-2	2	3	-1	-1	-2	2	3	-1	-2	2	3	-2	2	3	3	5	-5	20	210
F34:	-1	-1	-1	2	2	3	-1	-1	2	2	3	-1	2	2	3	2	2	3	-3	-5	-5	20	105
F35:	-1	-1	-1	1	1	3	-1	-1	1	1	3	-1	1	1	3	1	1	3	-1	-3	-3	20	105
F36:	-1	-1	-1	-1	1	3	-1	-1	-1	1	3	-1	-1	1	3	-1	1	3	1	3	-3	20	42

The representation matrix is:

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20	F21	F22	F23	F24	F25	F26	F27	F28	F29	F30	F31	F32	F33	F34	F35	F36	Adj.	Size
F1	86	168	35	216	110	24	5	84	264	240	264	288	312	336	312	336	264	264	180	144	144	168	120	64	80	88	54	72	44	36	44	36	18	8	14	6	4928	105
F2	84	116	3	42	20	5	1	18	84	72	84	72	84	72	84	60	84	60	24	42	36	30	36	24	24	24	15	18	12	12	12	6	6	3	0	0	1369	210
F3	105	18	0	24	6	3	0	12	0	72	0	0	0	0	0	72	0	72	36	0	0	36	36	0	24	24	0	0	12	0	0	0	0	0	0	0	552	35
F4	54	21	2	5	2	2	0	6	6	12	12	0	0	0	0	0	12	6	0	3	6	0	6	6	2	0	3	0	2	3	0	0	0	1	1	0	173	420
F5	55	20	1	4	5	1	1	4	12	0	0	24	0	0	0	0	0	12	0	0	0	0	0	4	4	4	6	6	0	0	4	0	4	0	1	1	173	210
F6	24	10	1	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	8	8	0	0	0	0	0	0	0	0	2	0	0	75	105
F7	25	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	10	0	0	0	75	21
F8	21	9	1	6	2	0	0	0	0	6	0	0	0	0	0	0	0	6	0	0	0	0	0	2	0	2	3	0	0	2	0	0	0	0	0	0	60	420
F9	11	7	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2520
F10	10	6	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2520
F11	11	7	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2520
F12	12	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2520
F13	13	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2520
F14	14	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2520
F15	13	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2520
F16	14	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2520
F17	11	7	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2520
F18	11	5	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2520
F19	15	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	1260
F20	12	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	1260
F21	12	6	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	1260
F22	14	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	1260
F23	10	6	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	1260
F24	8	6	0	3	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	840
F25	10	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	840
F26	11	6	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	840
F27	9	5	0	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	630
F28	12	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	630
F29	11	6	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	420
F30	9	6	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	420
F31	11	6	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	420
F32	15	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	252
F33	9	6	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	210
F34	8	6	0	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	105
F35	14	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	105
F36	15	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	42
Size	105	210	35	420	210	105	21	420	2520	2520	2520	2520	2520	2520	2520	2520	2520	2520	1260	1260	1260	1260	1260	840	840	840	630	630	420	420	420	252	210	105	105	42		38780

2.1 The local graphs

The complemented local graph are:
We consider graph with cardinal inferior or equal to 20
The complemented local graph for orbit 9 is:

1	1	:	11
2	1	:	12
3	0	:	
4	0	:	
5	0	:	
6	0	:	
7	0	:	
8	0	:	
9	0	:	
10	0	:	
11	1	:	1
12	1	:	2
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 10 is:

1	1	:	11
2	2	:	17 19
3	0	:	
4	0	:	
5	0	:	
6	0	:	
7	0	:	
8	0	:	
9	0	:	
10	0	:	
11	1	:	1
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	1	:	2
18	0	:	
19	1	:	2
20	0	:	

The complemented local graph for orbit 11 is:

1	0	:	
2	0	:	
3	1	:	7
4	1	:	11
5	0	:	
6	0	:	
7	1	:	3
8	0	:	
9	0	:	
10	0	:	
11	1	:	4
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 12 is:

1	0	:	
2	1	:	16
3	1	:	11
4	0	:	
5	0	:	
6	0	:	
7	0	:	
8	0	:	
9	0	:	
10	0	:	
11	1	:	3
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	1	:	2
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 13 is:

1	0	:
2	0	:
3	0	:
4	0	:
5	0	:
6	0	:
7	0	:
8	0	:
9	0	:
10	0	:
11	0	:
12	0	:
13	0	:
14	0	:
15	0	:
16	0	:
17	0	:
18	0	:
19	0	:
20	0	:

The complemented local graph for orbit 14 is:

1	0	:
2	0	:
3	0	:
4	0	:
5	0	:
6	0	:
7	0	:
8	0	:
9	0	:
10	0	:
11	0	:
12	0	:
13	0	:
14	0	:
15	0	:
16	0	:
17	0	:
18	0	:
19	0	:
20	0	:

The complemented local graph for orbit 15 is:

1	0	:
2	0	:
3	0	:
4	0	:
5	0	:
6	0	:
7	0	:
8	0	:
9	0	:
10	0	:
11	0	:
12	0	:
13	0	:
14	0	:
15	0	:
16	0	:
17	0	:
18	0	:
19	0	:
20	0	:

The complemented local graph for orbit 16 is:

1	0	:
2	0	:
3	0	:
4	0	:
5	0	:
6	0	:
7	0	:
8	0	:
9	0	:
10	0	:
11	0	:
12	0	:
13	0	:
14	0	:
15	0	:
16	0	:
17	0	:
18	0	:
19	0	:
20	0	:

The complemented local graph for orbit 17 is:

1	0	:	
2	0	:	
3	1	:	4
4	1	:	3
5	1	:	12
6	0	:	
7	0	:	
8	0	:	
9	0	:	
10	0	:	
11	0	:	
12	1	:	5
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 18 is:

1	0	:	
2	0	:	
3	1	:	7
4	0	:	
5	0	:	
6	2	:	14 15
7	1	:	3
8	0	:	
9	0	:	
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	1	:	6
15	1	:	6
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 19 is:

1	0	:	
2	0	:	
3	0	:	
4	0	:	
5	0	:	
6	0	:	
7	0	:	
8	0	:	
9	0	:	
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 20 is:

1	0	:	
2	0	:	
3	0	:	
4	0	:	
5	1	:	11
6	0	:	
7	0	:	
8	0	:	
9	0	:	
10	0	:	
11	1	:	5
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 21 is:

1	0	:	
2	1	:	7
3	0	:	
4	0	:	
5	0	:	
6	0	:	
7	1	:	2
8	0	:	
9	0	:	
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 22 is:

1	0	:
2	0	:
3	0	:
4	0	:
5	0	:
6	0	:
7	0	:
8	0	:
9	0	:
10	0	:
11	0	:
12	0	:
13	0	:
14	0	:
15	0	:
16	0	:
17	0	:
18	0	:
19	0	:
20	0	:

The complemented local graph for orbit 23 is:

1	0	:	
2	0	:	
3	0	:	
4	1	:	5
5	1	:	4
6	2	:	17 19
7	0	:	
8	0	:	
9	0	:	
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	1	:	6
18	0	:	
19	1	:	6
20	0	:	

The complemented local graph for orbit 24 is:

1	0	:	
2	0	:	
3	0	:	
4	0	:	
5	1	:	9
6	0	:	
7	0	:	
8	0	:	
9	1	:	5
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 25 is:

1	1	:	14
2	1	:	3
3	1	:	2
4	0	:	
5	0	:	
6	0	:	
7	0	:	
8	0	:	
9	0	:	
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	1	:	1
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 26 is:

1	0	:	
2	0	:	
3	0	:	
4	0	:	
5	2	:	8 11
6	0	:	
7	0	:	
8	1	:	5
9	0	:	
10	0	:	
11	1	:	5
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 27 is:

1	0	:	
2	0	:	
3	0	:	
4	0	:	
5	0	:	
6	0	:	
7	1	:	8
8	1	:	7
9	0	:	
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 28 is:

1	0	:	
2	1	:	4
3	0	:	
4	1	:	2
5	0	:	
6	0	:	
7	1	:	12
8	0	:	
9	0	:	
10	0	:	
11	0	:	
12	1	:	7
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 29 is:

1	0	:	
2	0	:	
3	0	:	
4	0	:	
5	0	:	
6	0	:	
7	1	:	8
8	1	:	7
9	0	:	
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 30 is:

1	0	:	
2	0	:	
3	0	:	
4	1	:	7
5	0	:	
6	0	:	
7	1	:	4
8	0	:	
9	0	:	
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 31 is:

1	0	:	
2	2	:	17 19
3	1	:	8
4	0	:	
5	0	:	
6	0	:	
7	0	:	
8	1	:	3
9	0	:	
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	1	:	2
18	0	:	
19	1	:	2
20	0	:	

The complemented local graph for orbit 32 is:

1	0	:
2	0	:
3	0	:
4	0	:
5	0	:
6	0	:
7	0	:
8	0	:
9	0	:
10	0	:
11	0	:
12	0	:
13	0	:
14	0	:
15	0	:
16	0	:
17	0	:
18	0	:
19	0	:
20	0	:

The complemented local graph for orbit 33 is:

1	0	:
2	0	:
3	0	:
4	0	:
5	0	:
6	0	:
7	0	:
8	0	:
9	0	:
10	0	:
11	0	:
12	0	:
13	0	:
14	0	:
15	0	:
16	0	:
17	0	:
18	0	:
19	0	:
20	0	:

The complemented local graph for orbit 34 is:

1	0	:	
2	0	:	
3	0	:	
4	0	:	
5	0	:	
6	0	:	
7	0	:	
8	1	:	9
9	1	:	8
10	0	:	
11	0	:	
12	0	:	
13	0	:	
14	0	:	
15	0	:	
16	0	:	
17	0	:	
18	0	:	
19	0	:	
20	0	:	

The complemented local graph for orbit 35 is:

1	0	:
2	0	:
3	0	:
4	0	:
5	0	:
6	0	:
7	0	:
8	0	:
9	0	:
10	0	:
11	0	:
12	0	:
13	0	:
14	0	:
15	0	:
16	0	:
17	0	:
18	0	:
19	0	:
20	0	:

The complemented local graph for orbit 36 is:

1	0	:
2	0	:
3	0	:
4	0	:
5	0	:
6	0	:
7	0	:
8	0	:
9	0	:
10	0	:
11	0	:
12	0	:
13	0	:
14	0	:
15	0	:
16	0	:
17	0	:
18	0	:
19	0	:
20	0	:

2.2 scalar product between elements of orbits

This subsection made sense only if the representation is orthogonal which is the usual case Considering Orbit 1

1. Orbit Size is 105.

2. Norm of elements is 3.

3. Possible scalar product : $-1, 0, 1$

Considering Orbit 2

1. Orbit Size is 210.
2. Norm of elements is 10.
3. Possible scalar product : $-2, -1, 0, 2, 3, 6$

Considering Orbit 3

1. Orbit Size is 35.
2. Norm of elements is 21.
3. Possible scalar product : $-3, 1, 9$

Considering Orbit 4

1. Orbit Size is 420.
2. Norm of elements is 30.
3. Possible scalar product : $-10, -8, -6, -5, -4, -2, -1, 2, 4, 7, 8, 10, 14, 19, 22, 26$

Considering Orbit 5

1. Orbit Size is 210.
2. Norm of elements is 30.
3. Possible scalar product : $-6, -5, -4, -2, -1, 2, 4, 7, 8, 10, 14, 19, 22, 26$

Considering Orbit 6

1. Orbit Size is 105.
2. Norm of elements is 66.
3. Possible scalar product : $-14, -6, -5, 3, 4, 22, 31, 58$

Considering Orbit 7

1. Orbit Size is 21.
2. Norm of elements is 66.
3. Possible scalar product : $-6, 3$

Considering Orbit 8

1. Orbit Size is 420.
2. Norm of elements is 66.
3. Possible scalar product : $-14, -12, -9, -6, -5, 3, 4, 6, 15, 18, 22, 31, 36, 42, 51, 58$

Considering Orbit 9

1. Orbit Size is 2520.
2. Norm of elements is 29.

3. Possible scalar product : $-11, -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 27$

Considering Orbit 10

1. Orbit Size is 2520.
2. Norm of elements is 52.
3. Possible scalar product : $-16, -15, -14, -13, -12, -11, -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 22, 25, 26, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50$

Considering Orbit 11

1. Orbit Size is 2520.
2. Norm of elements is 29.
3. Possible scalar product : $-13, -12, -11, -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27$

Considering Orbit 12

1. Orbit Size is 2520.
2. Norm of elements is 29.
3. Possible scalar product : $-10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27$

Considering Orbit 13

1. Orbit Size is 2520.
2. Norm of elements is 14.
3. Possible scalar product : $-8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12$

Considering Orbit 14

1. Orbit Size is 2520.
2. Norm of elements is 14.
3. Possible scalar product : $-6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12$

Considering Orbit 15

1. Orbit Size is 2520.
2. Norm of elements is 14.
3. Possible scalar product : $-6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12$

Considering Orbit 16

1. Orbit Size is 2520.
2. Norm of elements is 16.
3. Possible scalar product : $-7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14$

Considering Orbit 17

1. Orbit Size is 2520.
2. Norm of elements is 29.
3. Possible scalar product : $-11, -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27$

Considering Orbit 18

1. Orbit Size is 2520.
2. Norm of elements is 52.
3. Possible scalar product : $-15, -14, -13, -12, -11, -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 37, 38, 39, 40, 41, 43, 44, 45, 46, 47, 48, 49, 50$

Considering Orbit 19

1. Orbit Size is 1260.
2. Norm of elements is 16.
3. Possible scalar product : $-6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14$

Considering Orbit 20

1. Orbit Size is 1260.
2. Norm of elements is 29.
3. Possible scalar product : $-11, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 25$

Considering Orbit 21

1. Orbit Size is 1260.
2. Norm of elements is 29.
3. Possible scalar product : $-11, -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25$

Considering Orbit 22

1. Orbit Size is 1260.
2. Norm of elements is 16.
3. Possible scalar product : $-6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14$

Considering Orbit 23

1. Orbit Size is 1260.
2. Norm of elements is 52.
3. Possible scalar product : $-15, -14, -13, -12, -11, -10, -9, -8, -7, -6, -5, -4, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 17, 18, 19, 20, 23, 24, 25, 26, 29, 30, 31, 32, 46, 47, 48, 49, 50$

Considering Orbit 24

1. Orbit Size is 840.

2. Norm of elements is 133.

3. Possible scalar product : -43, -39, -35, -32, -31, -30, -28, -27, -26, -25, -24, -23, -22, -21, -20, -18, -16, -15, -13, -12, -11, -10, -9, -8, -7, -6, -5, -3, -2, 5, 6, 7, 8, 9, 12, 13, 16, 17, 18, 19, 20, 22, 25, 28, 29, 32, 33, 41, 46, 49, 50, 53, 57, 61, 66, 71, 76, 82, 96, 103, 110, 117, 118, 125

Considering Orbit 25

1. Orbit Size is 840.

2. Norm of elements is 52.

3. Possible scalar product : -14, -13, -12, -11, -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 8, 9, 10, 11, 17, 18, 19, 20, 21, 22, 24, 25, 27, 31, 42, 43, 44, 49, 50

Considering Orbit 26

1. Orbit Size is 840.

2. Norm of elements is 52.

3. Possible scalar product : -16, -14, -13, -12, -11, -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 22, 25, 40, 41, 43, 44, 47, 48, 50

Considering Orbit 27

1. Orbit Size is 630.

2. Norm of elements is 133.

3. Possible scalar product : -35, -31, -30, -27, -26, -25, -24, -23, -22, -21, -19, -18, -17, -16, -15, -13, -12, -9, -8, -7, -6, -3, -2, 5, 6, 7, 8, 9, 12, 13, 16, 17, 21, 22, 24, 29, 33, 40, 41, 43, 49, 51, 53, 57, 60, 61, 71, 82, 89, 96, 103, 117, 125

Considering Orbit 28

1. Orbit Size is 630.

2. Norm of elements is 29.

3. Possible scalar product : -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 14, 15, 25, 27

Considering Orbit 29

1. Orbit Size is 420.

2. Norm of elements is 52.

3. Possible scalar product : -13, -12, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 14, 16, 17, 18, 19, 31, 35, 37, 43, 44, 50

Considering Orbit 30

1. Orbit Size is 420.

2. Norm of elements is 133.
3. Possible scalar product : $-39, -35, -31, -30, -26, -23, -22, -18, -17, -16, -15, -13, -12, -9, -8, -7, -6, 5, 7, 8, 9, 12, 13, 17, 21, 22, 24, 27, 33, 43, 57, 61, 71, 82, 96, 103, 125$

Considering Orbit 31

1. Orbit Size is 420.
2. Norm of elements is 52.
3. Possible scalar product : $-13, -11, -7, -6, -5, -4, 1, 2, 3, 4, 8, 10, 49, 50$

Considering Orbit 32

1. Orbit Size is 252.
2. Norm of elements is 16.
3. Possible scalar product : $-4, -3, -1, 0, 1, 2, 3, 4, 11, 13, 14$

Considering Orbit 33

1. Orbit Size is 210.
2. Norm of elements is 133.
3. Possible scalar product : $-35, -31, -28, -26, -16, -13, -12, -11, -8, -3, -2, 5, 6, 13, 17, 19, 20, 22, 118, 125$

Considering Orbit 34

1. Orbit Size is 105.
2. Norm of elements is 133.
3. Possible scalar product : $-35, -21, -13, -8, -2, 17, 18, 61, 125$

Considering Orbit 35

1. Orbit Size is 105.
2. Norm of elements is 69.
3. Possible scalar product : $-19, -11, -7, 1, 13, 17, 29, 49$

Considering Orbit 36

1. Orbit Size is 42.
2. Norm of elements is 69.
3. Possible scalar product : $-11, -7, 1, 17, 49$

2.3 invariant group of Orbits

The invariant group of x is the set of g such that g(x)=x denoted b G_x.
If x and y are in the same orbit then the groups G_x and G_x are conjuguate.
Invariant group of Orbit 1

1. Group Size is 48.

2. Elements are : (2 1 6 5 4 3 7), (1 2 6 5 4 3 7), (2 1 6 5 3 4 7), (1 2 6 5 3 4 7), (2 1 6 4 5 3 7), (1 2 6 4 5 3 7), (2 1 6 3 5 4 7), (1 2 6 3 5 4 7), (2 1 6 4 3 5 7), (1 2 6 4 3 5 7), (2 1 6 3 4 5 7), (1 2 6 3 4 5 7), (2 1 5 6 4 3 7), (1 2 5 6 4 3 7), (2 1 5 6 3 4 7), (1 2 5 6 3 4 7), (2 1 4 6 5 3 7), (1 2 4 6 5 3 7), (2 1 3 6 5 4 7), (1 2 3 6 5 4 7), (2 1 4 6 3 5 7), (1 2 4 6 3 5 7), (2 1 3 6 4 5 7), (1 2 3 6 4 5 7), (2 1 5 4 6 3 7), (1 2 5 4 6 3 7), (2 1 5 3 6 4 7), (1 2 5 3 6 4 7), (2 1 4 5 6 3 7), (1 2 4 5 6 3 7), (2 1 3 5 6 4 7), (1 2 3 5 6 4 7), (2 1 4 3 6 5 7), (1 2 4 3 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (2 1 5 4 3 6 7), (1 2 5 4 3 6 7), (2 1 5 3 4 6 7), (1 2 5 3 4 6 7), (2 1 4 5 3 6 7), (1 2 4 5 3 6 7), (2 1 3 5 4 6 7), (1 2 3 5 4 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 2

1. Group Size is 24.

2. Elements are : (3 2 1 5 4 7 6), (3 1 2 5 4 7 6), (2 3 1 5 4 7 6), (1 3 2 5 4 7 6), (2 1 3 5 4 7 6), (1 2 3 5 4 7 6), (3 2 1 4 5 7 6), (3 1 2 4 5 7 6), (2 3 1 4 5 7 6), (1 3 2 4 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (3 2 1 5 4 6 7), (3 1 2 5 4 6 7), (2 3 1 5 4 6 7), (1 3 2 5 4 6 7), (2 1 3 5 4 6 7), (1 2 3 5 4 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 3

1. Group Size is 144.

2. Elements are : (4 3 2 1 7 6 5), (4 3 1 2 7 6 5), (4 2 3 1 7 6 5), (4 1 3 2 7 6 5), (4 2 1 3 7 6 5), (4 1 2 3 7 6 5), (3 4 2 1 7 6 5), (3 4 1 2 7 6 5), (2 4 3 1 7 6 5), (1 4 3 2 7 6 5), (2 4 1 3 7 6 5), (1 4 2 3 7 6 5), (3 2 4 1 7 6 5), (3 1 4 2 7 6 5), (2 3 4 1 7 6 5), (1 3 4 2 7 6 5), (2 1 4 3 7 6 5), (1 2 4 3 7 6 5), (3 2 1 4 7 6 5), (3 1 2 4 7 6 5), (2 3 1 4 7 6 5), (1 3 2 4 7 6 5), (2 1 3 4 7 6 5), (1 2 3 4 7 6 5), (4 3 2 1 7 5 6), (4 3 1 2 7 5 6), (4 2 3 1 7 5 6), (4 1 3 2 7 5 6), (4 2 1 3 7 5 6), (4 1 2 3 7 5 6), (3 4 2 1 7 5 6), (3 4 1 2 7 5 6), (2 4 3 1 7 5 6), (1 4 3 2 7 5 6), (2 4 1 3 7 5 6), (1 4 2 3 7 5 6), (3 2 4 1 7 5 6), (3 1 4 2 7 5 6), (2 3 4 1 7 5 6), (1 3 4 2 7 5 6), (2 1 4 3 7 5 6), (1 2 4 3 7 5 6), (3 2 1 4 7 5 6), (3 1 2 4 7 5 6), (2 3 1 4 7 5 6), (1 3 2 4 7 5 6), (2 1 3 4 7 5 6), (1 2 3 4 7 5 6), (4 3 2 1 6 7 5), (4 3 1 2 6 7 5), (4 2 3 1 6 7 5), (4 1 3 2 6 7 5), (4 2 1 3 6 7 5), (4 1 2 3 6 7 5), (3 4 2 1 6 7 5), (3 4 1 2 6 7 5), (2 4 3 1 6 7 5), (1 4 3 2 6 7 5), (2 4 1 3 6 7 5), (1 4 2 3 6 7 5), (3 2 4 1 6 7 5), (3 1 4 2 6 7 5), (2 3 4 1 6 7 5), (1 3 4 2 6 7 5), (2 1 4 3 6 7 5), (1 2 4 3 6 7 5), (3 2 1 4 6 7 5), (3 1 2 4 6 7 5), (2 3 1 4 6 7 5), (1 3 2 4 6 7 5), (2 1 3 4 6 7 5), (1 2 3 4 6 7 5), (4 3 2 1 5 7 6), (4 3 1 2 5 7 6), (4 2 3 1 5 7 6), (4 1 3 2 5 7 6), (4 2 1 3 5 7 6), (4 1 2 3 5 7 6), (3 4 2 1 5 7 6), (3 4 1 2 5 7 6), (2 4 3 1 5 7 6), (1 4 3 2 5 7 6), (2 4 1 3 5 7 6), (1 4 2 3 5 7 6), (3 2 4 1 5 7 6), (3 1 4 2 5 7 6), (2 3 4 1 5 7 6), (1 3 4 2 5 7 6), (2 1 4 3 5 7 6), (1 2 4 3 5 7 6), (3 2 1 4 5 7 6), (3 1 2 4 5 7 6), (2 3 1 4 5 7 6), (1 3 2 4 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (4 3 2 1 6 5 7), (4 3 1 2 6 5 7), (4 2 3 1 6 5 7), (4 1 3 2 6 5 7), (4 2 1 3 6 5 7), (4 1 2 3 6 5 7), (3 4 2 1 6 5 7), (3 4 1 2 6 5 7), (2 4 3 1 6 5 7), (1 4 3 2 6 5 7), (2 4 1 3 6 5 7), (1 4 2 3 6 5 7), (3 2 4 1 6 5 7), (3 1 4 2 6 5 7), (2 3 4 1 6 5 7), (1 3 4 2 6 5 7), (2 1 4 3 6 5 7), (1 2 4 3 6 5 7), (3 2 1 4 6 5 7), (3 1 2 4 6 5 7), (2 3 1 4 6 5 7), (1 3 2 4 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (4 2 3 1 5 6 7), (4 1 3 2 5 6 7), (4 2 1 3 5 6 7), (4 1 2 3 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 4 3 1 5 6 7), (1 4 3 2 5 6 7), (2 4 1 3 5 6 7), (1 4 2 3 5 6 7), (3 2 4 1 5 6 7), (3 1 4 2 5 6 7), (2 3 4 1 5 6 7), (1 3 4 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 4

1. Group Size is 12.
2. Elements are : (3 2 1 4 6 5 7), (3 1 2 4 6 5 7), (2 3 1 4 6 5 7), (1 3 2 4 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 5

1. Group Size is 24.
2. Elements are : (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (4 2 3 1 5 6 7), (4 1 3 2 5 6 7), (4 2 1 3 5 6 7), (4 1 2 3 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 4 3 1 5 6 7), (1 4 3 2 5 6 7), (2 4 1 3 5 6 7), (1 4 2 3 5 6 7), (3 2 4 1 5 6 7), (3 1 4 2 5 6 7), (2 3 4 1 5 6 7), (1 3 4 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 6

1. Group Size is 48.
2. Elements are : (4 3 2 1 5 7 6), (4 3 1 2 5 7 6), (4 2 3 1 5 7 6), (4 1 3 2 5 7 6), (4 2 1 3 5 7 6), (4 1 2 3 5 7 6), (3 4 2 1 5 7 6), (3 4 1 2 5 7 6), (2 4 3 1 5 7 6), (1 4 3 2 5 7 6), (2 4 1 3 5 7 6), (1 4 2 3 5 7 6), (3 2 4 1 5 7 6), (3 1 4 2 5 7 6), (2 3 4 1 5 7 6), (1 3 4 2 5 7 6), (2 1 4 3 5 7 6), (1 2 4 3 5 7 6), (3 2 1 4 5 7 6), (3 1 2 4 5 7 6), (2 3 1 4 5 7 6), (1 3 2 4 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (4 2 3 1 5 6 7), (4 1 3 2 5 6 7), (4 2 1 3 5 6 7), (4 1 2 3 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 4 3 1 5 6 7), (1 4 3 2 5 6 7), (2 4 1 3 5 6 7), (1 4 2 3 5 6 7), (3 2 4 1 5 6 7), (3 1 4 2 5 6 7), (2 3 4 1 5 6 7), (1 3 4 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 7

1. Group Size is 240.
2. Elements are : (5 4 3 2 1 7 6), (5 4 3 1 2 7 6), (5 4 2 3 1 7 6), (5 4 1 3 2 7 6), (5 4 2 1 3 7 6), (5 4 1 2 3 7 6), (5 3 4 2 1 7 6), (5 3 4 1 2 7 6), (5 2 4 3 1 7 6), (5 1 4 3 2 7 6), (5 2 4 1 3 7 6), (5 1 4 2 3 7 6), (5 3 2 4 1 7 6), (5 3 1 4 2 7 6), (5 2 3 4 1 7 6), (5 1 3 4 2 7 6), (5 2 1 4 3 7 6), (5 1 2 4 3 7 6), (5 3 2 1 4 7 6), (5 3 1 2 4 7 6), (5 2 3 1 4 7 6), (5 1 3 2 4 7 6), (5 2 1 3 4 7 6), (5 1 2 3 4 7 6), (4 5 3 2 1 7 6), (4 5 3 1 2 7 6), (4 5 2 3 1 7 6), (4 5 1 3 2 7 6), (4 5 2 1 3 7 6), (4 5 1 2 3 7 6), (3 5 4 2 1 7 6), (3 5 4 1 2 7 6), (2 5 4 3 1 7 6), (1 5 4 3 2 7 6), (2 5 4 1 3 7 6), (1 5 4 2 3 7 6), (3 5 2 4 1 7 6), (3 5 1 4 2 7 6), (2 5 3 4 1 7 6), (1 5 3 4 2 7 6), (2 5 1 4 3 7 6), (1 5 2 4 3 7 6), (3 5 2 1 4 7 6), (3 5 1 2 4 7 6), (2 5 3 1 4 7 6), (1 5 3 2 4 7 6), (2 5 1 3 4 7 6), (1 5 2 3 4 7 6), (4 3 5 2 1 7 6), (4 3 5 1 2 7 6), (4 2 5 3 1 7 6), (4 1 5 3 2 7 6), (4 2 5 1 3 7 6), (4 1 5 2 3 7 6), (3 4 5 2 1 7 6), (3 4 5 1 2 7 6), (2 4 5 3 1 7 6), (1 4 5 3 2 7 6), (2 4 5 1 3 7 6), (1 4 5 2 3 7 6), (3 2 5 4 1 7 6), (3 1 5 4 2 7 6), (2 3 5 4 1 7 6), (1 3 5 4 2 7 6), (2 1 5 4 3 7 6), (1 2 5 4 3 7 6), (3 2 5 1 4 7 6), (3 1 5 2 4 7 6), (2 3 5 1 4 7 6), (1 3 5 2 4 7 6), (2 1 5 3 4 7 6), (1 2 5 3 4 7 6), (4 3 2 5 1 7 6), (4 3 1 5 2 7 6), (4 2 3 5 1 7 6), (4 1 3 5 2 7 6), (4 2 1 5 3 7 6), (4 1 2 5 3 7 6), (3 4 2 5 1 7 6), (3 4 1 5 2 7 6), (2 4 3 5 1 7 6), (1 4 3 5 2 7 6), (2 4 1 5 3 7 6), (1 4 2 5 3 7 6), (3 2 4 5 1 7 6), (3 1 4 5 2 7 6), (2 3 4 5 1 7 6), (1 3 4 5 2 7 6), (2 1 4 5 3 7 6), (1 2 4 5 3 7 6), (3 2 1 5 4 7 6), (3 1 2 5 4 7 6), (2 3 1 5 4 7 6), (1 3 2 5 4 7 6), (2 1 3 5 4 7 6), (1 2 3 5 4 7 6), (4 3 2 1 5 7 6), (4 3 1 2 5 7 6), (4 2 3 1 5 7 6), (4 1 3 2 5 7 6), (4 2 1 3 5 7 6), (4 1 2 3 5 7 6), (3 4 2 1 5 7 6), (3 4 1 2 5 7 6), (2 4 3 1 5 7 6), (1 4 3 2 5 7 6), (2 4 1 3 5 7 6), (1 4 2 3 5 7 6), (3 2 4 1 5 7 6), (3 1 4 2 5 7 6), (2 3 4 1 5 7 6), (1 3 4 2 5 7 6), (2 1 4 3 5 7 6), (1 2 4 3 5 7 6), (3 2 1 4 5 7 6), (3 1 2 4 5 7 6), (2 3 1 4 5 7 6), (1 3 2 4 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (5 4 3 2 1 6 7), (5 4 3 1 2 6 7), (5 4 2 3 1 6 7), (5 4 1 3 2 6 7), (5 4 2 1 3 6 7), (5 4 1 2 3 6 7), (5 3 4 2 1 6 7), (5 3 4 1 2

6 7), (5 2 4 3 1 6 7), (5 1 4 3 2 6 7), (5 2 4 1 3 6 7), (5 1 4 2 3 6 7), (5 3 2 4 1 6 7), (5 3 1 4 2 6 7), (5 2 3 4 1 6 7), (5 1 3 4 2 6 7), (5 2 1 4 3 6 7), (5 1 2 4 3 6 7), (5 3 2 1 4 6 7), (5 3 1 2 4 6 7), (5 2 3 1 4 6 7), (5 1 3 2 4 6 7), (5 2 1 3 4 6 7), (5 1 2 3 4 6 7), (4 5 3 2 1 6 7), (4 5 3 1 2 6 7), (4 5 2 3 1 6 7), (4 5 1 3 2 6 7), (4 5 2 1 3 6 7), (4 5 1 2 3 6 7), (3 5 4 2 1 6 7), (3 5 4 1 2 6 7), (2 5 4 3 1 6 7), (1 5 4 3 2 6 7), (2 5 4 1 3 6 7), (1 5 4 2 3 6 7), (3 5 2 4 1 6 7), (3 5 1 4 2 6 7), (2 5 3 4 1 6 7), (1 5 3 4 2 6 7), (2 5 1 4 3 6 7), (1 5 2 4 3 6 7), (3 5 2 1 4 6 7), (3 5 1 2 4 6 7), (2 5 3 1 4 6 7), (1 5 3 2 4 6 7), (2 5 1 3 4 6 7), (1 5 2 3 4 6 7), (4 3 5 2 1 6 7), (4 3 5 1 2 6 7), (4 2 5 3 1 6 7), (4 1 5 3 2 6 7), (4 2 5 1 3 6 7), (4 1 5 2 3 6 7), (3 4 5 2 1 6 7), (3 4 5 1 2 6 7), (2 4 5 3 1 6 7), (1 4 5 3 2 6 7), (2 4 5 1 3 6 7), (1 4 5 2 3 6 7), (3 2 5 4 1 6 7), (3 1 5 4 2 6 7), (2 3 5 4 1 6 7), (1 3 5 4 2 6 7), (2 1 5 4 3 6 7), (1 2 5 4 3 6 7), (3 2 5 1 4 6 7), (3 1 5 2 4 6 7), (2 3 5 1 4 6 7), (1 3 5 2 4 6 7), (2 1 5 3 4 6 7), (1 2 5 3 4 6 7), (4 3 2 5 1 6 7), (4 3 1 5 2 6 7), (4 2 3 5 1 6 7), (4 1 3 5 2 6 7), (4 2 1 5 3 6 7), (4 1 2 5 3 6 7), (3 4 2 5 1 6 7), (3 4 1 5 2 6 7), (2 4 3 5 1 6 7), (1 4 3 5 2 6 7), (2 4 1 5 3 6 7), (1 4 2 5 3 6 7), (3 2 4 5 1 6 7), (3 1 4 5 2 6 7), (2 3 4 5 1 6 7), (1 3 4 5 2 6 7), (2 1 4 5 3 6 7), (1 2 4 5 3 6 7), (3 2 1 5 4 6 7), (3 1 2 5 4 6 7), (2 3 1 5 4 6 7), (1 3 2 5 4 6 7), (2 1 3 5 4 6 7), (1 2 3 5 4 6 7), (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (4 2 3 1 5 6 7), (4 1 3 2 5 6 7), (4 2 1 3 5 6 7), (4 1 2 3 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 4 3 1 5 6 7), (1 4 3 2 5 6 7), (2 4 1 3 5 6 7), (1 4 2 3 5 6 7), (3 2 4 1 5 6 7), (3 1 4 2 5 6 7), (2 3 4 1 5 6 7), (1 3 4 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 8

1. Group Size is 12.
2. Elements are : (3 2 1 4 6 5 7), (3 1 2 4 6 5 7), (2 3 1 4 6 5 7), (1 3 2 4 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 9

1. Group Size is 2.
2. Elements are : (1 3 2 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 10

1. Group Size is 2.
2. Elements are : (1 2 3 4 6 5 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 11

1. Group Size is 2.
2. Elements are : (1 2 3 4 6 5 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 12

1. Group Size is 2.
2. Elements are : (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 13

1. Group Size is 2.
2. Elements are : (1 3 2 5 4 7 6), (1 2 3 4 5 6 7),

Invariant group of Orbit 14

1. Group Size is 2.
2. Elements are : (3 5 1 6 2 4 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 15

1. Group Size is 2.
2. Elements are : (1 3 2 5 4 7 6), (1 2 3 4 5 6 7),

Invariant group of Orbit 16

1. Group Size is 2.
2. Elements are : (1 3 2 4 6 5 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 17

1. Group Size is 2.
2. Elements are : (2 1 4 3 6 5 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 18

1. Group Size is 2.
2. Elements are : (1 3 2 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 19

1. Group Size is 4.
2. Elements are : (2 1 4 3 6 5 7), (1 2 4 3 6 5 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 20

1. Group Size is 4.
2. Elements are : (1 2 3 5 4 7 6), (1 2 3 4 5 7 6), (1 2 3 5 4 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 21

1. Group Size is 4.
2. Elements are : (1 3 2 5 4 6 7), (1 2 3 5 4 6 7), (1 3 2 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 22

1. Group Size is 4.
2. Elements are : (1 3 2 5 4 7 6), (1 2 3 5 4 7 6), (1 3 2 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 23

1. Group Size is 4.
2. Elements are : (2 1 4 3 5 7 6), (1 2 4 3 5 7 6), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 24

1. Group Size is 6.

2. Elements are : (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 25

1. Group Size is 6.

2. Elements are : (1 4 3 2 5 6 7), (1 4 2 3 5 6 7), (1 3 4 2 5 6 7), (1 2 4 3 5 6 7), (1 3 2 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 26

1. Group Size is 6.

2. Elements are : (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 27

1. Group Size is 8.

2. Elements are : (2 1 4 3 6 5 7), (1 2 4 3 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 28

1. Group Size is 8.

2. Elements are : (4 3 2 1 6 5 7), (4 3 1 2 6 5 7), (3 4 2 1 6 5 7), (3 4 1 2 6 5 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 29

1. Group Size is 12.

2. Elements are : (3 2 1 5 4 7 6), (3 1 2 5 4 7 6), (2 3 1 5 4 7 6), (1 3 2 5 4 7 6), (2 1 3 5 4 7 6), (1 2 3 5 4 7 6), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 30

1. Group Size is 12.

2. Elements are : (3 2 1 4 5 7 6), (3 1 2 4 5 7 6), (2 3 1 4 5 7 6), (1 3 2 4 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 31

1. Group Size is 12.

2. Elements are : (3 2 1 5 4 7 6), (3 1 2 5 4 7 6), (2 3 1 5 4 7 6), (1 3 2 5 4 7 6), (2 1 3 5 4 7 6), (1 2 3 5 4 7 6), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 32

1. Group Size is 20.

2. Elements are : (5 4 3 2 1 7 6), (5 3 4 1 2 7 6), (4 5 2 3 1 7 6), (3 5 1 4 2 7 6), (4 2 5 1 3 7 6), (3 1 5 2 4 7 6), (2 4 1 5 3 7 6), (1 3 2 5 4 7 6), (2 1 4 3 5 7 6), (1 2 3 4 5 7 6), (5 4 3 2 1 6 7), (5 3 4 1 2 6 7), (4 5 2 3 1 6 7), (3 5 1 4 2 6 7), (4 2 5 1 3 6 7), (3 1 5 2 4 6 7), (2 4 1 5 3 6 7), (1 3 2 5 4 6 7), (2 1 4 3 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 33

1. Group Size is 24.

2. Elements are : (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (4 2 3 1 5 6 7), (4 1 3 2 5 6 7), (4 2 1 3 5 6 7), (4 1 2 3 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 4 3 1 5 6 7), (1 4 3 2 5 6 7), (2 4 1 3 5 6 7), (1 4 2 3 5 6 7), (3 2 4 1 5 6 7), (3 1 4 2 5 6 7), (2 3 4 1 5 6 7), (1 3 4 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 34

1. Group Size is 48.

2. Elements are : (4 3 2 1 6 5 7), (4 3 1 2 6 5 7), (4 2 3 1 6 5 7), (4 1 3 2 6 5 7), (4 2 1 3 6 5 7), (4 1 2 3 6 5 7), (3 4 2 1 6 5 7), (3 4 1 2 6 5 7), (2 4 3 1 6 5 7), (1 4 3 2 6 5 7), (2 4 1 3 6 5 7), (1 4 2 3 6 5 7), (3 2 4 1 6 5 7), (3 1 4 2 6 5 7), (2 3 4 1 6 5 7), (1 3 4 2 6 5 7), (2 1 4 3 6 5 7), (1 2 4 3 6 5 7), (3 2 1 4 6 5 7), (3 1 2 4 6 5 7), (2 3 1 4 6 5 7), (1 3 2 4 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (4 2 3 1 5 6 7), (4 1 3 2 5 6 7), (4 2 1 3 5 6 7), (4 1 2 3 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 4 3 1 5 6 7), (1 4 3 2 5 6 7), (2 4 1 3 5 6 7), (1 4 2 3 5 6 7), (3 2 4 1 5 6 7), (3 1 4 2 5 6 7), (2 3 4 1 5 6 7), (1 3 4 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 35

1. Group Size is 48.

2. Elements are : (4 3 2 1 6 5 7), (4 3 1 2 6 5 7), (4 2 3 1 6 5 7), (4 1 3 2 6 5 7), (4 2 1 3 6 5 7), (4 1 2 3 6 5 7), (3 4 2 1 6 5 7), (3 4 1 2 6 5 7), (2 4 3 1 6 5 7), (1 4 3 2 6 5 7), (2 4 1 3 6 5 7), (1 4 2 3 6 5 7), (3 2 4 1 6 5 7), (3 1 4 2 6 5 7), (2 3 4 1 6 5 7), (1 3 4 2 6 5 7), (2 1 4 3 6 5 7), (1 2 4 3 6 5 7), (3 2 1 4 6 5 7), (3 1 2 4 6 5 7), (2 3 1 4 6 5 7), (1 3 2 4 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (4 2 3 1 5 6 7), (4 1 3 2 5 6 7), (4 2 1 3 5 6 7), (4 1 2 3 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 4 3 1 5 6 7), (1 4 3 2 5 6 7), (2 4 1 3 5 6 7), (1 4 2 3 5 6 7), (3 2 4 1 5 6 7), (3 1 4 2 5 6 7), (2 3 4 1 5 6 7), (1 3 4 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 36

1. Group Size is 120.

2. Elements are : (5 4 3 2 1 6 7), (5 4 3 1 2 6 7), (5 4 2 3 1 6 7), (5 4 1 3 2 6 7), (5 4 2 1 3 6 7), (5 4 1 2 3 6 7), (5 3 4 2 1 6 7), (5 3 4 1 2 6 7), (5 2 4 3 1 6 7), (5 1 4 3 2 6 7), (5 2 4 1 3 6 7), (5 1 4 2 3 6 7), (5 3 2 4 1 6 7), (5 3 1 4 2 6 7), (5 2 3 4 1 6 7), (5 1 3 4 2 6 7), (5 2 1 4 3 6 7), (5 1 2 4 3 6 7), (5 3 2 1 4 6 7), (5 3 1 2 4 6 7), (5 2 3 1 4 6 7), (5 1 3 2 4 6 7), (5 2 1 3 4 6 7), (5 1 2 3 4 6 7), (4 5 3 2 1 6 7), (4 5 3 1 2 6 7), (4 5 2 3 1 6 7), (4 5 1 3 2 6 7), (4 5 2 1 3 6 7), (4 5 1 2 3 6 7), (3 5 4 2 1 6 7), (3 5 4 1 2 6 7), (2 5 4 3 1 6 7), (1 5 4 3 2 6 7), (2 5 4 1 3 6 7), (1 5 4 2 3 6 7), (3 5 2 4 1 6 7), (3 5 1 4 2 6 7), (2 5 3 4 1 6 7), (1 5 3 4 2 6 7), (2 5 1 4 3 6 7), (1 5 2 4 3 6 7), (3 5 2 1 4 6 7), (3 5 1 2 4 6 7), (2 5 3 1 4 6 7), (1 5 3 2 4 6 7), (2 5 1 3 4 6 7), (1 5 2 3 4 6 7), (4 3 5 2 1 6 7), (4 3 5 1 2 6 7), (4 2 5 3 1 6 7), (4 1 5 3 2 6 7), (4 2 5 1 3 6 7), (4 1 5 2 3 6 7), (3 4 5 2 1 6 7), (3 4 5 1 2 6 7), (2 4 5 3 1 6 7), (1 4 5 3 2 6 7), (2 4 5 1 3 6 7), (1 4 5 2 3 6 7), (3 2 5 4 1 6 7), (3 1 5 4 2 6 7), (2 3 5 4 1 6 7), (1 3 5 4 2 6 7), (2 1 5 4 3 6 7), (1 2 5 4 3 6 7), (3 2 5

1 4 6 7), (3 1 5 2 4 6 7), (2 3 5 1 4 6 7), (1 3 5 2 4 6 7), (2 1 5 3 4 6 7), (1 2 5 3 4 6 7), (4 3 2 5 1 6 7), (4 3 1 5 2 6 7), (4 2 3 5 1 6 7), (4 1 3 5 2 6 7), (4 2 1 5 3 6 7), (4 1 2 5 3 6 7), (3 4 2 5 1 6 7), (3 4 1 5 2 6 7), (2 4 3 5 1 6 7), (1 4 3 5 2 6 7), (2 4 1 5 3 6 7), (1 4 2 5 3 6 7), (3 2 4 5 1 6 7), (3 1 4 5 2 6 7), (2 3 4 5 1 6 7), (1 3 4 5 2 6 7), (2 1 4 5 3 6 7), (1 2 4 5 3 6 7), (3 2 1 5 4 6 7), (3 1 2 5 4 6 7), (2 3 1 5 4 6 7), (1 3 2 5 4 6 7), (2 1 3 5 4 6 7), (1 2 3 5 4 6 7), (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (4 2 3 1 5 6 7), (4 1 3 2 5 6 7), (4 2 1 3 5 6 7), (4 1 2 3 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 4 3 1 5 6 7), (1 4 3 2 5 6 7), (2 4 1 3 5 6 7), (1 4 2 3 5 6 7), (3 2 4 1 5 6 7), (3 1 4 2 5 6 7), (2 3 4 1 5 6 7), (1 3 4 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

3 The two incidence matrix

Incidence between Orbit of Extreme rays and Orbits of Facets

	$F1$	$F2$	$F3$	$F4$	$F5$	$F6$	$F7$	$F8$	$F9$	$F10$	$F11$	$F12$	$F13$	$F14$	$F15$	$F16$	$F17$	$F18$	$F19$	$F20$	$F21$	$F22$	$F23$	$F24$	$F25$	$F26$	$F27$	$F28$	$F29$	$F30$	$F31$	$F32$	$F33$	$F34$	$F35$	$F36$	Inc
$E1$	75	126	18	180	96	36	12	156	792	720	720	792	792	648	720	720	720	720	324	324	288	324	324	240	216	240	180	216	108	132	168	72	84	18	30	12	11343
$E2$	80	130	20	220	80	60	0	180	720	960	960	600	720	840	840	840	960	840	420	420	540	480	600	360	360	240	240	120	140	120	20	60	10	60	40	10	13290
$E3$	90	150	20	180	150	15	15	180	1080	720	720	1440	1080	1440	1080	1080	720	1080	720	720	540	540	180	120	240	480	180	360	240	180	300	180	150	30	30	30	16460

Incidence between Orbits of Facets and Orbits of Extreme Rays

	$E1$	$E2$	$E3$	Inc
$F1$	25	16	6	47
$F2$	21	13	5	39
$F3$	18	12	4	34
$F4$	15	11	3	29
$F5$	16	8	5	29
$F6$	12	12	1	25
$F7$	20	0	5	25
$F8$	13	9	3	25
$F9$	11	6	3	20
$F10$	10	8	2	20
$F11$	10	8	2	20
$F12$	11	5	4	20
$F13$	11	6	3	20
$F14$	9	7	4	20
$F15$	10	7	3	20
$F16$	10	7	3	20
$F17$	10	8	2	20
$F18$	10	7	3	20
$F19$	9	7	4	20
$F20$	9	7	4	20
$F21$	8	9	3	20
$F22$	9	8	3	20
$F23$	9	10	1	20
$F24$	10	9	1	20
$F25$	9	9	2	20
$F26$	10	6	4	20
$F27$	10	8	2	20
$F28$	12	4	4	20
$F29$	9	7	4	20
$F30$	11	6	3	20
$F31$	14	1	5	20
$F32$	10	5	5	20
$F33$	14	1	5	20
$F34$	6	12	2	20
$F35$	10	8	2	20
$F36$	10	5	5	20