The Cone 44SMET7

13th January 2002

1 The intrisic informations concerning the graph of extreme rays of 44SMET7.ext

The graph considered is made of 39406 elements.
The group acting on 44SMET7.ext is Group4hmet7
Under the group action we have in fact only 37 orbits to consider.
The diameter of the graph is 3.
The list of orbits is with adjacency and Size info:

E1:	0	0	1	0	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	1	1	17163	7
E2:	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1486	105
E3:	0	3	3	3	3	0	3	3	3	3	3	3	3	3	4	3	3	3	3	4	4	1314	105
E4:	0	2	2	2	2	0	2	2	2	2	2	2	2	2	1	2	2	2	2	1	1	1228	105
E5:	0	2	2	2	2	1	2	2	1	2	2	2	2	1	2	2	2	2	2	1	1	343	252
E6:	0	8	8	8	8	0	8	8	8	8	8	8	8	8	4	8	8	8	8	4	9	294	315
E7:	0	4	4	4	4	2	4	4	2	2	4	4	4	4	4	4	4	4	4	4	5	238	210
E8:	0	4	4	4	4	2	4	4	2	5	4	4	4	5	5	4	4	4	5	5	3	153	630
E9:	1	2	4	3	3	2	3	4	4	1	3	4	4	3	4	3	4	4	3	4	2	120	1260
E10:	1	1	2	2	1	2	2	2	1	2	2	2	2	1	2	2	2	2	2	1	1	112	360
E11:	2	2	4	4	2	5	4	4	4	4	4	4	5	5	2	4	4	5	5	2	5	111	1260
E12:	1	1	3	2	2	2	2	3	3	1	2	3	3	1	3	2	3	3	2	3	3	108	630
E13:	0	8	8	8	8	4	8	8	4	8	8	8	8	4	8	8	8	8	8	4	9	95	1260
E14:	0	8	8	8	8	10	8	8	10	10	8	8	10	10	11	8	8	4	4	8	8	93	630
E15:	0	9	9	9	9	10	9	9	10	10	9	9	3	6	9	9	9	9	6	3	9	70	1260
E16:	1	1	1	2	2	2	2	2	2	1	2	2	2	1	1	2	2	2	2	2	2	63	70
E17:	2	2	4	4	2	4	4	4	2	2	4	4	4	4	4	4	4	4	4	4	5	61	252
E18:	2	4	8	6	6	4	6	8	8	2	6	8	8	6	8	6	8	8	6	8	9	49	1260
E19:	0	8	8	8	8	11	8	8	11	11	8	8	11	11	11	8	8	6	6	6	6	47	105
E20:	3	3	8	4	8	8	5	5	5	4	5	8	8	8	3	5	8	8	8	3	8	46	630
E21:	2	2	6	4	4	4	4	6	6	2	4	6	6	3	6	4	6	6	3	6	5	44	1260
E22:	1	2	4	3	3	3	3	4	3	3	3	4	4	1	4	3	4	4	2	3	4	40	2520
E23:	0	3	3	3	3	2	3	3	2	4	3	3	2	4	4	3	3	3	4	4	4	40	420
E24:	4	4	8	8	4	8	8	8	4	8	8	8	8	4	8	8	8	8	8	4	9	36	2520
E25:	2	6	9	8	8	4	8	8	8	8	8	9	9	4	6	8	9	9	8	2	9	35	2520
E26:	2	6	9	8	8	6	8	8	6	8	8	9	9	2	8	8	9	9	8	2	9	35	840
E27:	2	4	8	6	6	6	6	8	9	4	6	8	9	4	9	6	8	9	4	9	9	31	840
E28:	1	5	5	6	6	6	6	6	8	4	6	6	8	4	8	6	6	8	4	8	8	31	420
E29:	10	10	10	3	6	9	9	6	9	9	9	9	3	9	9	9	9	9	9	3	6	28	5040
E30:	12	12	12	12	12	8	12	16	16	4	4	16	16	12	16	8	17	16	12	16	16	24	5040
E31:	12	12	12	12	15	3	12	9	9	15	6	16	12	15	15	6	16	12	15	15	16	24	2520
E32:	1	3	3	4	4	4	4	4	5	2	4	4	5	2	5	4	4	5	4	5	5	24	1260
E33:	12	12	12	12	12	3	12	6	9	9	6	14	12	12	12	6	14	12	12	12	14	24	1260
E34:	12	12	25	16	16	16	16	24	24	8	16	24	24	8	24	8	24	24	16	24	24	24	1260
E35:	12	12	28	12	28	28	18	18	18	18	18	27	27	27	9	18	27	27	27	9	27	24	420
E36:	12	12	22	12	22	22	18	18	18	18	18	18	18	18	9	18	18	18	18	9	9	24	140
E37:	3	3	3	6	6	6	6	6	6	3	6	6	6	3	7	6	6	6	6	7	7	20	420

The representation matrix is:

	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17	E18	E19	E20	E21	E22	E23	E24	E25	E26	E27	E28	E29	E30	E31	E32	E33	E34	E35	E36	E37	Adj.	Size
E1	6	90	60	105	252	225	150	270	540	360	540	540	900	270	720	60	180	540	45	270	360	720	180	1800	1080	480	360	120	2160	1440	720	360	540	360	120	60	180	17163	7
E2	6	14	39	39	36	6	36	84	108	24	120	48	24	72	36	6	24	72	0	0	24	96	36	48	96	32	0	0	144	48	48	72	24	0	0	0	24	1486	105
E3	4	39	2	78	84	39	6	24	132	24	48	48	72	12	36	6	12	36	4	48	72	72	12	72	0	0	24	12	96	96	48	24	0	24	8	0	0	1314	105
E4	7	39	78	20	24	36	18	78	60	24	108	24	48	24	60	4	0	0	0	0	36	72	0	72	72	24	0	12	144	48	24	24	36	0	0	4	8	1228	105
E5	7	15	35	10	10	15	0	30	25	10	30	0	20	0	25	0	1	0	0	0	0	20	0	20	20	10	0	0	40	0	0	0	0	0	0	0	0	343	252
E6	5	2	13	12	12	2	6	10	32	8	20	0	8	12	8	0	4	12	0	0	4	24	0	16	24	8	0	0	16	16	8	0	4	8	0	0	0	294	315
E7	5	18	3	9	0	9	0	12	0	0	24	12	18	6	0	2	6	12	0	0	12	0	0	24	0	0	0	6	0	24	0	12	12	6	0	2	4	238	210
E8	3	14	4	13	12	5	4	4	4	8	10	4	8	5	4	0	0	0	1	0	2	8	2	8	0	0	4	2	8	8	4	2	2	0	0	0	0	153	630
E9	3	9	11	5	5	8	0	2	6	2	4	4	9	0	9	0	0	5	0	2	2	8	0	4	4	2	0	0	4	8	4	0	0	0	0	0	0	120	1260
E10	7	7	7	7	7	7	0	14	7	0	7	0	7	0	7	0	0	0	0	0	0	7	0	0	7	0	0	0	14	0	0	0	0	0	0	0	0	112	360
E11	3	10	4	9	6	5	4	5	4	2	5	2	8	5	4	0	0	0	1	0	2	4	2	0	6	2	2	2	4	4	2	2	2	0	0	0	0	111	1260
E12	6	8	8	4	0	0	4	4	8	0	4	4	0	4	0	1	0	8	0	5	6	4	4	0	0	0	4	0	0	8	4	4	0	4	2	0	0	108	630
E13	5	2	6	4	4	2	3	4	9	2	8	0	4	5	1	0	2	4	0	0	0	4	0	8	4	2	0	0	4	8	0	0	0	0	0	0	0	95	1260
E14	3	12	2	4	0	6	2	5	0	0	10	4	10	0	0	0	2	4	1	0	0	0	2	8	0	0	4	2	0	8	0	2	0	2	0	0	0	93	630
E15	4	3	3	5	5	2	0	2	9	2	4	0	1	0	2	0	0	0	0	0	0	4	0	0	4	2	0	0	12	0	4	0	2	0	0	0	0	70	1260
E16	6	9	9	6	0	0	6	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	63	70
E17	5	10	5	0	1	5	5	0	0	0	0	0	10	5	0	0	0	5	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	61	252
E18	3	6	3	0	0	3	2	0	5	0	0	4	4	2	0	0	1	2	0	2	0	0	0	2	0	0	0	0	0	8	0	0	0	2	0	0	0	49	1260
E19	3	0	4	0	0	0	0	6	0	0	12	0	0	6	0	0	0	0	0	0	0	0	4	0	0	0	8	4	0	0	0	0	0	0	0	0	0	47	105
E20	3	0	8	0	0	0	0	0	4	0	0	5	0	0	0	0	0	4	0	4	6	0	0	0	0	0	4	0	0	0	0	0	0	6	2	0	0	46	630
E21	2	2	6	3	0	1	2	1	2	0	2	3	0	0	0	0	0	0	0	3	2	4	0	0	0	0	2	0	0	4	2	0	0	2	1	0	0	44	1260
E22	2	4	3	3	2	3	0	2	4	1	2	1	2	0	2	0	0	0	0	0	2	2	0	0	1	0	0	0	0	2	2	0	0	0	0	0	0	40	2520
E23	3	9	3	0	0	0	0	3	0	0	6	6	0	3	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	0	3	0	0	0	0	0	40	420
E24	5	2	3	3	2	2	2	2	2	0	0	0	4	2	0	0	1	1	0	0	0	0	0	0	1	0	0	0	2	2	0	0	0	0	0	0	0	36	2520
E25	3	4	0	3	2	3	0	0	2	1	3	0	2	0	2	0	0	0	0	0	0	1	0	1	4	2	0	0	2	0	0	0	0	0	0	0	0	35	2520
E26	4	4	0	3	3	3	0	0	3	0	3	0	3	0	3	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	35	840
E27	3	0	3	0	0	0	0	3	0	0	3	3	0	3	0	0	0	0	1	3	3	0	1	0	0	0	0	1	0	0	0	0	0	3	1	0	0	31	840
E28	2	0	3	3	0	0	3	3	0	0	6	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	0	3	0	0	0	1	0	31	420
E29	3	3	2	3	2	1	0	1	1	1	1	0	1	0	3	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	0	1	0	1	0	0	0	28	5040
E30	2	1	2	1	0	1	1	1	2	0	1	1	2	1	0	0	0	2	0	0	1	1	0	1	0	0	0	0	0	1	1	0	0	1	0	0	0	24	5040
E31	2	2	2	1	0	1	0	1	2	0	1	1	0	0	2	0	0	0	0	0	1	2	0	0	0	0	0	0	2	2	1	0	0	0	1	0	0	24	2520
E32	2	6	2	2	0	0	2	1	0	0	2	2	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	24	1260
E33	3	2	0	3	0	1	2	1	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	1	1	24	1260
E34	2	0	2	0	0	2	1	0	0	0	0	2	0	1	0	0	0	2	0	3	2	0	0	0	0	0	2	0	0	4	0	0	0	0	1	0	0	24	1260
E35	2	0	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	3	0	0	0	0	0	2	0	0	0	6	0	0	3	0	0	0	24	420
E36	3	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	9	0	0	0	3	24	140
E37	3	6	0	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	3	3	0	0	1	0	20	420
Size	7	105	105	105	252	315	210	630	1260	360	1260	630	1260	630	1260	70	252	1260	105	630	1260	2520	420	2520	2520	840	840	420	5040	5040	2520	1260	1260	1260	420	140	420		39406

1.1 The local graphs

The complemented local graph are:
We consider graph with cardinal inferior or equal to 20
The complemented local graph for orbit 37 is:

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

1.2 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 7.
2. Norm of elements is 15.
3. Possible scalar product : 10

Considering Orbit 2

1. Orbit Size is 105.
2. Norm of elements is 18.
3. Possible scalar product : 15, 16, 17

Considering Orbit 3

1. Orbit Size is 105.
2. Norm of elements is 192.
3. Possible scalar product : 165, 168, 171, 172, 174, 181

Considering Orbit 4

1. Orbit Size is 105.
2. Norm of elements is 67.
3. Possible scalar product : 56, 57, 58, 59, 60, 61, 64

Considering Orbit 5

1. Orbit Size is 252.
2. Norm of elements is 65.
3. Possible scalar product : 56, 57, 58, 59, 60, 61, 62, 63

Considering Orbit 6

1. Orbit Size is 315.
2. Norm of elements is 1137.
3. Possible scalar product : 960, 968, 972, 976, 977, 984, 992, 1000, 1008, 1009, 1024, 1036, 1040, 1041, 1056, 1064, 1104, 1112

Considering Orbit 7

1. Orbit Size is 210.
2. Norm of elements is 293.
3. Possible scalar product : 260, 262, 264, 266, 268, 269, 270, 272, 276, 280, 281, 284

Considering Orbit 8

1. Orbit Size is 630.

2. Norm of elements is 334.

3. Possible scalar product : 292, 294, 295, 296, 297, 298, 299, 300, 301, 303, 305, 306, 307, 309, 310, 311, 312, 313, 315, 317, 319, 321, 322, 323, 326

Considering Orbit 9

1. Orbit Size is 1260.

2. Norm of elements is 221.

3. Possible scalar product : 192, 194, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 213, 214, 215, 219

Considering Orbit 10

1. Orbit Size is 360.

2. Norm of elements is 63.

3. Possible scalar product : 56, 57, 58, 59, 60, 61

Considering Orbit 11

1. Orbit Size is 1260.

2. Norm of elements is 330.

3. Possible scalar product : 293, 295, 296, 297, 299, 300, 301, 303, 304, 305, 307, 308, 309, 310, 311, 313, 314, 315, 317, 318, 319, 322, 323

Considering Orbit 12

1. Orbit Size is 630.

2. Norm of elements is 122.

3. Possible scalar product : 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 118, 119, 120, 121

Considering Orbit 13

1. Orbit Size is 1260.

2. Norm of elements is 1105.

3. Possible scalar product : 964, 968, 972, 976, 977, 984, 988, 992, 993, 996, 1004, 1008, 1009, 1012, 1016, 1024, 1032, 1036, 1040, 1041, 1048, 1052, 1056, 1057, 1068, 1072, 1073, 1080, 1088

Considering Orbit 14

1. Orbit Size is 630.

2. Norm of elements is 1421.

3. Possible scalar product : 1240, 1244, 1248, 1252, 1256, 1260, 1262, 1264, 1268, 1270, 1272, 1273, 1276, 1280, 1284, 1286, 1288, 1292, 1294, 1298, 1300, 1302, 1304, 1305, 1308, 1310, 1312, 1318, 1321, 1324, 1325, 1326, 1329, 1332, 1340, 1342, 1346, 1350, 1376, 1377, 1388, 1404

Considering Orbit 15

1. Orbit Size is 1260.

2. Norm of elements is 1443.

3. Possible scalar product : 1251, 1252, 1254, 1255, 1257, 1258, 1260, 1261, 1263, 1264, 1266, 1267, 1269, 1270, 1272, 1275, 1276, 1278, 1279, 1281, 1282, 1284, 1285, 1287, 1288, 1290, 1291, 1293, 1296, 1297, 1299, 1300, 1302, 1303, 1305, 1306, 1308, 1311, 1312, 1314, 1315, 1317, 1320, 1323, 1324, 1326, 1329, 1332, 1333, 1336, 1338, 1341, 1342, 1348, 1350, 1354, 1356, 1357, 1359, 1360, 1362, 1365, 1369, 1371, 1374, 1378, 1383, 1384, 1386, 1387, 1389, 1392, 1396, 1407, 1410, 1414, 1417, 1423, 1425, 1426

Considering Orbit 16

1. Orbit Size is 70.

2. Norm of elements is 66.

3. Possible scalar product : 61, 62, 64

Considering Orbit 17

1. Orbit Size is 252.

2. Norm of elements is 285.

3. Possible scalar product : 262, 264, 265, 266, 268, 272, 273, 276, 277

Considering Orbit 18

1. Orbit Size is 1260.

2. Norm of elements is 949.

3. Possible scalar product : 828, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 865, 866, 868, 869, 870, 872, 873, 874, 876, 877, 878, 880, 881, 882, 884, 885, 886, 888, 889, 890, 894, 896, 897, 900, 904, 905, 908, 916, 917, 921, 924, 925, 932, 940, 941

Considering Orbit 19

1. Orbit Size is 105.

2. Norm of elements is 1510.

3. Possible scalar product : 1320, 1345, 1365, 1385, 1415, 1430, 1435

Considering Orbit 20

1. Orbit Size is 630.

2. Norm of elements is 833.

3. Possible scalar product : 716, 718, 719, 720, 721, 722, 724, 749, 750, 751, 752, 753, 754, 756, 757, 758, 759, 760, 761, 762, 764, 766, 768, 769, 770, 771, 773, 774, 817, 819, 823, 825, 827, 831

Considering Orbit 21

1. Orbit Size is 1260.

2. Norm of elements is 475.

3. Possible scalar product : 413, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 449, 460, 461, 462, 464, 466, 467, 468, 469, 470, 472, 473

Considering Orbit 22

1. Orbit Size is 2520.
2. Norm of elements is 219.
3. Possible scalar product : 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217

Considering Orbit 23

1. Orbit Size is 420.
2. Norm of elements is 207.
3. Possible scalar product : 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 192, 193, 194, 195, 196, 198, 206

Considering Orbit 24

1. Orbit Size is 2520.
2. Norm of elements is 1073.
3. Possible scalar product : 968, 972, 976, 977, 984, 988, 992, 993, 1000, 1004, 1008, 1009, 1016, 1020, 1024, 1025, 1036, 1040, 1041, 1048, 1056

Considering Orbit 25

1. Orbit Size is 2520.
2. Norm of elements is 1174.
3. Possible scalar product : 1033, 1035, 1037, 1039, 1041, 1043, 1044, 1045, 1047, 1048, 1049, 1051, 1052, 1053, 1055, 1056, 1057, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1071, 1072, 1073, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1122, 1125, 1126, 1127, 1128, 1129, 1131, 1132, 1133, 1134, 1135, 1137, 1139, 1141, 1142, 1143, 1145, 1147, 1150, 1153, 1154, 1155, 1159, 1162, 1163, 1166

Considering Orbit 26

1. Orbit Size is 840.
2. Norm of elements is 1182.
3. Possible scalar product : 1035, 1037, 1041, 1043, 1044, 1045, 1047, 1048, 1051, 1053, 1055, 1056, 1057, 1060, 1061, 1063, 1065, 1067, 1071, 1072, 1073, 1074, 1075, 1077, 1079, 1080, 1081, 1083, 1085, 1086, 1087, 1089, 1091, 1092, 1093, 1095, 1096, 1097, 1099, 1107, 1108, 1109, 1110, 1111, 1115, 1120, 1121, 1122, 1123, 1128, 1131, 1135, 1145, 1151, 1152, 1158, 1161, 1171

Considering Orbit 27

1. Orbit Size is 840.
2. Norm of elements is 1026.
3. Possible scalar product : 896, 900, 901, 904, 905, 909, 913, 915, 917, 921, 925, 927, 929, 931, 933, 935, 937, 939, 941, 943, 945, 947, 949, 951, 953, 954, 955, 957, 958, 959, 961, 962, 963, 966, 969, 971, 975, 977, 991, 994, 995, 998, 1002, 1003, 1007, 1015, 1018, 1019

Considering Orbit 28

1. Orbit Size is 420.
2. Norm of elements is 807.
3. Possible scalar product : 718, 720, 721, 724, 728, 731, 734, 736, 737, 738, 740, 741, 742, 743, 747, 748, 749, 752, 756, 757, 761, 766, 767, 769, 771, 772, 776, 779, 801

Considering Orbit 29

1. Orbit Size is 5040.
2. Norm of elements is 1407.
3. Possible scalar product : 1251, 1254, 1255, 1257, 1258, 1260, 1261, 1263, 1264, 1266, 1267, 1269, 1270, 1272, 1273, 1275, 1276, 1278, 1279, 1281, 1282, 1284, 1285, 1287, 1288, 1290, 1291, 1293, 1294, 1296, 1297, 1299, 1300, 1302, 1303, 1305, 1306, 1308, 1309, 1311, 1312, 1314, 1315, 1317, 1318, 1320, 1321, 1323, 1324, 1326, 1327, 1329, 1330, 1332, 1333, 1335, 1336, 1338, 1339, 1341, 1342, 1344, 1345, 1347, 1348, 1350, 1351, 1353, 1354, 1356, 1357, 1359, 1360, 1362, 1363, 1365, 1368, 1369, 1371, 1372, 1374, 1375, 1377, 1378, 1380, 1381, 1383, 1384, 1387, 1389, 1390, 1396

Considering Orbit 30

1. Orbit Size is 5040.
2. Norm of elements is 3649.
3. Possible scalar product : 3208, 3216, 3220, 3224, 3228, 3232, 3236, 3240, 3244, 3248, 3252, 3256, 3260, 3264, 3268, 3272, 3276, 3280, 3284, 3288, 3292, 3296, 3297, 3300, 3304, 3308, 3312, 3313, 3316, 3320, 3324, 3328, 3329, 3332, 3336, 3340, 3344, 3345, 3348, 3352, 3356, 3360, 3361, 3364, 3368, 3372, 3376, 3377, 3380, 3384, 3388, 3392, 3393, 3396, 3400, 3404, 3408, 3409, 3412, 3416, 3420, 3424, 3425, 3428, 3432, 3436, 3440, 3441, 3444, 3448, 3452, 3456, 3457, 3460, 3464, 3468, 3472, 3473, 3476, 3480, 3484, 3488, 3489, 3496, 3500, 3504, 3505, 3512, 3516, 3520, 3521, 3532, 3536, 3537, 3548, 3552, 3553, 3564, 3568, 3569, 3584, 3592, 3596, 3600, 3601, 3612, 3616, 3617, 3624, 3632

Considering Orbit 31

1. Orbit Size is 2520.
2. Norm of elements is 3369.
3. Possible scalar product : 2985, 2988, 2989, 2992, 2997, 3000, 3003, 3004, 3006, 3009, 3010, 3012, 3013, 3015, 3016, 3018, 3021, 3024, 3025, 3027, 3030, 3031, 3033, 3034, 3036, 3037, 3039, 3040, 3042, 3043, 3045, 3046, 3048, 3049, 3051, 3052, 3054, 3055, 3057, 3058, 3060, 3061, 3063, 3064, 3066, 3067, 3069, 3070, 3072, 3073, 3075, 3076, 3078, 3079, 3081, 3082, 3084, 3085, 3087, 3088, 3090, 3091, 3093, 3094, 3096, 3097, 3099, 3100, 3102, 3103, 3105, 3106, 3108, 3109, 3111, 3112, 3114, 3115, 3117, 3118, 3120, 3121, 3123, 3124, 3126, 3127, 3129, 3130, 3132, 3133, 3135, 3136, 3138, 3141, 3142, 3144, 3145, 3147, 3148, 3150, 3151, 3153, 3154, 3156, 3157, 3159, 3160, 3162, 3163, 3165, 3166, 3168, 3169, 3171, 3172, 3174, 3177, 3178, 3180, 3181, 3184, 3187, 3189, 3190, 3193, 3196, 3198, 3199, 3202, 3204, 3205, 3207, 3208, 3210, 3214, 3216, 3217, 3219, 3220, 3223, 3225, 3226, 3228, 3232, 3234, 3235, 3238, 3240, 3244, 3250, 3252, 3261, 3265, 3268, 3274, 3277, 3280, 3288, 3297, 3300, 3304, 3306, 3312, 3313, 3358

Considering Orbit 32

1. Orbit Size is 1260.
2. Norm of elements is 337.

3. Possible scalar product : 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 329, 330, 331, 333, 335

Considering Orbit 33

1. Orbit Size is 1260.

2. Norm of elements is 2595.

3. Possible scalar product : 2316, 2340, 2346, 2352, 2358, 2361, 2364, 2370, 2373, 2376, 2377, 2379, 2380, 2382, 2383, 2386, 2388, 2389, 2392, 2394, 2395, 2397, 2398, 2400, 2401, 2404, 2406, 2407, 2412, 2413, 2415, 2416, 2418, 2419, 2421, 2424, 2425, 2427, 2430, 2431, 2433, 2434, 2436, 2437, 2440, 2442, 2443, 2448, 2449, 2451, 2452, 2454, 2455, 2457, 2460, 2461, 2463, 2469, 2473, 2478, 2479, 2484, 2485, 2487, 2488, 2491, 2497, 2502, 2505, 2508, 2521, 2523, 2524, 2527, 2541, 2569

Considering Orbit 34

1. Orbit Size is 1260.

2. Norm of elements is 7825.

3. Possible scalar product : 6768, 6792, 6800, 6808, 6812, 6816, 6824, 6832, 6840, 6844, 6848, 6852, 6856, 6864, 6872, 6876, 6880, 6884, 6888, 6896, 6897, 6912, 6916, 6920, 6944, 6948, 6952, 6960, 6961, 7024, 7025, 7056, 7072, 7076, 7088, 7089, 7096, 7100, 7104, 7108, 7112, 7120, 7121, 7128, 7136, 7140, 7144, 7152, 7153, 7160, 7164, 7168, 7172, 7176, 7184, 7185, 7192, 7200, 7204, 7208, 7216, 7217, 7224, 7240, 7264, 7268, 7272, 7280, 7296, 7304, 7312, 7313, 7328, 7332, 7344, 7345, 7360, 7376, 7377, 7409, 7600, 7601, 7616, 7632, 7664, 7696, 7697, 7712, 7728, 7729, 7744, 7760, 7792, 7808

Considering Orbit 35

1. Orbit Size is 420.

2. Norm of elements is 9993.

3. Possible scalar product : 8685, 8691, 8724, 8727, 8728, 8730, 8742, 8796, 8829, 8833, 8839, 8844, 8848, 8854, 8913, 9000, 9043, 9054, 9073, 9079, 9102, 9109, 9129, 9156, 9162, 9178, 9180, 9208, 9249, 9298, 9319, 9342, 9388, 9426, 9723, 9756, 9829, 9874, 9936

Considering Orbit 36

1. Orbit Size is 140.

2. Norm of elements is 6015.

3. Possible scalar product : 5400, 5580, 5610, 5665, 5685, 5740, 5745, 5760, 5785, 5815

Considering Orbit 37

1. Orbit Size is 420.

2. Norm of elements is 660.

3. Possible scalar product : 594, 606, 609, 613, 615, 616, 618, 619, 622, 624, 627, 628, 630, 631, 633, 640, 642, 643, 651

1.3 invariant group of Orbits

The invariant group of x is the set of g such that $g(x) = x$ denoted by G_x.
If x and y are in the same orbit then the groups G_x and G_y are conjuguate.
For any element x we denote O_x its Orbit, we have $|O_x| \times |G_x| = |G|$ We print only nontrivial groups
Invariant group of Orbit 1:

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

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

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), (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 2:

1. Group Size is 48.

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

1. Group Size is 48.

2. Elements are : (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 4), (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 4 5), (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 4), (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 4 5), (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 4:

1. Group Size is 48.

2. Elements are : (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 4), (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 4 5), (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 4), (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 4 5), (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 5:

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 6:

1. Group Size is 16.
2. Elements are : (2 1 3 7 6 5 4), (1 2 3 7 6 5 4), (2 1 3 7 6 4 5), (1 2 3 7 6 4 5), (2 1 3 6 7 5 4), (1 2 3 6 7 5 4), (2 1 3 6 7 4 5), (1 2 3 6 7 4 5), (2 1 3 5 4 7 6), (1 2 3 5 4 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (2 1 3 5 4 6 7), (1 2 3 5 4 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 24.
2. Elements are : (2 1 5 4 3 7 6), (1 2 5 4 3 7 6), (2 1 5 3 4 7 6), (1 2 5 3 4 7 6), (2 1 4 5 3 7 6), (1 2 4 5 3 7 6), (2 1 3 5 4 7 6), (1 2 3 5 4 7 6), (2 1 4 3 5 7 6), (1 2 4 3 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (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 8:

1. Group Size is 8.
2. Elements are : (2 1 4 3 5 7 6), (1 2 4 3 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (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 9:

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

Invariant group of Orbit 10:

1. Group Size is 14.
2. Elements are : (7 6 5 4 3 2 1), (7 5 6 3 4 1 2), (6 7 4 5 2 3 1), (5 7 3 6 1 4 2), (6 4 7 2 5 1 3), (5 3 7 1 6 2 4), (4 6 2 7 1 5 3), (3 5 1 7 2 6 4), (4 2 6 1 7 3 5), (3 1 5 2 7 4 6), (2 4 1 6 3 7 5), (1 3 2 5 4 7 6), (2 1 4 3 6 5 7), (1 2 3 4 5 6 7)

Invariant group of Orbit 11:

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

Invariant group of Orbit 12:

1. Group Size is 8.

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

Invariant group of Orbit 13:

1. Group Size is 4.

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

Invariant group of Orbit 14:

1. Group Size is 8.

2. Elements are : (1 3 2 5 4 7 6), (1 2 3 5 4 7 6), (1 3 2 4 5 7 6), (1 2 3 4 5 7 6), (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 15:

1. Group Size is 4.

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

Invariant group of Orbit 16:

1. Group Size is 72.

2. Elements are : (1 7 6 5 4 3 2), (1 7 6 5 4 2 3), (1 7 6 5 3 4 2), (1 7 6 5 2 4 3), (1 7 6 5 3 2 4), (1 7 6 5 2 3 4), (1 7 5 6 4 3 2), (1 7 5 6 4 2 3), (1 7 5 6 3 4 2), (1 7 5 6 2 4 3), (1 7 5 6 3 2 4), (1 7 5 6 2 3 4), (1 6 7 5 4 3 2), (1 6 7 5 4 2 3), (1 6 7 5 3 4 2), (1 6 7 5 2 4 3), (1 6 7 5 3 2 4), (1 6 7 5 2 3 4), (1 5 7 6 4 3 2), (1 5 7 6 4 2 3), (1 5 7 6 3 4 2), (1 5 7 6 2 4 3), (1 5 7 6 3 2 4), (1 5 7 6 2 3 4), (1 6 5 7 4 3 2), (1 6 5 7 4 2 3), (1 6 5 7 3 4 2), (1 6 5 7 2 4 3), (1 6 5 7 3 2 4), (1 6 5 7 2 3 4), (1 5 6 7 4 3 2), (1 5 6 7 4 2 3), (1 5 6 7 3 4 2), (1 5 6 7 2 4 3), (1 5 6 7 3 2 4), (1 5 6 7 2 3 4), (1 4 3 2 7 6 5), (1 4 2 3 7 6 5), (1 3 4 2 7 6 5), (1 2 4 3 7 6 5), (1 3 2 4 7 6 5), (1 2 3 4 7 6 5), (1 4 3 2 7 5 6), (1 4 2 3 7 5 6), (1 3 4 2 7 5 6), (1 2 4 3 7 5 6), (1 3 2 4 7 5 6), (1 2 3 4 7 5 6), (1 4 3 2 6 7 5), (1 4 2 3 6 7 5), (1 3 4 2 6 7 5), (1 2 4 3 6 7 5), (1 3 2 4 6 7 5), (1 2 3 4 6 7 5), (1 4 3 2 5 7 6), (1 4 2 3 5 7 6), (1 3 4 2 5 7 6), (1 2 4 3 5 7 6), (1 3 2 4 5 7 6), (1 2 3 4 5 7 6), (1 4 3 2 6 5 7), (1 4 2 3 6 5 7), (1 3 4 2 6 5 7), (1 2 4 3 6 5 7), (1 3 2 4 6 5 7), (1 2 3 4 6 5 7), (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 17:

1. Group Size is 20.

2. Elements are : (2 1 7 6 5 4 3), (1 2 7 6 5 4 3), (2 1 7 5 6 3 4), (1 2 7 5 6 3 4), (2 1 6 7 4 5 3), (1 2 6 7 4 5 3), (2 1 5 7 3 6 4), (1 2 5 7 3 6 4), (2 1 6 4 7 3 5), (1 2 6 4 7 3 5), (2 1 5 3 7 4 6), (1 2 5 3 7 4 6), (2 1 4 6 3 7 5), (1 2 4 6 3 7 5), (2 1 3 5 4 7 6), (1 2 3 5 4 7 6), (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 18:

1. Group Size is 4.

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

Invariant group of Orbit 19:

1. Group Size is 48.

2. Elements are : (1 5 4 3 2 7 6), (1 5 4 2 3 7 6), (1 5 3 4 2 7 6), (1 5 2 4 3 7 6), (1 5 3 2 4 7 6), (1 5 2 3 4 7 6), (1 4 5 3 2 7 6), (1 4 5 2 3 7 6), (1 3 5 4 2 7 6), (1 2 5 4 3 7 6), (1 3 5 2 4 7 6), (1 2 5 3 4 7 6), (1 4 3 5 2 7 6), (1 4 2 5 3 7 6), (1 3 4 5 2 7 6), (1 2 4 5 3 7 6), (1 3 2 5 4 7 6), (1 2 3 5 4 7 6), (1 4 3 2 5 7 6), (1 4 2 3 5 7 6), (1 3 4 2 5 7 6), (1 2 4 3 5 7 6), (1 3 2 4 5 7 6), (1 2 3 4 5 7 6), (1 5 4 3 2 6 7), (1 5 4 2 3 6 7), (1 5 3 4 2 6 7), (1 5 2 4 3 6 7), (1 5 3 2 4 6 7), (1 5 2 3 4 6 7), (1 4 5 3 2 6 7), (1 4 5 2 3 6 7), (1 3 5 4 2 6 7), (1 2 5 4 3 6 7), (1 3 5 2 4 6 7), (1 2 5 3 4 6 7), (1 4 3 5 2 6 7), (1 4 2 5 3 6 7), (1 3 4 5 2 6 7), (1 2 4 5 3 6 7), (1 3 2 5 4 6 7), (1 2 3 5 4 6 7), (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 20:

1. Group Size is 8.
2. Elements are : (6 5 7 4 2 1 3), (6 5 7 4 1 2 3), (5 6 7 4 2 1 3), (5 6 7 4 1 2 3), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7)

Invariant group of Orbit 21:

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

Invariant group of Orbit 22:

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

Invariant group of Orbit 23:

1. Group Size is 12.
2. Elements are : (1 4 3 2 5 7 6), (1 4 2 3 5 7 6), (1 3 4 2 5 7 6), (1 2 4 3 5 7 6), (1 3 2 4 5 7 6), (1 2 3 4 5 7 6), (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 24:

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 25:

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

Invariant group of Orbit 26:

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

Invariant group of Orbit 27:

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 28:

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

Invariant group of Orbit 32:

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

Invariant group of Orbit 33:

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

Invariant group of Orbit 35:

1. Group Size is 12.
2. Elements are : (2 1 3 6 5 4 7), (1 2 3 6 5 4 7), (2 1 3 6 4 5 7), (1 2 3 6 4 5 7), (2 1 3 5 6 4 7), (1 2 3 5 6 4 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (2 1 3 5 4 6 7), (1 2 3 5 4 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 36.
2. Elements are : (3 2 1 6 5 4 7), (3 1 2 6 5 4 7), (2 3 1 6 5 4 7), (1 3 2 6 5 4 7), (2 1 3 6 5 4 7), (1 2 3 6 5 4 7), (3 2 1 6 4 5 7), (3 1 2 6 4 5 7), (2 3 1 6 4 5 7), (1 3 2 6 4 5 7), (2 1 3 6 4 5 7), (1 2 3 6 4 5 7), (3 2 1 5 6 4 7), (3 1 2 5 6 4 7), (2 3 1 5 6 4 7), (1 3 2 5 6 4 7), (2 1 3 5 6 4 7), (1 2 3 5 6 4 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), (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 37:

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

2 The intrisic informations concerning the graph of facet rays of 44SMET7.ine

The graph considered is made of 42 elements.
The group acting on 44SMET7.ine is Group4hmet7
Under the group action we have in fact only 1 orbits to consider.
The diameter of the graph is 1.
The list of orbits is with adjacency and Size info:

F1: -4 0 1 0 1 0 0 1 0 0 0 1 0 0 0 0 1 0 0 0 0 | 41 | 42

The representation matrix is:

	F1	Adj.	Size
F1	41	41	42
Size	42		42

No complemented local graph of size inferior to 20.

2.1 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 42.
2. Norm of elements is 21.
3. Possible scalar product : -4, 1, 16

2.2 invariant group of Orbits

The invariant group of x is the set of g such that $g(x) = x$ denoted by G_x.
If x and y are in the same orbit then the groups G_x and G_y are conjuguate.
For any element x we denote O_x its Orbit, we have $|O_x| \times |G_x| = |G|$ We print only nontrivial groups
Invariant group of Orbit 1:

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

	$F1$	Inc
$E1$	36	36
$E2$	30	30
$E3$	26	26
$E4$	32	32
$E5$	30	30
$E6$	26	26
$E7$	24	24
$E8$	24	24
$E9$	26	26
$E10$	28	28
$E11$	24	24
$E12$	24	24
$E13$	24	24
$E14$	22	22
$E15$	24	24
$E16$	24	24
$E17$	22	22
$E18$	22	22
$E19$	24	24
$E20$	26	26
$E21$	25	25
$E22$	24	24
$E23$	22	22
$E24$	22	22
$E25$	24	24
$E26$	24	24
$E27$	23	23
$E28$	23	23
$E29$	22	22
$E30$	21	21
$E31$	21	21
$E32$	21	21
$E33$	21	21
$E34$	21	21
$E35$	21	21
$E36$	21	21
$E37$	20	20

Incidence between Orbits of Facets and Orbits of Extreme Rays

	$E1$	$E2$	$E3$	$E4$	$E5$	$E6$	$E7$	$E8$	$E9$	$E10$	$E11$	$E12$	$E13$	$E14$	$E15$	$E16$	$E17$	$E18$	$E19$	$E20$	$E21$	$E22$	$E23$	$E24$	$E25$	$E26$	$E27$	$E28$	$E29$	$E30$	$E31$	$E32$	$E33$	$E34$	$E35$	$E36$	E
$F1$	6	75	65	80	180	195	120	360	780	240	720	360	720	330	720	40	132	660	60	390	750	1440	220	1320	1440	480	460	230	2640	2520	1260	630	630	630	210	70	