

# Rank-65570 over GF(16)

January 15, 2021

## The equation

The equation of the surface is :

$$X_0^3 + X_1^3 + X_2^3 + X_3^3 + X_0^2 X_1 + X_0 X_1 X_2 = 0$$

( 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0 )

The point rank of the equation over GF(16) is 286401062

## General information

Number of lines	3
Number of points	241
Number of singular points	0
Number of Eckardt points	1
Number of double points	0
Number of single points	48
Number of points off lines	192
Number of Hesse planes	0
Number of axes	0
Type of points on lines	$17^3$
Type of lines on points	$3, 1^{48}, 0^{192}$

## Singular Points

The surface has 0 singular points:

## The 3 Lines

The lines and their Pluecker coordinates are:

$$\begin{aligned}\ell_0 &= \left[ \begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{array} \right]_{289} = \left[ \begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{array} \right]_{289} = \mathbf{Pl}(1, 1, 0, 0, 1, 1)_{8961} \\ \ell_1 &= \left[ \begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & \delta^5 \end{array} \right]_{449} = \left[ \begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 11 \end{array} \right]_{449} = \mathbf{Pl}(10, 11, 0, 0, 11, 1)_{49770}\end{aligned}$$

$$\ell_2 = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & \delta^{10} \end{bmatrix}_{433} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 10 \end{bmatrix}_{433} = \mathbf{PI}(11, 10, 0, 0, 10, 1)_{45691}$$

Rank of lines: ( 289, 449, 433 )

Rank of points on Klein quadric: ( 8961, 49770, 45691 )

### Eckardt Points

The surface has 1 Eckardt points:

$0 : P_{20} = \mathbf{P}(1, 0, 1, 0) = \mathbf{P}(1, 0, 1, 0)$ .

### Double Points

The surface has 0 Double points:

The double points on the surface are:

### Single Points

The surface has 48 single points:

The single points on the surface are:

- |   |   |
|---|---|
| 0 : $P_4 = (1, 1, 1, 1)$ lies on line $\ell_0$        | 25 : $P_{2489} = (8, 10, 8, 1)$ lies on line $\ell_1$   |
| 1 : $P_{290} = (0, 1, 0, 1)$ lies on line $\ell_0$    | 26 : $P_{2505} = (8, 11, 8, 1)$ lies on line $\ell_2$   |
| 2 : $P_{434} = (0, 10, 0, 1)$ lies on line $\ell_1$   | 27 : $P_{2602} = (9, 1, 9, 1)$ lies on line $\ell_0$    |
| 3 : $P_{450} = (0, 11, 0, 1)$ lies on line $\ell_2$   | 28 : $P_{2746} = (9, 10, 9, 1)$ lies on line $\ell_1$   |
| 4 : $P_{690} = (1, 10, 1, 1)$ lies on line $\ell_1$   | 29 : $P_{2762} = (9, 11, 9, 1)$ lies on line $\ell_2$   |
| 5 : $P_{706} = (1, 11, 1, 1)$ lies on line $\ell_2$   | 30 : $P_{2859} = (10, 1, 10, 1)$ lies on line $\ell_0$  |
| 6 : $P_{803} = (2, 1, 2, 1)$ lies on line $\ell_0$    | 31 : $P_{3003} = (10, 10, 10, 1)$ lies on line $\ell_1$ |
| 7 : $P_{947} = (2, 10, 2, 1)$ lies on line $\ell_1$   | 32 : $P_{3019} = (10, 11, 10, 1)$ lies on line $\ell_2$ |
| 8 : $P_{963} = (2, 11, 2, 1)$ lies on line $\ell_2$   | 33 : $P_{3116} = (11, 1, 11, 1)$ lies on line $\ell_0$  |
| 9 : $P_{1060} = (3, 1, 3, 1)$ lies on line $\ell_0$   | 34 : $P_{3260} = (11, 10, 11, 1)$ lies on line $\ell_1$ |
| 10 : $P_{1204} = (3, 10, 3, 1)$ lies on line $\ell_1$ | 35 : $P_{3276} = (11, 11, 11, 1)$ lies on line $\ell_2$ |
| 11 : $P_{1220} = (3, 11, 3, 1)$ lies on line $\ell_2$ | 36 : $P_{3373} = (12, 1, 12, 1)$ lies on line $\ell_0$  |
| 12 : $P_{1317} = (4, 1, 4, 1)$ lies on line $\ell_0$  | 37 : $P_{3517} = (12, 10, 12, 1)$ lies on line $\ell_1$ |
| 13 : $P_{1461} = (4, 10, 4, 1)$ lies on line $\ell_1$ | 38 : $P_{3533} = (12, 11, 12, 1)$ lies on line $\ell_2$ |
| 14 : $P_{1477} = (4, 11, 4, 1)$ lies on line $\ell_2$ | 39 : $P_{3630} = (13, 1, 13, 1)$ lies on line $\ell_0$  |
| 15 : $P_{1574} = (5, 1, 5, 1)$ lies on line $\ell_0$  | 40 : $P_{3774} = (13, 10, 13, 1)$ lies on line $\ell_1$ |
| 16 : $P_{1718} = (5, 10, 5, 1)$ lies on line $\ell_1$ | 41 : $P_{3790} = (13, 11, 13, 1)$ lies on line $\ell_2$ |
| 17 : $P_{1734} = (5, 11, 5, 1)$ lies on line $\ell_2$ | 42 : $P_{3887} = (14, 1, 14, 1)$ lies on line $\ell_0$  |
| 18 : $P_{1831} = (6, 1, 6, 1)$ lies on line $\ell_0$  | 43 : $P_{4031} = (14, 10, 14, 1)$ lies on line $\ell_1$ |
| 19 : $P_{1975} = (6, 10, 6, 1)$ lies on line $\ell_1$ | 44 : $P_{4047} = (14, 11, 14, 1)$ lies on line $\ell_2$ |
| 20 : $P_{1991} = (6, 11, 6, 1)$ lies on line $\ell_2$ | 45 : $P_{4144} = (15, 1, 15, 1)$ lies on line $\ell_0$  |
| 21 : $P_{2088} = (7, 1, 7, 1)$ lies on line $\ell_0$  | 46 : $P_{4288} = (15, 10, 15, 1)$ lies on line $\ell_1$ |
| 22 : $P_{2232} = (7, 10, 7, 1)$ lies on line $\ell_1$ | 47 : $P_{4304} = (15, 11, 15, 1)$ lies on line $\ell_2$ |
| 23 : $P_{2248} = (7, 11, 7, 1)$ lies on line $\ell_2$ |   |
| 24 : $P_{2345} = (8, 1, 8, 1)$ lies on line $\ell_0$  |   |

The single points on the surface are:

### Points on surface but on no line

The surface has 192 points not on any line:

The points on the surface but not on lines are:

0 : $P_{29} = (10, 0, 1, 0)$	48 : $P_{1130} = (9, 5, 3, 1)$
1 : $P_{30} = (11, 0, 1, 0)$	49 : $P_{1149} = (12, 6, 3, 1)$
2 : $P_{35} = (0, 1, 1, 0)$	50 : $P_{1200} = (15, 9, 3, 1)$
3 : $P_{45} = (10, 1, 1, 0)$	51 : $P_{1247} = (14, 12, 3, 1)$
4 : $P_{46} = (11, 1, 1, 0)$	52 : $P_{1269} = (4, 14, 3, 1)$
5 : $P_{66} = (15, 2, 1, 0)$	53 : $P_{1272} = (7, 14, 3, 1)$
6 : $P_{86} = (3, 4, 1, 0)$	54 : $P_{1278} = (13, 14, 3, 1)$
7 : $P_{168} = (5, 9, 1, 0)$	55 : $P_{1282} = (1, 15, 3, 1)$
8 : $P_{179} = (0, 10, 1, 0)$	56 : $P_{1390} = (13, 5, 4, 1)$
9 : $P_{183} = (4, 10, 1, 0)$	57 : $P_{1395} = (2, 6, 4, 1)$
10 : $P_{193} = (14, 10, 1, 0)$	58 : $P_{1396} = (3, 6, 4, 1)$
11 : $P_{195} = (0, 11, 1, 0)$	59 : $P_{1400} = (7, 6, 4, 1)$
12 : $P_{197} = (2, 11, 1, 0)$	60 : $P_{1414} = (5, 7, 4, 1)$
13 : $P_{204} = (9, 11, 1, 0)$	61 : $P_{1434} = (9, 8, 4, 1)$
14 : $P_{251} = (8, 14, 1, 0)$	62 : $P_{1447} = (6, 9, 4, 1)$
15 : $P_{275} = (1, 0, 0, 1)$	63 : $P_{1478} = (5, 11, 4, 1)$
16 : $P_{284} = (10, 0, 0, 1)$	64 : $P_{1483} = (10, 11, 4, 1)$
17 : $P_{285} = (11, 0, 0, 1)$	65 : $P_{1494} = (5, 12, 4, 1)$
18 : $P_{291} = (1, 1, 0, 1)$	66 : $P_{1516} = (11, 13, 4, 1)$
19 : $P_{444} = (10, 10, 0, 1)$	67 : $P_{1579} = (10, 1, 5, 1)$
20 : $P_{461} = (11, 11, 0, 1)$	68 : $P_{1583} = (14, 1, 5, 1)$
21 : $P_{530} = (0, 0, 1, 1)$	69 : $P_{1592} = (7, 2, 5, 1)$
22 : $P_{590} = (13, 3, 1, 1)$	70 : $P_{1594} = (9, 2, 5, 1)$
23 : $P_{616} = (7, 5, 1, 1)$	71 : $P_{1597} = (12, 2, 5, 1)$
24 : $P_{627} = (2, 6, 1, 1)$	72 : $P_{1602} = (1, 3, 5, 1)$
25 : $P_{650} = (9, 7, 1, 1)$	73 : $P_{1651} = (2, 6, 5, 1)$
26 : $P_{669} = (12, 8, 1, 1)$	74 : $P_{1695} = (14, 8, 5, 1)$
27 : $P_{692} = (3, 10, 1, 1)$	75 : $P_{1711} = (14, 9, 5, 1)$
28 : $P_{697} = (8, 10, 1, 1)$	76 : $P_{1767} = (6, 13, 5, 1)$
29 : $P_{710} = (5, 11, 1, 1)$	77 : $P_{1780} = (3, 14, 5, 1)$
30 : $P_{720} = (15, 11, 1, 1)$	78 : $P_{1854} = (13, 2, 6, 1)$
31 : $P_{735} = (14, 12, 1, 1)$	79 : $P_{1862} = (5, 3, 6, 1)$
32 : $P_{741} = (4, 13, 1, 1)$	80 : $P_{1865} = (8, 3, 6, 1)$
33 : $P_{775} = (6, 15, 1, 1)$	81 : $P_{1871} = (14, 3, 6, 1)$
34 : $P_{839} = (6, 3, 2, 1)$	82 : $P_{1888} = (15, 4, 6, 1)$
35 : $P_{861} = (12, 4, 2, 1)$	83 : $P_{1950} = (13, 8, 6, 1)$
36 : $P_{869} = (4, 5, 2, 1)$	84 : $P_{1963} = (10, 9, 6, 1)$
37 : $P_{891} = (10, 6, 2, 1)$	85 : $P_{1970} = (1, 10, 6, 1)$
38 : $P_{900} = (3, 7, 2, 1)$	86 : $P_{1982} = (13, 10, 6, 1)$
39 : $P_{948} = (3, 10, 2, 1)$	87 : $P_{2026} = (9, 13, 6, 1)$
40 : $P_{956} = (11, 10, 2, 1)$	88 : $P_{2052} = (3, 15, 6, 1)$
41 : $P_{990} = (13, 12, 2, 1)$	89 : $P_{2107} = (10, 2, 7, 1)$
42 : $P_{991} = (14, 12, 2, 1)$	90 : $P_{2125} = (12, 3, 7, 1)$
43 : $P_{992} = (15, 12, 2, 1)$	91 : $P_{2153} = (8, 5, 7, 1)$
44 : $P_{996} = (3, 13, 2, 1)$	92 : $P_{2196} = (3, 8, 7, 1)$
45 : $P_{1066} = (9, 1, 3, 1)$	93 : $P_{2197} = (4, 8, 7, 1)$
46 : $P_{1068} = (11, 1, 3, 1)$	94 : $P_{2208} = (15, 8, 7, 1)$
47 : $P_{1114} = (9, 4, 3, 1)$	95 : $P_{2221} = (12, 9, 7, 1)$

96 : $P_{2226} = (1, 10, 7, 1)$	145 : $P_{3284} = (3, 12, 11, 1)$
97 : $P_{2237} = (12, 10, 7, 1)$	146 : $P_{3305} = (8, 13, 11, 1)$
98 : $P_{2259} = (2, 12, 7, 1)$	147 : $P_{3322} = (9, 14, 11, 1)$
99 : $P_{2294} = (5, 14, 7, 1)$	148 : $P_{3385} = (8, 2, 12, 1)$
100 : $P_{2339} = (2, 1, 8, 1)$	149 : $P_{3420} = (11, 4, 12, 1)$
101 : $P_{2348} = (11, 1, 8, 1)$	150 : $P_{3431} = (6, 5, 12, 1)$
102 : $P_{2358} = (5, 2, 8, 1)$	151 : $P_{3445} = (4, 6, 12, 1)$
103 : $P_{2391} = (6, 4, 8, 1)$	152 : $P_{3488} = (15, 8, 12, 1)$
104 : $P_{2397} = (12, 4, 8, 1)$	153 : $P_{3522} = (1, 11, 12, 1)$
105 : $P_{2399} = (14, 4, 8, 1)$	154 : $P_{3527} = (6, 11, 12, 1)$
106 : $P_{2402} = (1, 5, 8, 1)$	155 : $P_{3575} = (6, 14, 12, 1)$
107 : $P_{2446} = (13, 7, 8, 1)$	156 : $P_{3588} = (3, 15, 12, 1)$
108 : $P_{2533} = (4, 13, 8, 1)$	157 : $P_{3590} = (5, 15, 12, 1)$
109 : $P_{2547} = (2, 14, 8, 1)$	158 : $P_{3594} = (9, 15, 12, 1)$
110 : $P_{2563} = (2, 15, 8, 1)$	159 : $P_{3654} = (5, 3, 13, 1)$
111 : $P_{2681} = (8, 6, 9, 1)$	160 : $P_{3672} = (7, 4, 13, 1)$
112 : $P_{2699} = (10, 7, 9, 1)$	161 : $P_{3683} = (2, 5, 13, 1)$
113 : $P_{2712} = (7, 8, 9, 1)$	162 : $P_{3689} = (8, 5, 13, 1)$
114 : $P_{2745} = (8, 10, 9, 1)$	163 : $P_{3696} = (15, 5, 13, 1)$
115 : $P_{2748} = (11, 10, 9, 1)$	164 : $P_{3727} = (14, 7, 13, 1)$
116 : $P_{2777} = (8, 12, 9, 1)$	165 : $P_{3748} = (3, 9, 13, 1)$
117 : $P_{2789} = (4, 13, 9, 1)$	166 : $P_{3778} = (1, 11, 13, 1)$
118 : $P_{2790} = (5, 13, 9, 1)$	167 : $P_{3784} = (7, 11, 13, 1)$
119 : $P_{2797} = (12, 13, 9, 1)$	168 : $P_{3836} = (11, 14, 13, 1)$
120 : $P_{2814} = (13, 14, 9, 1)$	169 : $P_{3848} = (7, 15, 13, 1)$
121 : $P_{2831} = (14, 15, 9, 1)$	170 : $P_{3896} = (7, 2, 14, 1)$
122 : $P_{2833} = (0, 0, 10, 1)$	171 : $P_{3907} = (2, 3, 14, 1)$
123 : $P_{2851} = (2, 1, 10, 1)$	172 : $P_{3968} = (15, 6, 14, 1)$
124 : $P_{2858} = (9, 1, 10, 1)$	173 : $P_{3975} = (6, 7, 14, 1)$
125 : $P_{2879} = (14, 2, 10, 1)$	174 : $P_{3977} = (8, 7, 14, 1)$
126 : $P_{2909} = (12, 4, 10, 1)$	175 : $P_{3978} = (9, 7, 14, 1)$
127 : $P_{2921} = (8, 5, 10, 1)$	176 : $P_{4043} = (10, 11, 14, 1)$
128 : $P_{2934} = (5, 6, 10, 1)$	177 : $P_{4048} = (15, 11, 14, 1)$
129 : $P_{2960} = (15, 7, 10, 1)$	178 : $P_{4060} = (11, 12, 14, 1)$
130 : $P_{2981} = (4, 9, 10, 1)$	179 : $P_{4080} = (15, 13, 14, 1)$
131 : $P_{3015} = (6, 11, 10, 1)$	180 : $P_{4109} = (12, 15, 14, 1)$
132 : $P_{3016} = (7, 11, 10, 1)$	181 : $P_{4133} = (4, 1, 15, 1)$
133 : $P_{3070} = (13, 14, 10, 1)$	182 : $P_{4139} = (10, 1, 15, 1)$
134 : $P_{3076} = (3, 15, 10, 1)$	183 : $P_{4149} = (4, 2, 15, 1)$
135 : $P_{3089} = (0, 0, 11, 1)$	184 : $P_{4165} = (4, 3, 15, 1)$
136 : $P_{3109} = (4, 1, 11, 1)$	185 : $P_{4185} = (8, 4, 15, 1)$
137 : $P_{3119} = (14, 1, 11, 1)$	186 : $P_{4234} = (9, 7, 15, 1)$
138 : $P_{3128} = (7, 2, 11, 1)$	187 : $P_{4242} = (1, 8, 15, 1)$
139 : $P_{3142} = (5, 3, 11, 1)$	188 : $P_{4259} = (2, 9, 15, 1)$
140 : $P_{3155} = (2, 4, 11, 1)$	189 : $P_{4263} = (6, 9, 15, 1)$
141 : $P_{3232} = (15, 8, 11, 1)$	190 : $P_{4270} = (13, 9, 15, 1)$
142 : $P_{3239} = (6, 9, 11, 1)$	191 : $P_{4312} = (7, 12, 15, 1)$
143 : $P_{3261} = (12, 10, 11, 1)$	
144 : $P_{3262} = (13, 10, 11, 1)$	

## Line Intersection Graph

$$\begin{array}{c|ccc} & 0 & 1 & 2 \\ \hline 0 & 0 & 1 & 1 \\ 1 & 1 & 0 & 1 \\ 2 & 2 & 1 & 0 \end{array}$$

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	$\ell_1$	$\ell_2$
in point	$P_{20}$	$P_{20}$

Line 1 intersects

Line	$\ell_0$	$\ell_2$
in point	$P_{20}$	$P_{20}$

Line 2 intersects

Line	$\ell_0$	$\ell_1$
in point	$P_{20}$	$P_{20}$

The surface has 241 points:

The points on the surface are:

- |                                 |                                  |                                  |
|---------------------------------|----------------------------------|----------------------------------|
| 0 : $P_4 = (1, 1, 1, 1)$        | 33 : $P_{692} = (3, 10, 1, 1)$   | 66 : $P_{1272} = (7, 14, 3, 1)$  |
| 1 : $P_{20} = (1, 0, 1, 0)$     | 34 : $P_{697} = (8, 10, 1, 1)$   | 67 : $P_{1278} = (13, 14, 3, 1)$ |
| 2 : $P_{29} = (10, 0, 1, 0)$    | 35 : $P_{706} = (1, 11, 1, 1)$   | 68 : $P_{1282} = (1, 15, 3, 1)$  |
| 3 : $P_{30} = (11, 0, 1, 0)$    | 36 : $P_{710} = (5, 11, 1, 1)$   | 69 : $P_{1317} = (4, 1, 4, 1)$   |
| 4 : $P_{35} = (0, 1, 1, 0)$     | 37 : $P_{720} = (15, 11, 1, 1)$  | 70 : $P_{1390} = (13, 5, 4, 1)$  |
| 5 : $P_{45} = (10, 1, 1, 0)$    | 38 : $P_{735} = (14, 12, 1, 1)$  | 71 : $P_{1395} = (2, 6, 4, 1)$   |
| 6 : $P_{46} = (11, 1, 1, 0)$    | 39 : $P_{741} = (4, 13, 1, 1)$   | 72 : $P_{1396} = (3, 6, 4, 1)$   |
| 7 : $P_{66} = (15, 2, 1, 0)$    | 40 : $P_{775} = (6, 15, 1, 1)$   | 73 : $P_{1400} = (7, 6, 4, 1)$   |
| 8 : $P_{86} = (3, 4, 1, 0)$     | 41 : $P_{803} = (2, 1, 2, 1)$    | 74 : $P_{1414} = (5, 7, 4, 1)$   |
| 9 : $P_{168} = (5, 9, 1, 0)$    | 42 : $P_{839} = (6, 3, 2, 1)$    | 75 : $P_{1434} = (9, 8, 4, 1)$   |
| 10 : $P_{179} = (0, 10, 1, 0)$  | 43 : $P_{861} = (12, 4, 2, 1)$   | 76 : $P_{1447} = (6, 9, 4, 1)$   |
| 11 : $P_{183} = (4, 10, 1, 0)$  | 44 : $P_{869} = (4, 5, 2, 1)$    | 77 : $P_{1461} = (4, 10, 4, 1)$  |
| 12 : $P_{193} = (14, 10, 1, 0)$ | 45 : $P_{891} = (10, 6, 2, 1)$   | 78 : $P_{1477} = (4, 11, 4, 1)$  |
| 13 : $P_{195} = (0, 11, 1, 0)$  | 46 : $P_{900} = (3, 7, 2, 1)$    | 79 : $P_{1478} = (5, 11, 4, 1)$  |
| 14 : $P_{197} = (2, 11, 1, 0)$  | 47 : $P_{947} = (2, 10, 2, 1)$   | 80 : $P_{1483} = (10, 11, 4, 1)$ |
| 15 : $P_{204} = (9, 11, 1, 0)$  | 48 : $P_{948} = (3, 10, 2, 1)$   | 81 : $P_{1494} = (5, 12, 4, 1)$  |
| 16 : $P_{251} = (8, 14, 1, 0)$  | 49 : $P_{956} = (11, 10, 2, 1)$  | 82 : $P_{1516} = (11, 13, 4, 1)$ |
| 17 : $P_{275} = (1, 0, 0, 1)$   | 50 : $P_{963} = (2, 11, 2, 1)$   | 83 : $P_{1574} = (5, 1, 5, 1)$   |
| 18 : $P_{284} = (10, 0, 0, 1)$  | 51 : $P_{990} = (13, 12, 2, 1)$  | 84 : $P_{1579} = (10, 1, 5, 1)$  |
| 19 : $P_{285} = (11, 0, 0, 1)$  | 52 : $P_{991} = (14, 12, 2, 1)$  | 85 : $P_{1583} = (14, 1, 5, 1)$  |
| 20 : $P_{290} = (0, 1, 0, 1)$   | 53 : $P_{992} = (15, 12, 2, 1)$  | 86 : $P_{1592} = (7, 2, 5, 1)$   |
| 21 : $P_{291} = (1, 1, 0, 1)$   | 54 : $P_{996} = (3, 13, 2, 1)$   | 87 : $P_{1594} = (9, 2, 5, 1)$   |
| 22 : $P_{434} = (0, 10, 0, 1)$  | 55 : $P_{1060} = (3, 1, 3, 1)$   | 88 : $P_{1597} = (12, 2, 5, 1)$  |
| 23 : $P_{444} = (10, 10, 0, 1)$ | 56 : $P_{1066} = (9, 1, 3, 1)$   | 89 : $P_{1602} = (1, 3, 5, 1)$   |
| 24 : $P_{450} = (0, 11, 0, 1)$  | 57 : $P_{1068} = (11, 1, 3, 1)$  | 90 : $P_{1651} = (2, 6, 5, 1)$   |
| 25 : $P_{461} = (11, 11, 0, 1)$ | 58 : $P_{1114} = (9, 4, 3, 1)$   | 91 : $P_{1695} = (14, 8, 5, 1)$  |
| 26 : $P_{530} = (0, 0, 1, 1)$   | 59 : $P_{1130} = (9, 5, 3, 1)$   | 92 : $P_{1711} = (14, 9, 5, 1)$  |
| 27 : $P_{590} = (13, 3, 1, 1)$  | 60 : $P_{1149} = (12, 6, 3, 1)$  | 93 : $P_{1718} = (5, 10, 5, 1)$  |
| 28 : $P_{616} = (7, 5, 1, 1)$   | 61 : $P_{1200} = (15, 9, 3, 1)$  | 94 : $P_{1734} = (5, 11, 5, 1)$  |
| 29 : $P_{627} = (2, 6, 1, 1)$   | 62 : $P_{1204} = (3, 10, 3, 1)$  | 95 : $P_{1767} = (6, 13, 5, 1)$  |
| 30 : $P_{650} = (9, 7, 1, 1)$   | 63 : $P_{1220} = (3, 11, 3, 1)$  | 96 : $P_{1780} = (3, 14, 5, 1)$  |
| 31 : $P_{669} = (12, 8, 1, 1)$  | 64 : $P_{1247} = (14, 12, 3, 1)$ | 97 : $P_{1831} = (6, 1, 6, 1)$   |
| 32 : $P_{690} = (1, 10, 1, 1)$  | 65 : $P_{1269} = (4, 14, 3, 1)$  | 98 : $P_{1854} = (13, 2, 6, 1)$  |

99 : $P_{1862} = (5, 3, 6, 1)$	147 : $P_{2777} = (8, 12, 9, 1)$	195 : $P_{3575} = (6, 14, 12, 1)$
100 : $P_{1865} = (8, 3, 6, 1)$	148 : $P_{2789} = (4, 13, 9, 1)$	196 : $P_{3588} = (3, 15, 12, 1)$
101 : $P_{1871} = (14, 3, 6, 1)$	149 : $P_{2790} = (5, 13, 9, 1)$	197 : $P_{3590} = (5, 15, 12, 1)$
102 : $P_{1888} = (15, 4, 6, 1)$	150 : $P_{2797} = (12, 13, 9, 1)$	198 : $P_{3594} = (9, 15, 12, 1)$
103 : $P_{1950} = (13, 8, 6, 1)$	151 : $P_{2814} = (13, 14, 9, 1)$	199 : $P_{3630} = (13, 1, 13, 1)$
104 : $P_{1963} = (10, 9, 6, 1)$	152 : $P_{2831} = (14, 15, 9, 1)$	200 : $P_{3654} = (5, 3, 13, 1)$
105 : $P_{1970} = (1, 10, 6, 1)$	153 : $P_{2833} = (0, 0, 10, 1)$	201 : $P_{3672} = (7, 4, 13, 1)$
106 : $P_{1975} = (6, 10, 6, 1)$	154 : $P_{2851} = (2, 1, 10, 1)$	202 : $P_{3683} = (2, 5, 13, 1)$
107 : $P_{1982} = (13, 10, 6, 1)$	155 : $P_{2858} = (9, 1, 10, 1)$	203 : $P_{3689} = (8, 5, 13, 1)$
108 : $P_{1991} = (6, 11, 6, 1)$	156 : $P_{2859} = (10, 1, 10, 1)$	204 : $P_{3696} = (15, 5, 13, 1)$
109 : $P_{2026} = (9, 13, 6, 1)$	157 : $P_{2879} = (14, 2, 10, 1)$	205 : $P_{3727} = (14, 7, 13, 1)$
110 : $P_{2052} = (3, 15, 6, 1)$	158 : $P_{2909} = (12, 4, 10, 1)$	206 : $P_{3748} = (3, 9, 13, 1)$
111 : $P_{2088} = (7, 1, 7, 1)$	159 : $P_{2921} = (8, 5, 10, 1)$	207 : $P_{3774} = (13, 10, 13, 1)$
112 : $P_{2107} = (10, 2, 7, 1)$	160 : $P_{2934} = (5, 6, 10, 1)$	208 : $P_{3778} = (1, 11, 13, 1)$
113 : $P_{2125} = (12, 3, 7, 1)$	161 : $P_{2960} = (15, 7, 10, 1)$	209 : $P_{3784} = (7, 11, 13, 1)$
114 : $P_{2153} = (8, 5, 7, 1)$	162 : $P_{2981} = (4, 9, 10, 1)$	210 : $P_{3790} = (13, 11, 13, 1)$
115 : $P_{2196} = (3, 8, 7, 1)$	163 : $P_{3003} = (10, 10, 10, 1)$	211 : $P_{3836} = (11, 14, 13, 1)$
116 : $P_{2197} = (4, 8, 7, 1)$	164 : $P_{3015} = (6, 11, 10, 1)$	212 : $P_{3848} = (7, 15, 13, 1)$
117 : $P_{2208} = (15, 8, 7, 1)$	165 : $P_{3016} = (7, 11, 10, 1)$	213 : $P_{3887} = (14, 1, 14, 1)$
118 : $P_{2221} = (12, 9, 7, 1)$	166 : $P_{3019} = (10, 11, 10, 1)$	214 : $P_{3896} = (7, 2, 14, 1)$
119 : $P_{2226} = (1, 10, 7, 1)$	167 : $P_{3070} = (13, 14, 10, 1)$	215 : $P_{3907} = (2, 3, 14, 1)$
120 : $P_{2232} = (7, 10, 7, 1)$	168 : $P_{3076} = (3, 15, 10, 1)$	216 : $P_{3968} = (15, 6, 14, 1)$
121 : $P_{2237} = (12, 10, 7, 1)$	169 : $P_{3089} = (0, 0, 11, 1)$	217 : $P_{3975} = (6, 7, 14, 1)$
122 : $P_{2248} = (7, 11, 7, 1)$	170 : $P_{3109} = (4, 1, 11, 1)$	218 : $P_{3977} = (8, 7, 14, 1)$
123 : $P_{2259} = (2, 12, 7, 1)$	171 : $P_{3116} = (11, 1, 11, 1)$	219 : $P_{3978} = (9, 7, 14, 1)$
124 : $P_{2294} = (5, 14, 7, 1)$	172 : $P_{3119} = (14, 1, 11, 1)$	220 : $P_{4031} = (14, 10, 14, 1)$
125 : $P_{2339} = (2, 1, 8, 1)$	173 : $P_{3128} = (7, 2, 11, 1)$	221 : $P_{4043} = (10, 11, 14, 1)$
126 : $P_{2345} = (8, 1, 8, 1)$	174 : $P_{3142} = (5, 3, 11, 1)$	222 : $P_{4047} = (14, 11, 14, 1)$
127 : $P_{2348} = (11, 1, 8, 1)$	175 : $P_{3155} = (2, 4, 11, 1)$	223 : $P_{4048} = (15, 11, 14, 1)$
128 : $P_{2358} = (5, 2, 8, 1)$	176 : $P_{3232} = (15, 8, 11, 1)$	224 : $P_{4060} = (11, 12, 14, 1)$
129 : $P_{2391} = (6, 4, 8, 1)$	177 : $P_{3239} = (6, 9, 11, 1)$	225 : $P_{4080} = (15, 13, 14, 1)$
130 : $P_{2397} = (12, 4, 8, 1)$	178 : $P_{3260} = (11, 10, 11, 1)$	226 : $P_{4109} = (12, 15, 14, 1)$
131 : $P_{2399} = (14, 4, 8, 1)$	179 : $P_{3261} = (12, 10, 11, 1)$	227 : $P_{4133} = (4, 1, 15, 1)$
132 : $P_{2402} = (1, 5, 8, 1)$	180 : $P_{3262} = (13, 10, 11, 1)$	228 : $P_{4139} = (10, 1, 15, 1)$
133 : $P_{2446} = (13, 7, 8, 1)$	181 : $P_{3276} = (11, 11, 11, 1)$	229 : $P_{4144} = (15, 1, 15, 1)$
134 : $P_{2489} = (8, 10, 8, 1)$	182 : $P_{3284} = (3, 12, 11, 1)$	230 : $P_{4149} = (4, 2, 15, 1)$
135 : $P_{2505} = (8, 11, 8, 1)$	183 : $P_{3305} = (8, 13, 11, 1)$	231 : $P_{4165} = (4, 3, 15, 1)$
136 : $P_{2533} = (4, 13, 8, 1)$	184 : $P_{3322} = (9, 14, 11, 1)$	232 : $P_{4185} = (8, 4, 15, 1)$
137 : $P_{2547} = (2, 14, 8, 1)$	185 : $P_{3373} = (12, 1, 12, 1)$	233 : $P_{4234} = (9, 7, 15, 1)$
138 : $P_{2563} = (2, 15, 8, 1)$	186 : $P_{3385} = (8, 2, 12, 1)$	234 : $P_{4242} = (1, 8, 15, 1)$
139 : $P_{2602} = (9, 1, 9, 1)$	187 : $P_{3420} = (11, 4, 12, 1)$	235 : $P_{4259} = (2, 9, 15, 1)$
140 : $P_{2681} = (8, 6, 9, 1)$	188 : $P_{3431} = (6, 5, 12, 1)$	236 : $P_{4263} = (6, 9, 15, 1)$
141 : $P_{2699} = (10, 7, 9, 1)$	189 : $P_{3445} = (4, 6, 12, 1)$	237 : $P_{4270} = (13, 9, 15, 1)$
142 : $P_{2712} = (7, 8, 9, 1)$	190 : $P_{3488} = (15, 8, 12, 1)$	238 : $P_{4288} = (15, 10, 15, 1)$
143 : $P_{2745} = (8, 10, 9, 1)$	191 : $P_{3517} = (12, 10, 12, 1)$	239 : $P_{4304} = (15, 11, 15, 1)$
144 : $P_{2746} = (9, 10, 9, 1)$	192 : $P_{3522} = (1, 11, 12, 1)$	240 : $P_{4312} = (7, 12, 15, 1)$
145 : $P_{2748} = (11, 10, 9, 1)$	193 : $P_{3527} = (6, 11, 12, 1)$	
146 : $P_{2762} = (9, 11, 9, 1)$	194 : $P_{3533} = (12, 11, 12, 1)$	