

# Rank-74276 over GF(32)

January 15, 2021

## The equation

The equation of the surface is :

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

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

The point rank of the equation over GF(32) is 1141933094

## General information

Number of lines	2
Number of points	1057
Number of singular points	1
Number of Eckardt points	0
Number of double points	1
Number of single points	64
Number of points off lines	992
Number of Hesse planes	0
Number of axes	0
Type of points on lines	$33^2$
Type of lines on points	$2, 1^{64}, 0^{992}$

## Singular Points

The surface has 1 singular points:

$$0 : P_2 = \mathbf{P}(0, 0, 1, 0) = \mathbf{P}(0, 0, 1, 0)$$

## The 2 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1082368} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1082368} = \mathbf{Pl}(0, 0, 0, 0, 0, 1)_{34849}$$

$$\ell_1 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \mathbf{Pl}(0, 1, 0, 0, 0, 0)_1$$

Rank of lines: ( 1082368, 1083424 )

Rank of points on Klein quadric: ( 34849, 1 )

### Eckardt Points

The surface has 0 Eckardt points:

### Double Points

The surface has 1 Double points:

The double points on the surface are:

$$P_2 = (0, 0, 1, 0) = \ell_0 \cap \ell_1$$

### Single Points

The surface has 64 single points:

The single points on the surface are:

- |  |  |
|--|--|
| 0 : $P_1 = (0, 1, 0, 0)$ lies on line $\ell_0$       | 29 : $P_{931} = (0, 28, 1, 0)$ lies on line $\ell_0$   |
| 1 : $P_3 = (0, 0, 0, 1)$ lies on line $\ell_1$       | 30 : $P_{963} = (0, 29, 1, 0)$ lies on line $\ell_0$   |
| 2 : $P_{67} = (0, 1, 1, 0)$ lies on line $\ell_0$    | 31 : $P_{995} = (0, 30, 1, 0)$ lies on line $\ell_0$   |
| 3 : $P_{99} = (0, 2, 1, 0)$ lies on line $\ell_0$    | 32 : $P_{1027} = (0, 31, 1, 0)$ lies on line $\ell_0$  |
| 4 : $P_{131} = (0, 3, 1, 0)$ lies on line $\ell_0$   | 33 : $P_{2082} = (0, 0, 1, 1)$ lies on line $\ell_1$   |
| 5 : $P_{163} = (0, 4, 1, 0)$ lies on line $\ell_0$   | 34 : $P_{3105} = (0, 0, 2, 1)$ lies on line $\ell_1$   |
| 6 : $P_{195} = (0, 5, 1, 0)$ lies on line $\ell_0$   | 35 : $P_{4129} = (0, 0, 3, 1)$ lies on line $\ell_1$   |
| 7 : $P_{227} = (0, 6, 1, 0)$ lies on line $\ell_0$   | 36 : $P_{5153} = (0, 0, 4, 1)$ lies on line $\ell_1$   |
| 8 : $P_{259} = (0, 7, 1, 0)$ lies on line $\ell_0$   | 37 : $P_{6177} = (0, 0, 5, 1)$ lies on line $\ell_1$   |
| 9 : $P_{291} = (0, 8, 1, 0)$ lies on line $\ell_0$   | 38 : $P_{7201} = (0, 0, 6, 1)$ lies on line $\ell_1$   |
| 10 : $P_{323} = (0, 9, 1, 0)$ lies on line $\ell_0$  | 39 : $P_{8225} = (0, 0, 7, 1)$ lies on line $\ell_1$   |
| 11 : $P_{355} = (0, 10, 1, 0)$ lies on line $\ell_0$ | 40 : $P_{9249} = (0, 0, 8, 1)$ lies on line $\ell_1$   |
| 12 : $P_{387} = (0, 11, 1, 0)$ lies on line $\ell_0$ | 41 : $P_{10273} = (0, 0, 9, 1)$ lies on line $\ell_1$  |
| 13 : $P_{419} = (0, 12, 1, 0)$ lies on line $\ell_0$ | 42 : $P_{11297} = (0, 0, 10, 1)$ lies on line $\ell_1$ |
| 14 : $P_{451} = (0, 13, 1, 0)$ lies on line $\ell_0$ | 43 : $P_{12321} = (0, 0, 11, 1)$ lies on line $\ell_1$ |
| 15 : $P_{483} = (0, 14, 1, 0)$ lies on line $\ell_0$ | 44 : $P_{13345} = (0, 0, 12, 1)$ lies on line $\ell_1$ |
| 16 : $P_{515} = (0, 15, 1, 0)$ lies on line $\ell_0$ | 45 : $P_{14369} = (0, 0, 13, 1)$ lies on line $\ell_1$ |
| 17 : $P_{547} = (0, 16, 1, 0)$ lies on line $\ell_0$ | 46 : $P_{15393} = (0, 0, 14, 1)$ lies on line $\ell_1$ |
| 18 : $P_{579} = (0, 17, 1, 0)$ lies on line $\ell_0$ | 47 : $P_{16417} = (0, 0, 15, 1)$ lies on line $\ell_1$ |
| 19 : $P_{611} = (0, 18, 1, 0)$ lies on line $\ell_0$ | 48 : $P_{17441} = (0, 0, 16, 1)$ lies on line $\ell_1$ |
| 20 : $P_{643} = (0, 19, 1, 0)$ lies on line $\ell_0$ | 49 : $P_{18465} = (0, 0, 17, 1)$ lies on line $\ell_1$ |
| 21 : $P_{675} = (0, 20, 1, 0)$ lies on line $\ell_0$ | 50 : $P_{19489} = (0, 0, 18, 1)$ lies on line $\ell_1$ |
| 22 : $P_{707} = (0, 21, 1, 0)$ lies on line $\ell_0$ | 51 : $P_{20513} = (0, 0, 19, 1)$ lies on line $\ell_1$ |
| 23 : $P_{739} = (0, 22, 1, 0)$ lies on line $\ell_0$ | 52 : $P_{21537} = (0, 0, 20, 1)$ lies on line $\ell_1$ |
| 24 : $P_{771} = (0, 23, 1, 0)$ lies on line $\ell_0$ | 53 : $P_{22561} = (0, 0, 21, 1)$ lies on line $\ell_1$ |
| 25 : $P_{803} = (0, 24, 1, 0)$ lies on line $\ell_0$ | 54 : $P_{23585} = (0, 0, 22, 1)$ lies on line $\ell_1$ |
| 26 : $P_{835} = (0, 25, 1, 0)$ lies on line $\ell_0$ | 55 : $P_{24609} = (0, 0, 23, 1)$ lies on line $\ell_1$ |
| 27 : $P_{867} = (0, 26, 1, 0)$ lies on line $\ell_0$ | 56 : $P_{25633} = (0, 0, 24, 1)$ lies on line $\ell_1$ |
| 28 : $P_{899} = (0, 27, 1, 0)$ lies on line $\ell_0$ | 57 : $P_{26657} = (0, 0, 25, 1)$ lies on line $\ell_1$ |

58 :  $P_{27681} = (0, 0, 26, 1)$  lies on line  $\ell_1$   
 59 :  $P_{28705} = (0, 0, 27, 1)$  lies on line  $\ell_1$   
 60 :  $P_{29729} = (0, 0, 28, 1)$  lies on line  $\ell_1$   
 61 :  $P_{30753} = (0, 0, 29, 1)$  lies on line  $\ell_1$

62 :  $P_{31777} = (0, 0, 30, 1)$  lies on line  $\ell_1$   
 63 :  $P_{32801} = (0, 0, 31, 1)$  lies on line  $\ell_1$

The single points on the surface are:

### Points on surface but on no line

The surface has 992 points not on any line:

The points on the surface but not on lines are:

0 : $P_{36} = (1, 0, 1, 0)$	40 : $P_{1316} = (2, 8, 0, 1)$
1 : $P_{107} = (8, 2, 1, 0)$	41 : $P_{1360} = (14, 9, 0, 1)$
2 : $P_{108} = (9, 2, 1, 0)$	42 : $P_{1382} = (4, 10, 0, 1)$
3 : $P_{173} = (10, 4, 1, 0)$	43 : $P_{1440} = (30, 11, 0, 1)$
4 : $P_{174} = (11, 4, 1, 0)$	44 : $P_{1447} = (5, 12, 0, 1)$
5 : $P_{229} = (2, 6, 1, 0)$	45 : $P_{1466} = (24, 12, 0, 1)$
6 : $P_{230} = (3, 6, 1, 0)$	46 : $P_{1471} = (29, 12, 0, 1)$
7 : $P_{343} = (20, 9, 1, 0)$	47 : $P_{1489} = (15, 13, 0, 1)$
8 : $P_{344} = (21, 9, 1, 0)$	48 : $P_{1522} = (16, 14, 0, 1)$
9 : $P_{415} = (28, 11, 1, 0)$	49 : $P_{1557} = (19, 15, 0, 1)$
10 : $P_{416} = (29, 11, 1, 0)$	50 : $P_{1581} = (11, 16, 0, 1)$
11 : $P_{481} = (30, 13, 1, 0)$	51 : $P_{1605} = (3, 17, 0, 1)$
12 : $P_{482} = (31, 13, 1, 0)$	52 : $P_{1622} = (20, 17, 0, 1)$
13 : $P_{537} = (22, 15, 1, 0)$	53 : $P_{1625} = (23, 17, 0, 1)$
14 : $P_{538} = (23, 15, 1, 0)$	54 : $P_{1644} = (10, 18, 0, 1)$
15 : $P_{561} = (14, 16, 1, 0)$	55 : $P_{1693} = (27, 19, 0, 1)$
16 : $P_{562} = (15, 16, 1, 0)$	56 : $P_{1897} = (7, 26, 0, 1)$
17 : $P_{617} = (6, 18, 1, 0)$	57 : $P_{1907} = (17, 26, 0, 1)$
18 : $P_{618} = (7, 18, 1, 0)$	58 : $P_{1912} = (22, 26, 0, 1)$
19 : $P_{679} = (4, 20, 1, 0)$	59 : $P_{1953} = (31, 27, 0, 1)$
20 : $P_{680} = (5, 20, 1, 0)$	60 : $P_{2031} = (13, 30, 0, 1)$
21 : $P_{751} = (12, 22, 1, 0)$	61 : $P_{2058} = (8, 31, 0, 1)$
22 : $P_{752} = (13, 22, 1, 0)$	62 : $P_{2199} = (22, 3, 1, 1)$
23 : $P_{861} = (26, 25, 1, 0)$	63 : $P_{2266} = (25, 5, 1, 1)$
24 : $P_{862} = (27, 25, 1, 0)$	64 : $P_{2287} = (14, 6, 1, 1)$
25 : $P_{917} = (18, 27, 1, 0)$	65 : $P_{2334} = (29, 7, 1, 1)$
26 : $P_{918} = (19, 27, 1, 0)$	66 : $P_{2351} = (14, 8, 1, 1)$
27 : $P_{979} = (16, 29, 1, 0)$	67 : $P_{2431} = (30, 10, 1, 1)$
28 : $P_{980} = (17, 29, 1, 0)$	68 : $P_{2485} = (20, 12, 1, 1)$
29 : $P_{1051} = (24, 31, 1, 0)$	69 : $P_{2548} = (19, 14, 1, 1)$
30 : $P_{1052} = (25, 31, 1, 0)$	70 : $P_{2631} = (6, 17, 1, 1)$
31 : $P_{1059} = (1, 0, 0, 1)$	71 : $P_{2699} = (10, 19, 1, 1)$
32 : $P_{1140} = (18, 2, 0, 1)$	72 : $P_{2751} = (30, 20, 1, 1)$
33 : $P_{1166} = (12, 3, 0, 1)$	73 : $P_{2775} = (22, 21, 1, 1)$
34 : $P_{1175} = (21, 3, 0, 1)$	74 : $P_{2793} = (8, 22, 1, 1)$
35 : $P_{1179} = (25, 3, 0, 1)$	75 : $P_{2823} = (6, 23, 1, 1)$
36 : $P_{1195} = (9, 4, 0, 1)$	76 : $P_{2869} = (20, 24, 1, 1)$
37 : $P_{1224} = (6, 5, 0, 1)$	77 : $P_{2891} = (10, 25, 1, 1)$
38 : $P_{1244} = (26, 5, 0, 1)$	78 : $P_{2942} = (29, 26, 1, 1)$
39 : $P_{1246} = (28, 5, 0, 1)$	79 : $P_{3002} = (25, 28, 1, 1)$

80 : $P_{3028} = (19, 29, 1, 1)$	134 : $P_{4634} = (25, 15, 3, 1)$
81 : $P_{3049} = (8, 30, 1, 1)$	135 : $P_{4651} = (10, 16, 3, 1)$
82 : $P_{3118} = (13, 0, 2, 1)$	136 : $P_{4726} = (21, 18, 3, 1)$
83 : $P_{3120} = (15, 0, 2, 1)$	137 : $P_{4763} = (26, 19, 3, 1)$
84 : $P_{3147} = (10, 1, 2, 1)$	138 : $P_{4805} = (4, 21, 3, 1)$
85 : $P_{3153} = (16, 1, 2, 1)$	139 : $P_{4882} = (17, 23, 3, 1)$
86 : $P_{3161} = (24, 1, 2, 1)$	140 : $P_{4906} = (9, 24, 3, 1)$
87 : $P_{3175} = (6, 2, 2, 1)$	141 : $P_{4913} = (16, 24, 3, 1)$
88 : $P_{3238} = (5, 4, 2, 1)$	142 : $P_{4923} = (26, 24, 3, 1)$
89 : $P_{3249} = (16, 4, 2, 1)$	143 : $P_{4933} = (4, 25, 3, 1)$
90 : $P_{3256} = (23, 4, 2, 1)$	144 : $P_{5036} = (11, 28, 3, 1)$
91 : $P_{3279} = (14, 5, 2, 1)$	145 : $P_{5069} = (12, 29, 3, 1)$
92 : $P_{3322} = (25, 6, 2, 1)$	146 : $P_{5117} = (28, 30, 3, 1)$
93 : $P_{3349} = (20, 7, 2, 1)$	147 : $P_{5149} = (28, 31, 3, 1)$
94 : $P_{3373} = (12, 8, 2, 1)$	148 : $P_{5180} = (27, 0, 4, 1)$
95 : $P_{3445} = (20, 10, 2, 1)$	149 : $P_{5184} = (31, 0, 4, 1)$
96 : $P_{3474} = (17, 11, 2, 1)$	150 : $P_{5192} = (7, 1, 4, 1)$
97 : $P_{3490} = (1, 12, 2, 1)$	151 : $P_{5198} = (13, 1, 4, 1)$
98 : $P_{3506} = (17, 12, 2, 1)$	152 : $P_{5199} = (14, 1, 4, 1)$
99 : $P_{3507} = (18, 12, 2, 1)$	153 : $P_{5276} = (27, 3, 4, 1)$
100 : $P_{3539} = (18, 13, 2, 1)$	154 : $P_{5301} = (20, 4, 4, 1)$
101 : $P_{3554} = (1, 14, 2, 1)$	155 : $P_{5360} = (15, 6, 4, 1)$
102 : $P_{3558} = (5, 14, 2, 1)$	156 : $P_{5366} = (21, 6, 4, 1)$
103 : $P_{3559} = (6, 14, 2, 1)$	157 : $P_{5375} = (30, 6, 4, 1)$
104 : $P_{3596} = (11, 15, 2, 1)$	158 : $P_{5499} = (26, 10, 4, 1)$
105 : $P_{3608} = (23, 15, 2, 1)$	159 : $P_{5541} = (4, 12, 4, 1)$
106 : $P_{3615} = (30, 15, 2, 1)$	160 : $P_{5543} = (6, 12, 4, 1)$
107 : $P_{3629} = (12, 16, 2, 1)$	161 : $P_{5595} = (26, 13, 4, 1)$
108 : $P_{3651} = (2, 17, 2, 1)$	162 : $P_{5630} = (29, 14, 4, 1)$
109 : $P_{3674} = (25, 17, 2, 1)$	163 : $P_{5645} = (12, 15, 4, 1)$
110 : $P_{3769} = (24, 20, 2, 1)$	164 : $P_{5678} = (13, 16, 4, 1)$
111 : $P_{3779} = (2, 21, 2, 1)$	165 : $P_{5682} = (17, 16, 4, 1)$
112 : $P_{3787} = (10, 21, 2, 1)$	166 : $P_{5689} = (24, 16, 4, 1)$
113 : $P_{3839} = (30, 22, 2, 1)$	167 : $P_{5727} = (30, 17, 4, 1)$
114 : $P_{3848} = (7, 23, 2, 1)$	168 : $P_{5792} = (31, 19, 4, 1)$
115 : $P_{3912} = (7, 25, 2, 1)$	169 : $P_{5799} = (6, 20, 4, 1)$
116 : $P_{3916} = (11, 25, 2, 1)$	170 : $P_{5854} = (29, 21, 4, 1)$
117 : $P_{3919} = (14, 25, 2, 1)$	171 : $P_{5942} = (21, 24, 4, 1)$
118 : $P_{3950} = (13, 26, 2, 1)$	172 : $P_{5972} = (19, 25, 4, 1)$
119 : $P_{4080} = (15, 30, 2, 1)$	173 : $P_{5986} = (1, 26, 4, 1)$
120 : $P_{4172} = (11, 1, 3, 1)$	174 : $P_{5994} = (9, 26, 4, 1)$
121 : $P_{4178} = (17, 1, 3, 1)$	175 : $P_{5997} = (12, 26, 4, 1)$
122 : $P_{4186} = (25, 1, 3, 1)$	176 : $P_{6026} = (9, 27, 4, 1)$
123 : $P_{4234} = (9, 3, 3, 1)$	177 : $P_{6053} = (4, 28, 4, 1)$
124 : $P_{4296} = (7, 5, 3, 1)$	178 : $P_{6063} = (14, 28, 4, 1)$
125 : $P_{4377} = (24, 7, 3, 1)$	179 : $P_{6088} = (7, 29, 4, 1)$
126 : $P_{4406} = (21, 8, 3, 1)$	180 : $P_{6114} = (1, 30, 4, 1)$
127 : $P_{4420} = (3, 9, 3, 1)$	181 : $P_{6130} = (17, 30, 4, 1)$
128 : $P_{4429} = (12, 9, 3, 1)$	182 : $P_{6133} = (20, 30, 4, 1)$
129 : $P_{4473} = (24, 10, 3, 1)$	183 : $P_{6160} = (15, 31, 4, 1)$
130 : $P_{4516} = (3, 12, 3, 1)$	184 : $P_{6164} = (19, 31, 4, 1)$
131 : $P_{4520} = (7, 12, 3, 1)$	185 : $P_{6169} = (24, 31, 4, 1)$
132 : $P_{4561} = (16, 13, 3, 1)$	186 : $P_{6215} = (6, 1, 5, 1)$
133 : $P_{4587} = (10, 14, 3, 1)$	187 : $P_{6221} = (12, 1, 5, 1)$

188 : $P_{6224} = (15, 1, 5, 1)$	242 : $P_{8359} = (6, 4, 7, 1)$
189 : $P_{6348} = (11, 5, 5, 1)$	243 : $P_{8371} = (18, 4, 7, 1)$
190 : $P_{6385} = (16, 6, 5, 1)$	244 : $P_{8372} = (19, 4, 7, 1)$
191 : $P_{6404} = (3, 7, 5, 1)$	245 : $P_{8485} = (4, 8, 7, 1)$
192 : $P_{6412} = (11, 7, 5, 1)$	246 : $P_{8490} = (9, 8, 7, 1)$
193 : $P_{6414} = (13, 7, 5, 1)$	247 : $P_{8491} = (10, 8, 7, 1)$
194 : $P_{6436} = (3, 8, 5, 1)$	248 : $P_{8520} = (7, 9, 7, 1)$
195 : $P_{6493} = (28, 9, 5, 1)$	249 : $P_{8526} = (13, 9, 7, 1)$
196 : $P_{6525} = (28, 10, 5, 1)$	250 : $P_{8606} = (29, 11, 7, 1)$
197 : $P_{6534} = (5, 11, 5, 1)$	251 : $P_{8672} = (31, 13, 7, 1)$
198 : $P_{6555} = (26, 11, 5, 1)$	252 : $P_{8701} = (28, 14, 7, 1)$
199 : $P_{6607} = (14, 13, 5, 1)$	253 : $P_{8718} = (13, 15, 7, 1)$
200 : $P_{6632} = (7, 14, 5, 1)$	254 : $P_{8739} = (2, 16, 7, 1)$
201 : $P_{6742} = (21, 17, 5, 1)$	255 : $P_{8762} = (25, 16, 7, 1)$
202 : $P_{6776} = (23, 18, 5, 1)$	256 : $P_{8765} = (28, 16, 7, 1)$
203 : $P_{6808} = (23, 19, 5, 1)$	257 : $P_{8796} = (27, 17, 7, 1)$
204 : $P_{6856} = (7, 21, 5, 1)$	258 : $P_{8810} = (9, 18, 7, 1)$
205 : $P_{6907} = (26, 22, 5, 1)$	259 : $P_{8820} = (19, 18, 7, 1)$
206 : $P_{6928} = (15, 23, 5, 1)$	260 : $P_{8830} = (29, 18, 7, 1)$
207 : $P_{6957} = (12, 24, 5, 1)$	261 : $P_{8836} = (3, 19, 7, 1)$
208 : $P_{7014} = (5, 26, 5, 1)$	262 : $P_{8869} = (4, 20, 7, 1)$
209 : $P_{7030} = (21, 26, 5, 1)$	263 : $P_{8877} = (12, 20, 7, 1)$
210 : $P_{7054} = (13, 27, 5, 1)$	264 : $P_{8880} = (15, 20, 7, 1)$
211 : $P_{7089} = (16, 28, 5, 1)$	265 : $P_{8909} = (12, 21, 7, 1)$
212 : $P_{7151} = (14, 30, 5, 1)$	266 : $P_{8915} = (18, 21, 7, 1)$
213 : $P_{7175} = (6, 31, 5, 1)$	267 : $P_{8922} = (25, 21, 7, 1)$
214 : $P_{7273} = (8, 2, 6, 1)$	268 : $P_{8935} = (6, 22, 7, 1)$
215 : $P_{7316} = (19, 3, 6, 1)$	269 : $P_{8975} = (14, 23, 7, 1)$
216 : $P_{7336} = (7, 4, 6, 1)$	270 : $P_{9007} = (14, 24, 7, 1)$
217 : $P_{7403} = (10, 6, 6, 1)$	271 : $P_{9060} = (3, 26, 7, 1)$
218 : $P_{7412} = (19, 6, 6, 1)$	272 : $P_{9084} = (27, 26, 7, 1)$
219 : $P_{7424} = (31, 6, 6, 1)$	273 : $P_{9088} = (31, 26, 7, 1)$
220 : $P_{7437} = (12, 7, 6, 1)$	274 : $P_{9099} = (10, 27, 7, 1)$
221 : $P_{7482} = (25, 8, 6, 1)$	275 : $P_{9128} = (7, 28, 7, 1)$
222 : $P_{7533} = (12, 10, 6, 1)$	276 : $P_{9136} = (15, 28, 7, 1)$
223 : $P_{7596} = (11, 12, 6, 1)$	277 : $P_{9187} = (2, 30, 7, 1)$
224 : $P_{7607} = (22, 12, 6, 1)$	278 : $P_{9255} = (6, 0, 8, 1)$
225 : $P_{7612} = (27, 12, 6, 1)$	279 : $P_{9263} = (14, 0, 8, 1)$
226 : $P_{7641} = (24, 13, 6, 1)$	280 : $P_{9401} = (24, 4, 8, 1)$
227 : $P_{7680} = (31, 14, 6, 1)$	281 : $P_{9474} = (1, 7, 8, 1)$
228 : $P_{7820} = (11, 19, 6, 1)$	282 : $P_{9539} = (2, 9, 8, 1)$
229 : $P_{7866} = (25, 20, 6, 1)$	283 : $P_{9554} = (17, 9, 8, 1)$
230 : $P_{7912} = (7, 22, 6, 1)$	284 : $P_{9564} = (27, 9, 8, 1)$
231 : $P_{7921} = (16, 22, 6, 1)$	285 : $P_{9619} = (18, 11, 8, 1)$
232 : $P_{7922} = (17, 22, 6, 1)$	286 : $P_{9642} = (9, 12, 8, 1)$
233 : $P_{7945} = (8, 23, 6, 1)$	287 : $P_{9706} = (9, 14, 8, 1)$
234 : $P_{7959} = (22, 23, 6, 1)$	288 : $P_{9730} = (1, 15, 8, 1)$
235 : $P_{7961} = (24, 23, 6, 1)$	289 : $P_{9747} = (18, 15, 8, 1)$
236 : $P_{8017} = (16, 25, 6, 1)$	290 : $P_{9756} = (27, 15, 8, 1)$
237 : $P_{8094} = (29, 27, 6, 1)$	291 : $P_{9927} = (6, 21, 8, 1)$
238 : $P_{8124} = (27, 28, 6, 1)$	292 : $P_{9938} = (17, 21, 8, 1)$
239 : $P_{8203} = (10, 31, 6, 1)$	293 : $P_{9952} = (31, 21, 8, 1)$
240 : $P_{8210} = (17, 31, 6, 1)$	294 : $P_{9984} = (31, 22, 8, 1)$
241 : $P_{8222} = (29, 31, 6, 1)$	295 : $P_{10051} = (2, 25, 8, 1)$

296 :  $P_{10105} = (24, 26, 8, 1)$   
 297 :  $P_{10117} = (4, 27, 8, 1)$   
 298 :  $P_{10213} = (4, 30, 8, 1)$   
 299 :  $P_{10255} = (14, 31, 8, 1)$   
 300 :  $P_{10290} = (17, 0, 9, 1)$   
 301 :  $P_{10297} = (24, 0, 9, 1)$   
 302 :  $P_{10415} = (14, 4, 9, 1)$   
 303 :  $P_{10427} = (26, 4, 9, 1)$   
 304 :  $P_{10430} = (29, 4, 9, 1)$   
 305 :  $P_{10452} = (19, 5, 9, 1)$   
 306 :  $P_{10468} = (3, 6, 9, 1)$   
 307 :  $P_{10483} = (18, 6, 9, 1)$   
 308 :  $P_{10489} = (24, 6, 9, 1)$   
 309 :  $P_{10567} = (6, 9, 9, 1)$   
 310 :  $P_{10595} = (2, 10, 9, 1)$   
 311 :  $P_{10615} = (22, 10, 9, 1)$   
 312 :  $P_{10622} = (29, 10, 9, 1)$   
 313 :  $P_{10665} = (8, 12, 9, 1)$   
 314 :  $P_{10706} = (17, 13, 9, 1)$   
 315 :  $P_{10729} = (8, 14, 9, 1)$   
 316 :  $P_{10786} = (1, 16, 9, 1)$   
 317 :  $P_{10803} = (18, 16, 9, 1)$   
 318 :  $P_{10811} = (26, 16, 9, 1)$   
 319 :  $P_{10902} = (21, 19, 9, 1)$   
 320 :  $P_{10959} = (14, 21, 9, 1)$   
 321 :  $P_{11043} = (2, 24, 9, 1)$   
 322 :  $P_{11074} = (1, 25, 9, 1)$   
 323 :  $P_{11111} = (6, 26, 9, 1)$   
 324 :  $P_{11124} = (19, 26, 9, 1)$   
 325 :  $P_{11133} = (28, 26, 9, 1)$   
 326 :  $P_{11204} = (3, 29, 9, 1)$   
 327 :  $P_{11223} = (22, 29, 9, 1)$   
 328 :  $P_{11229} = (28, 29, 9, 1)$   
 329 :  $P_{11286} = (21, 31, 9, 1)$   
 330 :  $P_{11317} = (20, 0, 10, 1)$   
 331 :  $P_{11327} = (30, 0, 10, 1)$   
 332 :  $P_{11377} = (16, 2, 10, 1)$   
 333 :  $P_{11400} = (7, 3, 10, 1)$   
 334 :  $P_{11493} = (4, 6, 10, 1)$   
 335 :  $P_{11651} = (2, 11, 10, 1)$   
 336 :  $P_{11653} = (4, 11, 10, 1)$   
 337 :  $P_{11661} = (12, 11, 10, 1)$   
 338 :  $P_{11786} = (9, 15, 10, 1)$   
 339 :  $P_{11816} = (7, 16, 10, 1)$   
 340 :  $P_{11903} = (30, 18, 10, 1)$   
 341 :  $P_{11921} = (16, 19, 10, 1)$   
 342 :  $P_{11970} = (1, 21, 10, 1)$   
 343 :  $P_{12115} = (18, 25, 10, 1)$   
 344 :  $P_{12140} = (11, 26, 10, 1)$   
 345 :  $P_{12205} = (12, 28, 10, 1)$   
 346 :  $P_{12211} = (18, 28, 10, 1)$   
 347 :  $P_{12213} = (20, 28, 10, 1)$   
 348 :  $P_{12268} = (11, 30, 10, 1)$   
 349 :  $P_{12290} = (1, 31, 10, 1)$

350 :  $P_{12291} = (2, 31, 10, 1)$   
 351 :  $P_{12298} = (9, 31, 10, 1)$   
 352 :  $P_{12328} = (7, 0, 11, 1)$   
 353 :  $P_{12333} = (12, 0, 11, 1)$   
 354 :  $P_{12425} = (8, 3, 11, 1)$   
 355 :  $P_{12437} = (20, 3, 11, 1)$   
 356 :  $P_{12440} = (23, 3, 11, 1)$   
 357 :  $P_{12514} = (1, 6, 11, 1)$   
 358 :  $P_{12549} = (4, 7, 11, 1)$   
 359 :  $P_{12605} = (28, 8, 11, 1)$   
 360 :  $P_{12693} = (20, 11, 11, 1)$   
 361 :  $P_{12738} = (1, 13, 11, 1)$   
 362 :  $P_{12740} = (3, 13, 11, 1)$   
 363 :  $P_{12746} = (9, 13, 11, 1)$   
 364 :  $P_{12773} = (4, 14, 11, 1)$   
 365 :  $P_{12791} = (22, 14, 11, 1)$   
 366 :  $P_{12794} = (25, 14, 11, 1)$   
 367 :  $P_{12836} = (3, 16, 11, 1)$   
 368 :  $P_{12855} = (22, 16, 11, 1)$   
 369 :  $P_{12863} = (30, 16, 11, 1)$   
 370 :  $P_{12873} = (8, 17, 11, 1)$   
 371 :  $P_{12925} = (28, 18, 11, 1)$   
 372 :  $P_{12966} = (5, 20, 11, 1)$   
 373 :  $P_{12968} = (7, 20, 11, 1)$   
 374 :  $P_{12970} = (9, 20, 11, 1)$   
 375 :  $P_{13030} = (5, 22, 11, 1)$   
 376 :  $P_{13048} = (23, 22, 11, 1)$   
 377 :  $P_{13050} = (25, 22, 11, 1)$   
 378 :  $P_{13163} = (10, 26, 11, 1)$   
 379 :  $P_{13197} = (12, 27, 11, 1)$   
 380 :  $P_{13247} = (30, 28, 11, 1)$   
 381 :  $P_{13291} = (10, 30, 11, 1)$   
 382 :  $P_{13380} = (3, 1, 12, 1)$   
 383 :  $P_{13395} = (18, 1, 12, 1)$   
 384 :  $P_{13406} = (29, 1, 12, 1)$   
 385 :  $P_{13428} = (19, 2, 12, 1)$   
 386 :  $P_{13475} = (2, 4, 12, 1)$   
 387 :  $P_{13517} = (12, 5, 12, 1)$   
 388 :  $P_{13528} = (23, 5, 12, 1)$   
 389 :  $P_{13542} = (5, 6, 12, 1)$   
 390 :  $P_{13587} = (18, 7, 12, 1)$   
 391 :  $P_{13620} = (19, 8, 12, 1)$   
 392 :  $P_{13662} = (29, 9, 12, 1)$   
 393 :  $P_{13672} = (7, 10, 12, 1)$   
 394 :  $P_{13704} = (7, 11, 12, 1)$   
 395 :  $P_{13760} = (31, 12, 12, 1)$   
 396 :  $P_{13810} = (17, 14, 12, 1)$   
 397 :  $P_{13849} = (24, 15, 12, 1)$   
 398 :  $P_{13981} = (28, 19, 12, 1)$   
 399 :  $P_{14020} = (3, 21, 12, 1)$   
 400 :  $P_{14109} = (28, 23, 12, 1)$   
 401 :  $P_{14140} = (27, 24, 12, 1)$   
 402 :  $P_{14200} = (23, 26, 12, 1)$   
 403 :  $P_{14243} = (2, 28, 12, 1)$

404 :  $P_{14258} = (17, 28, 12, 1)$   
 405 :  $P_{14272} = (31, 28, 12, 1)$   
 406 :  $P_{14300} = (27, 29, 12, 1)$   
 407 :  $P_{14329} = (24, 30, 12, 1)$   
 408 :  $P_{14342} = (5, 31, 12, 1)$   
 409 :  $P_{14349} = (12, 31, 12, 1)$   
 410 :  $P_{14373} = (4, 0, 13, 1)$   
 411 :  $P_{14378} = (9, 0, 13, 1)$   
 412 :  $P_{14403} = (2, 1, 13, 1)$   
 413 :  $P_{14420} = (19, 1, 13, 1)$   
 414 :  $P_{14429} = (28, 1, 13, 1)$   
 415 :  $P_{14438} = (5, 2, 13, 1)$   
 416 :  $P_{14478} = (13, 3, 13, 1)$   
 417 :  $P_{14494} = (29, 3, 13, 1)$   
 418 :  $P_{14512} = (15, 4, 13, 1)$   
 419 :  $P_{14530} = (1, 5, 13, 1)$   
 420 :  $P_{14532} = (3, 5, 13, 1)$   
 421 :  $P_{14544} = (15, 5, 13, 1)$   
 422 :  $P_{14626} = (1, 8, 13, 1)$   
 423 :  $P_{14647} = (22, 8, 13, 1)$   
 424 :  $P_{14651} = (26, 8, 13, 1)$   
 425 :  $P_{14667} = (10, 9, 13, 1)$   
 426 :  $P_{14675} = (18, 9, 13, 1)$   
 427 :  $P_{14678} = (21, 9, 13, 1)$   
 428 :  $P_{14698} = (9, 10, 13, 1)$   
 429 :  $P_{14807} = (22, 13, 13, 1)$   
 430 :  $P_{14917} = (4, 17, 13, 1)$   
 431 :  $P_{14948} = (3, 18, 13, 1)$   
 432 :  $P_{15002} = (25, 19, 13, 1)$   
 433 :  $P_{15019} = (10, 20, 13, 1)$   
 434 :  $P_{15064} = (23, 21, 13, 1)$   
 435 :  $P_{15102} = (29, 22, 13, 1)$   
 436 :  $P_{15130} = (25, 23, 13, 1)$   
 437 :  $P_{15150} = (13, 24, 13, 1)$   
 438 :  $P_{15156} = (19, 24, 13, 1)$   
 439 :  $P_{15197} = (28, 25, 13, 1)$   
 440 :  $P_{15209} = (8, 26, 13, 1)$   
 441 :  $P_{15235} = (2, 27, 13, 1)$   
 442 :  $P_{15254} = (21, 27, 13, 1)$   
 443 :  $P_{15259} = (26, 27, 13, 1)$   
 444 :  $P_{15305} = (8, 29, 13, 1)$   
 445 :  $P_{15315} = (18, 29, 13, 1)$   
 446 :  $P_{15320} = (23, 29, 13, 1)$   
 447 :  $P_{15334} = (5, 30, 13, 1)$   
 448 :  $P_{15412} = (19, 0, 14, 1)$   
 449 :  $P_{15422} = (29, 0, 14, 1)$   
 450 :  $P_{15504} = (15, 3, 14, 1)$   
 451 :  $P_{15534} = (13, 4, 14, 1)$   
 452 :  $P_{15574} = (21, 5, 14, 1)$   
 453 :  $P_{15594} = (9, 6, 14, 1)$   
 454 :  $P_{15662} = (13, 8, 14, 1)$   
 455 :  $P_{15700} = (19, 9, 14, 1)$   
 456 :  $P_{15830} = (21, 13, 14, 1)$   
 457 :  $P_{15877} = (4, 15, 14, 1)$

458 :  $P_{15889} = (16, 15, 14, 1)$   
 459 :  $P_{15899} = (26, 15, 14, 1)$   
 460 :  $P_{15970} = (1, 18, 14, 1)$   
 461 :  $P_{15973} = (4, 18, 14, 1)$   
 462 :  $P_{15980} = (11, 18, 14, 1)$   
 463 :  $P_{16016} = (15, 19, 14, 1)$   
 464 :  $P_{16049} = (16, 20, 14, 1)$   
 465 :  $P_{16138} = (9, 23, 14, 1)$   
 466 :  $P_{16155} = (26, 23, 14, 1)$   
 467 :  $P_{16158} = (29, 23, 14, 1)$   
 468 :  $P_{16290} = (1, 28, 14, 1)$   
 469 :  $P_{16396} = (11, 31, 14, 1)$   
 470 :  $P_{16438} = (21, 0, 15, 1)$   
 471 :  $P_{16443} = (26, 0, 15, 1)$   
 472 :  $P_{16507} = (26, 2, 15, 1)$   
 473 :  $P_{16527} = (14, 3, 15, 1)$   
 474 :  $P_{16587} = (10, 5, 15, 1)$   
 475 :  $P_{16601} = (24, 5, 15, 1)$   
 476 :  $P_{16606} = (29, 5, 15, 1)$   
 477 :  $P_{16728} = (23, 9, 15, 1)$   
 478 :  $P_{16760} = (23, 10, 15, 1)$   
 479 :  $P_{16811} = (10, 12, 15, 1)$   
 480 :  $P_{16838} = (5, 13, 15, 1)$   
 481 :  $P_{16852} = (19, 13, 15, 1)$   
 482 :  $P_{16858} = (25, 13, 15, 1)$   
 483 :  $P_{16926} = (29, 15, 15, 1)$   
 484 :  $P_{17039} = (14, 19, 15, 1)$   
 485 :  $P_{17058} = (1, 20, 15, 1)$   
 486 :  $P_{17105} = (16, 21, 15, 1)$   
 487 :  $P_{17172} = (19, 23, 15, 1)$   
 488 :  $P_{17223} = (6, 25, 15, 1)$   
 489 :  $P_{17234} = (17, 25, 15, 1)$   
 490 :  $P_{17241} = (24, 25, 15, 1)$   
 491 :  $P_{17282} = (1, 27, 15, 1)$   
 492 :  $P_{17286} = (5, 27, 15, 1)$   
 493 :  $P_{17292} = (11, 27, 15, 1)$   
 494 :  $P_{17356} = (11, 29, 15, 1)$   
 495 :  $P_{17362} = (17, 29, 15, 1)$   
 496 :  $P_{17366} = (21, 29, 15, 1)$   
 497 :  $P_{17383} = (6, 30, 15, 1)$   
 498 :  $P_{17393} = (16, 30, 15, 1)$   
 499 :  $P_{17402} = (25, 30, 15, 1)$   
 500 :  $P_{17443} = (2, 0, 16, 1)$   
 501 :  $P_{17459} = (18, 0, 16, 1)$   
 502 :  $P_{17494} = (21, 1, 16, 1)$   
 503 :  $P_{17500} = (27, 1, 16, 1)$   
 504 :  $P_{17503} = (30, 1, 16, 1)$   
 505 :  $P_{17516} = (11, 2, 16, 1)$   
 506 :  $P_{17538} = (1, 3, 16, 1)$   
 507 :  $P_{17548} = (11, 3, 16, 1)$   
 508 :  $P_{17563} = (26, 3, 16, 1)$   
 509 :  $P_{17603} = (2, 5, 16, 1)$   
 510 :  $P_{17641} = (8, 6, 16, 1)$   
 511 :  $P_{17693} = (28, 7, 16, 1)$

512 :  $P_{17715} = (18, 8, 16, 1)$   
 513 :  $P_{17844} = (19, 12, 16, 1)$   
 514 :  $P_{17864} = (7, 13, 16, 1)$   
 515 :  $P_{17869} = (12, 13, 16, 1)$   
 516 :  $P_{17884} = (27, 13, 16, 1)$   
 517 :  $P_{17892} = (3, 14, 16, 1)$   
 518 :  $P_{17982} = (29, 16, 16, 1)$   
 519 :  $P_{18024} = (7, 18, 16, 1)$   
 520 :  $P_{18025} = (8, 18, 16, 1)$   
 521 :  $P_{18048} = (31, 18, 16, 1)$   
 522 :  $P_{18050} = (1, 19, 16, 1)$   
 523 :  $P_{18061} = (12, 19, 16, 1)$   
 524 :  $P_{18078} = (29, 19, 16, 1)$   
 525 :  $P_{18100} = (19, 20, 16, 1)$   
 526 :  $P_{18109} = (28, 20, 16, 1)$   
 527 :  $P_{18112} = (31, 20, 16, 1)$   
 528 :  $P_{18166} = (21, 22, 16, 1)$   
 529 :  $P_{18193} = (16, 23, 16, 1)$   
 530 :  $P_{18207} = (30, 23, 16, 1)$   
 531 :  $P_{18289} = (16, 26, 16, 1)$   
 532 :  $P_{18293} = (20, 26, 16, 1)$   
 533 :  $P_{18308} = (3, 27, 16, 1)$   
 534 :  $P_{18359} = (22, 28, 16, 1)$   
 535 :  $P_{18389} = (20, 29, 16, 1)$   
 536 :  $P_{18423} = (22, 30, 16, 1)$   
 537 :  $P_{18459} = (26, 31, 16, 1)$   
 538 :  $P_{18517} = (20, 1, 17, 1)$   
 539 :  $P_{18523} = (26, 1, 17, 1)$   
 540 :  $P_{18528} = (31, 1, 17, 1)$   
 541 :  $P_{18556} = (27, 2, 17, 1)$   
 542 :  $P_{18578} = (17, 3, 17, 1)$   
 543 :  $P_{18589} = (28, 3, 17, 1)$   
 544 :  $P_{18715} = (26, 7, 17, 1)$   
 545 :  $P_{18745} = (24, 8, 17, 1)$   
 546 :  $P_{18777} = (24, 9, 17, 1)$   
 547 :  $P_{18790} = (5, 10, 17, 1)$   
 548 :  $P_{18840} = (23, 11, 17, 1)$   
 549 :  $P_{18877} = (28, 12, 17, 1)$   
 550 :  $P_{18936} = (23, 14, 17, 1)$   
 551 :  $P_{18948} = (3, 15, 17, 1)$   
 552 :  $P_{18962} = (17, 15, 17, 1)$   
 553 :  $P_{19024} = (15, 17, 17, 1)$   
 554 :  $P_{19061} = (20, 18, 17, 1)$   
 555 :  $P_{19103} = (30, 19, 17, 1)$   
 556 :  $P_{19118} = (13, 20, 17, 1)$   
 557 :  $P_{19142} = (5, 21, 17, 1)$   
 558 :  $P_{19152} = (15, 21, 17, 1)$   
 559 :  $P_{19164} = (27, 21, 17, 1)$   
 560 :  $P_{19214} = (13, 23, 17, 1)$   
 561 :  $P_{19264} = (31, 24, 17, 1)$   
 562 :  $P_{19268} = (3, 25, 17, 1)$   
 563 :  $P_{19359} = (30, 27, 17, 1)$   
 564 :  $P_{19382} = (21, 28, 17, 1)$   
 565 :  $P_{19446} = (21, 30, 17, 1)$

566 :  $P_{19494} = (5, 0, 18, 1)$   
 567 :  $P_{19512} = (23, 0, 18, 1)$   
 568 :  $P_{19563} = (10, 2, 18, 1)$   
 569 :  $P_{19565} = (12, 2, 18, 1)$   
 570 :  $P_{19573} = (20, 2, 18, 1)$   
 571 :  $P_{19615} = (30, 3, 18, 1)$   
 572 :  $P_{19618} = (1, 4, 18, 1)$   
 573 :  $P_{19629} = (12, 4, 18, 1)$   
 574 :  $P_{19648} = (31, 4, 18, 1)$   
 575 :  $P_{19723} = (10, 7, 18, 1)$   
 576 :  $P_{19765} = (20, 8, 18, 1)$   
 577 :  $P_{19772} = (27, 8, 18, 1)$   
 578 :  $P_{19774} = (29, 8, 18, 1)$   
 579 :  $P_{19828} = (19, 10, 18, 1)$   
 580 :  $P_{19894} = (21, 12, 18, 1)$   
 581 :  $P_{19898} = (25, 12, 18, 1)$   
 582 :  $P_{19903} = (30, 12, 18, 1)$   
 583 :  $P_{19976} = (7, 15, 18, 1)$   
 584 :  $P_{20006} = (5, 16, 18, 1)$   
 585 :  $P_{20052} = (19, 17, 18, 1)$   
 586 :  $P_{20090} = (25, 18, 18, 1)$   
 587 :  $P_{20150} = (21, 20, 18, 1)$   
 588 :  $P_{20155} = (26, 20, 18, 1)$   
 589 :  $P_{20158} = (29, 20, 18, 1)$   
 590 :  $P_{20194} = (1, 22, 18, 1)$   
 591 :  $P_{20252} = (27, 23, 18, 1)$   
 592 :  $P_{20312} = (23, 25, 18, 1)$   
 593 :  $P_{20315} = (26, 25, 18, 1)$   
 594 :  $P_{20320} = (31, 25, 18, 1)$   
 595 :  $P_{20456} = (7, 30, 18, 1)$   
 596 :  $P_{20523} = (10, 0, 19, 1)$   
 597 :  $P_{20538} = (25, 0, 19, 1)$   
 598 :  $P_{20600} = (23, 2, 19, 1)$   
 599 :  $P_{20742} = (5, 7, 19, 1)$   
 600 :  $P_{20752} = (15, 7, 19, 1)$   
 601 :  $P_{20762} = (25, 7, 19, 1)$   
 602 :  $P_{20832} = (31, 9, 19, 1)$   
 603 :  $P_{20851} = (18, 10, 19, 1)$   
 604 :  $P_{20866} = (1, 11, 19, 1)$   
 605 :  $P_{20878} = (13, 11, 19, 1)$   
 606 :  $P_{20896} = (31, 11, 19, 1)$   
 607 :  $P_{20920} = (23, 12, 19, 1)$   
 608 :  $P_{20931} = (2, 13, 19, 1)$   
 609 :  $P_{20963} = (2, 14, 19, 1)$   
 610 :  $P_{21003} = (10, 15, 19, 1)$   
 611 :  $P_{21075} = (18, 17, 19, 1)$   
 612 :  $P_{21094} = (5, 18, 19, 1)$   
 613 :  $P_{21102} = (13, 18, 19, 1)$   
 614 :  $P_{21116} = (27, 18, 19, 1)$   
 615 :  $P_{21244} = (27, 22, 19, 1)$   
 616 :  $P_{21282} = (1, 24, 19, 1)$   
 617 :  $P_{21456} = (15, 29, 19, 1)$   
 618 :  $P_{21623} = (22, 2, 20, 1)$   
 619 :  $P_{21675} = (10, 4, 20, 1)$



620 :  $P_{21705} = (8, 5, 20, 1)$   
 621 :  $P_{21742} = (13, 6, 20, 1)$   
 622 :  $P_{21808} = (15, 8, 20, 1)$   
 623 :  $P_{21863} = (6, 10, 20, 1)$   
 624 :  $P_{22011} = (26, 14, 20, 1)$   
 625 :  $P_{22070} = (21, 16, 20, 1)$   
 626 :  $P_{22125} = (12, 18, 20, 1)$   
 627 :  $P_{22127} = (14, 18, 20, 1)$   
 628 :  $P_{22135} = (22, 18, 20, 1)$   
 629 :  $P_{22185} = (8, 20, 20, 1)$   
 630 :  $P_{22191} = (14, 20, 20, 1)$   
 631 :  $P_{22195} = (18, 20, 20, 1)$   
 632 :  $P_{22235} = (26, 21, 20, 1)$   
 633 :  $P_{22275} = (2, 23, 20, 1)$   
 634 :  $P_{22312} = (7, 24, 20, 1)$   
 635 :  $P_{22315} = (10, 24, 20, 1)$   
 636 :  $P_{22330} = (25, 24, 20, 1)$   
 637 :  $P_{22349} = (12, 25, 20, 1)$   
 638 :  $P_{22350} = (13, 25, 20, 1)$   
 639 :  $P_{22358} = (21, 25, 20, 1)$   
 640 :  $P_{22371} = (2, 26, 20, 1)$   
 641 :  $P_{22384} = (15, 26, 20, 1)$   
 642 :  $P_{22394} = (25, 26, 20, 1)$   
 643 :  $P_{22408} = (7, 27, 20, 1)$   
 644 :  $P_{22471} = (6, 29, 20, 1)$   
 645 :  $P_{22515} = (18, 30, 20, 1)$   
 646 :  $P_{22639} = (14, 2, 21, 1)$   
 647 :  $P_{22659} = (2, 3, 21, 1)$   
 648 :  $P_{22662} = (5, 3, 21, 1)$   
 649 :  $P_{22675} = (18, 3, 21, 1)$   
 650 :  $P_{22815} = (30, 7, 21, 1)$   
 651 :  $P_{22822} = (5, 8, 21, 1)$   
 652 :  $P_{22857} = (8, 9, 21, 1)$   
 653 :  $P_{22860} = (11, 9, 21, 1)$   
 654 :  $P_{22871} = (22, 9, 21, 1)$   
 655 :  $P_{22892} = (11, 10, 21, 1)$   
 656 :  $P_{22895} = (14, 10, 21, 1)$   
 657 :  $P_{22897} = (16, 10, 21, 1)$   
 658 :  $P_{22934} = (21, 11, 21, 1)$   
 659 :  $P_{22940} = (27, 11, 21, 1)$   
 660 :  $P_{22947} = (2, 12, 21, 1)$   
 661 :  $P_{22981} = (4, 13, 21, 1)$   
 662 :  $P_{22983} = (6, 13, 21, 1)$   
 663 :  $P_{23000} = (23, 13, 21, 1)$   
 664 :  $P_{23063} = (22, 15, 21, 1)$   
 665 :  $P_{23081} = (8, 16, 21, 1)$   
 666 :  $P_{23082} = (9, 16, 21, 1)$   
 667 :  $P_{23093} = (20, 16, 21, 1)$   
 668 :  $P_{23173} = (4, 19, 21, 1)$   
 669 :  $P_{23318} = (21, 23, 21, 1)$   
 670 :  $P_{23328} = (31, 23, 21, 1)$   
 671 :  $P_{23359} = (30, 24, 21, 1)$   
 672 :  $P_{23381} = (20, 25, 21, 1)$   
 673 :  $P_{23443} = (18, 27, 21, 1)$

674 :  $P_{23463} = (6, 28, 21, 1)$   
 675 :  $P_{23466} = (9, 28, 21, 1)$   
 676 :  $P_{23483} = (26, 28, 21, 1)$   
 677 :  $P_{23505} = (16, 29, 21, 1)$   
 678 :  $P_{23515} = (26, 29, 21, 1)$   
 679 :  $P_{23520} = (31, 29, 21, 1)$   
 680 :  $P_{23544} = (23, 30, 21, 1)$   
 681 :  $P_{23580} = (27, 31, 21, 1)$   
 682 :  $P_{23741} = (28, 4, 22, 1)$   
 683 :  $P_{23761} = (16, 5, 22, 1)$   
 684 :  $P_{23763} = (18, 5, 22, 1)$   
 685 :  $P_{23765} = (20, 5, 22, 1)$   
 686 :  $P_{23825} = (16, 7, 22, 1)$   
 687 :  $P_{23852} = (11, 8, 22, 1)$   
 688 :  $P_{23940} = (3, 11, 22, 1)$   
 689 :  $P_{23943} = (6, 11, 22, 1)$   
 690 :  $P_{23956} = (19, 11, 22, 1)$   
 691 :  $P_{23983} = (14, 12, 22, 1)$   
 692 :  $P_{24031} = (30, 13, 22, 1)$   
 693 :  $P_{24051} = (18, 14, 22, 1)$   
 694 :  $P_{24103} = (6, 16, 22, 1)$   
 695 :  $P_{24198} = (5, 19, 22, 1)$   
 696 :  $P_{24227} = (2, 20, 22, 1)$   
 697 :  $P_{24228} = (3, 20, 22, 1)$   
 698 :  $P_{24248} = (23, 20, 22, 1)$   
 699 :  $P_{24277} = (20, 21, 22, 1)$   
 700 :  $P_{24285} = (28, 21, 22, 1)$   
 701 :  $P_{24287} = (30, 21, 22, 1)$   
 702 :  $P_{24300} = (11, 22, 22, 1)$   
 703 :  $P_{24303} = (14, 22, 22, 1)$   
 704 :  $P_{24308} = (19, 22, 22, 1)$   
 705 :  $P_{24326} = (5, 23, 22, 1)$   
 706 :  $P_{24414} = (29, 25, 22, 1)$   
 707 :  $P_{24472} = (23, 27, 22, 1)$   
 708 :  $P_{24515} = (2, 29, 22, 1)$   
 709 :  $P_{24574} = (29, 30, 22, 1)$   
 710 :  $P_{24680} = (7, 2, 23, 1)$   
 711 :  $P_{24686} = (13, 2, 23, 1)$   
 712 :  $P_{24702} = (29, 2, 23, 1)$   
 713 :  $P_{24721} = (16, 3, 23, 1)$   
 714 :  $P_{24748} = (11, 4, 23, 1)$   
 715 :  $P_{24842} = (9, 7, 23, 1)$   
 716 :  $P_{24856} = (23, 7, 23, 1)$   
 717 :  $P_{24872} = (7, 8, 23, 1)$   
 718 :  $P_{24901} = (4, 9, 23, 1)$   
 719 :  $P_{24942} = (13, 10, 23, 1)$   
 720 :  $P_{25069} = (12, 14, 23, 1)$   
 721 :  $P_{25095} = (6, 15, 23, 1)$   
 722 :  $P_{25103} = (14, 15, 23, 1)$   
 723 :  $P_{25120} = (31, 15, 23, 1)$   
 724 :  $P_{25140} = (19, 16, 23, 1)$   
 725 :  $P_{25164} = (11, 17, 23, 1)$   
 726 :  $P_{25165} = (12, 17, 23, 1)$   
 727 :  $P_{25169} = (16, 17, 23, 1)$

728 :  $P_{25191} = (6, 18, 23, 1)$   
 729 :  $P_{25271} = (22, 20, 23, 1)$   
 730 :  $P_{25289} = (8, 21, 23, 1)$   
 731 :  $P_{25382} = (5, 24, 23, 1)$   
 732 :  $P_{25392} = (15, 24, 23, 1)$   
 733 :  $P_{25406} = (29, 24, 23, 1)$   
 734 :  $P_{25414} = (5, 25, 23, 1)$   
 735 :  $P_{25418} = (9, 25, 23, 1)$   
 736 :  $P_{25436} = (27, 25, 23, 1)$   
 737 :  $P_{25487} = (14, 27, 23, 1)$   
 738 :  $P_{25488} = (15, 27, 23, 1)$   
 739 :  $P_{25495} = (22, 27, 23, 1)$   
 740 :  $P_{25513} = (8, 28, 23, 1)$   
 741 :  $P_{25588} = (19, 30, 23, 1)$   
 742 :  $P_{25596} = (27, 30, 23, 1)$   
 743 :  $P_{25600} = (31, 30, 23, 1)$   
 744 :  $P_{25605} = (4, 31, 23, 1)$   
 745 :  $P_{25624} = (23, 31, 23, 1)$   
 746 :  $P_{25722} = (25, 2, 24, 1)$   
 747 :  $P_{25727} = (30, 2, 24, 1)$   
 748 :  $P_{25728} = (31, 2, 24, 1)$   
 749 :  $P_{25782} = (21, 4, 24, 1)$   
 750 :  $P_{25783} = (22, 4, 24, 1)$   
 751 :  $P_{25788} = (27, 4, 24, 1)$   
 752 :  $P_{25806} = (13, 5, 24, 1)$   
 753 :  $P_{25827} = (2, 6, 24, 1)$   
 754 :  $P_{25836} = (11, 6, 24, 1)$   
 755 :  $P_{25842} = (17, 6, 24, 1)$   
 756 :  $P_{25874} = (17, 7, 24, 1)$   
 757 :  $P_{25879} = (22, 7, 24, 1)$   
 758 :  $P_{25888} = (31, 7, 24, 1)$   
 759 :  $P_{25941} = (20, 9, 24, 1)$   
 760 :  $P_{25974} = (21, 10, 24, 1)$   
 761 :  $P_{26001} = (16, 11, 24, 1)$   
 762 :  $P_{26030} = (13, 12, 24, 1)$   
 763 :  $P_{26032} = (15, 12, 24, 1)$   
 764 :  $P_{26043} = (26, 12, 24, 1)$   
 765 :  $P_{26057} = (8, 13, 24, 1)$   
 766 :  $P_{26108} = (27, 14, 24, 1)$   
 767 :  $P_{26160} = (15, 16, 24, 1)$   
 768 :  $P_{26225} = (16, 18, 24, 1)$   
 769 :  $P_{26233} = (24, 18, 24, 1)$   
 770 :  $P_{26243} = (2, 19, 24, 1)$   
 771 :  $P_{26249} = (8, 19, 24, 1)$   
 772 :  $P_{26259} = (18, 19, 24, 1)$   
 773 :  $P_{26316} = (11, 21, 24, 1)$   
 774 :  $P_{26329} = (24, 21, 24, 1)$   
 775 :  $P_{26379} = (10, 23, 24, 1)$   
 776 :  $P_{26539} = (10, 28, 24, 1)$   
 777 :  $P_{26586} = (25, 29, 24, 1)$   
 778 :  $P_{26619} = (26, 30, 24, 1)$   
 779 :  $P_{26643} = (18, 31, 24, 1)$   
 780 :  $P_{26645} = (20, 31, 24, 1)$   
 781 :  $P_{26655} = (30, 31, 24, 1)$

782 :  $P_{26745} = (24, 2, 25, 1)$   
 783 :  $P_{26871} = (22, 6, 25, 1)$   
 784 :  $P_{26930} = (17, 8, 25, 1)$   
 785 :  $P_{26992} = (15, 10, 25, 1)$   
 786 :  $P_{27093} = (20, 13, 25, 1)$   
 787 :  $P_{27142} = (5, 15, 25, 1)$   
 788 :  $P_{27145} = (8, 15, 25, 1)$   
 789 :  $P_{27157} = (20, 15, 25, 1)$   
 790 :  $P_{27192} = (23, 16, 25, 1)$   
 791 :  $P_{27210} = (9, 17, 25, 1)$   
 792 :  $P_{27214} = (13, 17, 25, 1)$   
 793 :  $P_{27230} = (29, 17, 25, 1)$   
 794 :  $P_{27287} = (22, 19, 25, 1)$   
 795 :  $P_{27342} = (13, 21, 25, 1)$   
 796 :  $P_{27365} = (4, 22, 25, 1)$   
 797 :  $P_{27442} = (17, 24, 25, 1)$   
 798 :  $P_{27465} = (8, 25, 25, 1)$   
 799 :  $P_{27472} = (15, 25, 25, 1)$   
 800 :  $P_{27487} = (30, 25, 25, 1)$   
 801 :  $P_{27519} = (30, 26, 25, 1)$   
 802 :  $P_{27540} = (19, 27, 25, 1)$   
 803 :  $P_{27572} = (19, 28, 25, 1)$   
 804 :  $P_{27576} = (23, 28, 25, 1)$   
 805 :  $P_{27582} = (29, 28, 25, 1)$   
 806 :  $P_{27589} = (4, 29, 25, 1)$   
 807 :  $P_{27590} = (5, 29, 25, 1)$   
 808 :  $P_{27609} = (24, 29, 25, 1)$   
 809 :  $P_{27626} = (9, 30, 25, 1)$   
 810 :  $P_{27718} = (5, 1, 26, 1)$   
 811 :  $P_{27722} = (9, 1, 26, 1)$   
 812 :  $P_{27735} = (22, 1, 26, 1)$   
 813 :  $P_{27801} = (24, 3, 26, 1)$   
 814 :  $P_{27817} = (8, 4, 26, 1)$   
 815 :  $P_{27907} = (2, 7, 26, 1)$   
 816 :  $P_{27960} = (23, 8, 26, 1)$   
 817 :  $P_{28009} = (8, 10, 26, 1)$   
 818 :  $P_{28055} = (22, 11, 26, 1)$   
 819 :  $P_{28150} = (21, 14, 26, 1)$   
 820 :  $P_{28182} = (21, 15, 26, 1)$   
 821 :  $P_{28197} = (4, 16, 26, 1)$   
 822 :  $P_{28249} = (24, 17, 26, 1)$   
 823 :  $P_{28251} = (26, 17, 26, 1)$   
 824 :  $P_{28274} = (17, 18, 26, 1)$   
 825 :  $P_{28283} = (26, 18, 26, 1)$   
 826 :  $P_{28296} = (7, 19, 26, 1)$   
 827 :  $P_{28338} = (17, 20, 26, 1)$   
 828 :  $P_{28362} = (9, 21, 26, 1)$   
 829 :  $P_{28387} = (2, 22, 26, 1)$   
 830 :  $P_{28421} = (4, 23, 26, 1)$   
 831 :  $P_{28429} = (12, 23, 26, 1)$   
 832 :  $P_{28435} = (18, 23, 26, 1)$   
 833 :  $P_{28472} = (23, 24, 26, 1)$   
 834 :  $P_{28531} = (18, 26, 26, 1)$   
 835 :  $P_{28582} = (5, 28, 26, 1)$

836 :  $P_{28653} = (12, 30, 26, 1)$   
 837 :  $P_{28680} = (7, 31, 26, 1)$   
 838 :  $P_{28716} = (11, 0, 27, 1)$   
 839 :  $P_{28721} = (16, 0, 27, 1)$   
 840 :  $P_{28741} = (4, 1, 27, 1)$   
 841 :  $P_{28745} = (8, 1, 27, 1)$   
 842 :  $P_{28760} = (23, 1, 27, 1)$   
 843 :  $P_{28772} = (3, 2, 27, 1)$   
 844 :  $P_{28773} = (4, 2, 27, 1)$   
 845 :  $P_{28797} = (28, 2, 27, 1)$   
 846 :  $P_{28811} = (10, 3, 27, 1)$   
 847 :  $P_{28850} = (17, 4, 27, 1)$   
 848 :  $P_{28887} = (22, 5, 27, 1)$   
 849 :  $P_{28892} = (27, 5, 27, 1)$   
 850 :  $P_{28920} = (23, 6, 27, 1)$   
 851 :  $P_{28937} = (8, 7, 27, 1)$   
 852 :  $P_{28956} = (27, 7, 27, 1)$   
 853 :  $P_{28967} = (6, 8, 27, 1)$   
 854 :  $P_{28998} = (5, 9, 27, 1)$   
 855 :  $P_{29026} = (1, 10, 27, 1)$   
 856 :  $P_{29028} = (3, 10, 27, 1)$   
 857 :  $P_{29050} = (25, 10, 27, 1)$   
 858 :  $P_{29066} = (9, 11, 27, 1)$   
 859 :  $P_{29071} = (14, 11, 27, 1)$   
 860 :  $P_{29085} = (28, 11, 27, 1)$   
 861 :  $P_{29105} = (16, 12, 27, 1)$   
 862 :  $P_{29164} = (11, 14, 27, 1)$   
 863 :  $P_{29248} = (31, 16, 27, 1)$   
 864 :  $P_{29250} = (1, 17, 27, 1)$   
 865 :  $P_{29254} = (5, 17, 27, 1)$   
 866 :  $P_{29280} = (31, 17, 27, 1)$   
 867 :  $P_{29330} = (17, 19, 27, 1)$   
 868 :  $P_{29418} = (9, 22, 27, 1)$   
 869 :  $P_{29419} = (10, 22, 27, 1)$   
 870 :  $P_{29433} = (24, 22, 27, 1)$   
 871 :  $P_{29479} = (6, 24, 27, 1)$   
 872 :  $P_{29527} = (22, 25, 27, 1)$   
 873 :  $P_{29594} = (25, 27, 27, 1)$   
 874 :  $P_{29625} = (24, 28, 27, 1)$   
 875 :  $P_{29647} = (14, 29, 27, 1)$   
 876 :  $P_{29802} = (9, 2, 28, 1)$   
 877 :  $P_{29887} = (30, 4, 28, 1)$   
 878 :  $P_{29893} = (4, 5, 28, 1)$   
 879 :  $P_{29898} = (9, 5, 28, 1)$   
 880 :  $P_{29906} = (17, 5, 28, 1)$   
 881 :  $P_{29950} = (29, 6, 28, 1)$   
 882 :  $P_{29972} = (19, 7, 28, 1)$   
 883 :  $P_{30001} = (16, 8, 28, 1)$   
 884 :  $P_{30066} = (17, 10, 28, 1)$   
 885 :  $P_{30091} = (10, 11, 28, 1)$   
 886 :  $P_{30096} = (15, 11, 28, 1)$   
 887 :  $P_{30106} = (25, 11, 28, 1)$   
 888 :  $P_{30155} = (10, 13, 28, 1)$   
 889 :  $P_{30156} = (11, 13, 28, 1)$

890 :  $P_{30174} = (29, 13, 28, 1)$   
 891 :  $P_{30190} = (13, 14, 28, 1)$   
 892 :  $P_{30192} = (15, 14, 28, 1)$   
 893 :  $P_{30207} = (30, 14, 28, 1)$   
 894 :  $P_{30211} = (2, 15, 28, 1)$   
 895 :  $P_{30237} = (28, 15, 28, 1)$   
 896 :  $P_{30307} = (2, 18, 28, 1)$   
 897 :  $P_{30361} = (24, 19, 28, 1)$   
 898 :  $P_{30420} = (19, 21, 28, 1)$   
 899 :  $P_{30436} = (3, 22, 28, 1)$   
 900 :  $P_{30446} = (13, 22, 28, 1)$   
 901 :  $P_{30451} = (18, 22, 28, 1)$   
 902 :  $P_{30468} = (3, 23, 28, 1)$   
 903 :  $P_{30476} = (11, 23, 28, 1)$   
 904 :  $P_{30485} = (20, 23, 28, 1)$   
 905 :  $P_{30515} = (18, 24, 28, 1)$   
 906 :  $P_{30525} = (28, 24, 28, 1)$   
 907 :  $P_{30565} = (4, 26, 28, 1)$   
 908 :  $P_{30609} = (16, 27, 28, 1)$   
 909 :  $P_{30613} = (20, 27, 28, 1)$   
 910 :  $P_{30617} = (24, 27, 28, 1)$   
 911 :  $P_{30746} = (25, 31, 28, 1)$   
 912 :  $P_{30838} = (21, 2, 29, 1)$   
 913 :  $P_{30853} = (4, 3, 29, 1)$   
 914 :  $P_{30855} = (6, 3, 29, 1)$   
 915 :  $P_{30880} = (31, 3, 29, 1)$   
 916 :  $P_{30906} = (25, 4, 29, 1)$   
 917 :  $P_{30971} = (26, 6, 29, 1)$   
 918 :  $P_{30972} = (27, 6, 29, 1)$   
 919 :  $P_{30973} = (28, 6, 29, 1)$   
 920 :  $P_{30983} = (6, 7, 29, 1)$   
 921 :  $P_{30991} = (14, 7, 29, 1)$   
 922 :  $P_{30998} = (21, 7, 29, 1)$   
 923 :  $P_{31066} = (25, 9, 29, 1)$   
 924 :  $P_{31067} = (26, 9, 29, 1)$   
 925 :  $P_{31071} = (30, 9, 29, 1)$   
 926 :  $P_{31104} = (31, 10, 29, 1)$   
 927 :  $P_{31197} = (28, 13, 29, 1)$   
 928 :  $P_{31221} = (20, 14, 29, 1)$   
 929 :  $P_{31279} = (14, 16, 29, 1)$   
 930 :  $P_{31307} = (10, 17, 29, 1)$   
 931 :  $P_{31370} = (9, 19, 29, 1)$   
 932 :  $P_{31420} = (27, 20, 29, 1)$   
 933 :  $P_{31477} = (20, 22, 29, 1)$   
 934 :  $P_{31525} = (4, 24, 29, 1)$   
 935 :  $P_{31652} = (3, 28, 29, 1)$   
 936 :  $P_{31690} = (9, 29, 29, 1)$   
 937 :  $P_{31691} = (10, 29, 29, 1)$   
 938 :  $P_{31711} = (30, 29, 29, 1)$   
 939 :  $P_{31716} = (3, 30, 29, 1)$   
 940 :  $P_{31785} = (8, 0, 30, 1)$   
 941 :  $P_{31799} = (22, 0, 30, 1)$   
 942 :  $P_{31968} = (31, 5, 30, 1)$   
 943 :  $P_{32064} = (31, 8, 30, 1)$

944 :  $P_{32066} = (1, 9, 30, 1)$   
 945 :  $P_{32080} = (15, 9, 30, 1)$   
 946 :  $P_{32081} = (16, 9, 30, 1)$   
 947 :  $P_{32124} = (27, 10, 30, 1)$   
 948 :  $P_{32137} = (8, 11, 30, 1)$   
 949 :  $P_{32316} = (27, 16, 30, 1)$   
 950 :  $P_{32349} = (28, 17, 30, 1)$   
 951 :  $P_{32368} = (15, 18, 30, 1)$   
 952 :  $P_{32428} = (11, 20, 30, 1)$   
 953 :  $P_{32514} = (1, 23, 30, 1)$   
 954 :  $P_{32548} = (3, 24, 30, 1)$   
 955 :  $P_{32556} = (11, 24, 30, 1)$   
 956 :  $P_{32567} = (22, 24, 30, 1)$   
 957 :  $P_{32669} = (28, 27, 30, 1)$   
 958 :  $P_{32718} = (13, 29, 30, 1)$   
 959 :  $P_{32772} = (3, 31, 30, 1)$   
 960 :  $P_{32782} = (13, 31, 30, 1)$   
 961 :  $P_{32785} = (16, 31, 30, 1)$   
 962 :  $P_{32804} = (3, 0, 31, 1)$   
 963 :  $P_{32829} = (28, 0, 31, 1)$   
 964 :  $P_{32866} = (1, 2, 31, 1)$   
 965 :  $P_{32880} = (15, 2, 31, 1)$   
 966 :  $P_{32882} = (17, 2, 31, 1)$   
 967 :  $P_{32932} = (3, 4, 31, 1)$   
 968 :  $P_{32991} = (30, 5, 31, 1)$   
 969 :  $P_{33000} = (7, 6, 31, 1)$   
 970 :  $P_{33005} = (12, 6, 31, 1)$   
 971 :  $P_{33013} = (20, 6, 31, 1)$   
 972 :  $P_{33087} = (30, 8, 31, 1)$   
 973 :  $P_{33177} = (24, 11, 31, 1)$   
 974 :  $P_{33273} = (24, 14, 31, 1)$   
 975 :  $P_{33352} = (7, 17, 31, 1)$   
 976 :  $P_{33359} = (14, 17, 31, 1)$   
 977 :  $P_{33367} = (22, 17, 31, 1)$   
 978 :  $P_{33415} = (6, 19, 31, 1)$   
 979 :  $P_{33422} = (13, 19, 31, 1)$   
 980 :  $P_{33429} = (20, 19, 31, 1)$   
 981 :  $P_{33517} = (12, 22, 31, 1)$   
 982 :  $P_{33520} = (15, 22, 31, 1)$   
 983 :  $P_{33533} = (28, 22, 31, 1)$   
 984 :  $P_{33577} = (8, 24, 31, 1)$   
 985 :  $P_{33647} = (14, 26, 31, 1)$   
 986 :  $P_{33671} = (6, 27, 31, 1)$   
 987 :  $P_{33673} = (8, 27, 31, 1)$   
 988 :  $P_{33682} = (17, 27, 31, 1)$   
 989 :  $P_{33710} = (13, 28, 31, 1)$   
 990 :  $P_{33730} = (1, 29, 31, 1)$   
 991 :  $P_{33815} = (22, 31, 31, 1)$

## Line Intersection Graph

	0 1
0	0 1
1	1 0

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	$\ell_1$
in point	$P_2$

Line 1 intersects

Line	$\ell_0$
in point	$P_2$

The surface has 1057 points:

Too many to print.