Rank-76099 over GF(32)

January 15, 2021

The equation

The equation of the surface is :

$$X_0^2X_3 + X_1^2X_2 + X_1X_2^2 + X_0X_3^2 + X_0X_1X_2 = 0$$

(0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(32) is -2112846811

General information

Number of lines	9
Number of points	1153
Number of singular points	0
Number of Eckardt points	4
Number of double points	6
Number of single points	273
Number of points off lines	870
Number of Hesse planes	0
Number of axes	0
Type of points on lines	33^9
Type of lines on points	3^4, 2^6, 1^{273}, 0^{870}

Singular Points

The surface has 0 singular points:

The 9 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_0 = \mathbf{Pl}(1,0,0,0,0,0)_0$$

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \mathbf{Pl}(0,0,1,0,0,0)_2$$

$$\ell_2 = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{1058} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{1058} = \mathbf{Pl}(1,0,1,0,0,1)_{34913}$$

$$\ell_3 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082400} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082400} = \mathbf{Pl}(0,0,0,1,0,0)_{65}$$

$$\ell_4 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{33824} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{33824} = \mathbf{Pl}(1,0,0,1,0,0)_{66}$$

$$\ell_5 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \mathbf{Pl}(0,1,0,0,0,0)_{1}$$

$$\ell_6 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{34848} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{34848} = \mathbf{Pl}(0,1,1,0,0,0)_{34}$$

$$\ell_7 = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082433} = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082433} = \mathbf{Pl}(0,1,0,1,0,0)_{97}$$

$$\ell_8 = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{34882} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{34882} = \mathbf{Pl}(1,1,1,1,0,1)_{38818}$$

Rank of lines: (0, 1024, 1058, 1082400, 33824, 1083424, 34848, 1082433, 34882)
Rank of points on Klein quadric: (0, 2, 34913, 65, 66, 1, 34, 97, 38818)

Eckardt Points

The surface has 4 Eckardt points:
$0 : P_1 = \mathbf{P}(0,1,0,0) = \mathbf{P}(0,1,0,0)$,
$1 : P_2 = \mathbf{P}(0,0,1,0) = \mathbf{P}(0,0,1,0)$,
$2 : P_3 = \mathbf{P}(0,0,0,1) = \mathbf{P}(0,0,0,1)$,
$3 : P_{67} = \mathbf{P}(0,1,1,0) = \mathbf{P}(0,1,1,0)$.

Double Points

The surface has 6 Double points:
The double points on the surface are:

$P_0 = (1,0,0,0) = \ell_0 \cap \ell_1$
$P_5 = (1,1,0,0) = \ell_0 \cap \ell_2$
$P_{36} = (1,0,1,0) = \ell_1 \cap \ell_2$
$P_{1059} = (1,0,0,1) = \ell_4 \cap \ell_6$
$P_{1091} = (1,1,0,1) = \ell_4 \cap \ell_8$
$P_{2083} = (1,0,1,1) = \ell_6 \cap \ell_8$

Single Points

The surface has 273 single points:
The single points on the surface are:

$0 :\ P_6 = (2,1,0,0)$ lies on line ℓ_0
$1 :\ P_7 = (3,1,0,0)$ lies on line ℓ_0
$2 :\ P_8 = (4,1,0,0)$ lies on line ℓ_0
$3 :\ P_9 = (5,1,0,0)$ lies on line ℓ_0
$4 :\ P_{10} = (6,1,0,0)$ lies on line ℓ_0
$5 :\ P_{11} = (7,1,0,0)$ lies on line ℓ_0
$6 :\ P_{12} = (8,1,0,0)$ lies on line ℓ_0
$7 :\ P_{13} = (9,1,0,0)$ lies on line ℓ_0
$8 :\ P_{14} = (10,1,0,0)$ lies on line ℓ_0
$9 :\ P_{15} = (11,1,0,0)$ lies on line ℓ_0
$10 :\ P_{16} = (12,1,0,0)$ lies on line ℓ_0
$11 :\ P_{17} = (13,1,0,0)$ lies on line ℓ_0
$12 :\ P_{18} = (14,1,0,0)$ lies on line ℓ_0
$13 :\ P_{19} = (15,1,0,0)$ lies on line ℓ_0

14 : $P_{20} = (16, 1, 0, 0)$ lies on line ℓ_0
15 : $P_{21} = (17, 1, 0, 0)$ lies on line ℓ_0
16 : $P_{22} = (18, 1, 0, 0)$ lies on line ℓ_0
17 : $P_{23} = (19, 1, 0, 0)$ lies on line ℓ_0
18 : $P_{24} = (20, 1, 0, 0)$ lies on line ℓ_0
19 : $P_{25} = (21, 1, 0, 0)$ lies on line ℓ_0
20 : $P_{26} = (22, 1, 0, 0)$ lies on line ℓ_0
21 : $P_{27} = (23, 1, 0, 0)$ lies on line ℓ_0
22 : $P_{28} = (24, 1, 0, 0)$ lies on line ℓ_0
23 : $P_{29} = (25, 1, 0, 0)$ lies on line ℓ_0
24 : $P_{30} = (26, 1, 0, 0)$ lies on line ℓ_0
25 : $P_{31} = (27, 1, 0, 0)$ lies on line ℓ_0
26 : $P_{32} = (28, 1, 0, 0)$ lies on line ℓ_0
27 : $P_{33} = (29, 1, 0, 0)$ lies on line ℓ_0
28 : $P_{34} = (30, 1, 0, 0)$ lies on line ℓ_0
29 : $P_{35} = (31, 1, 0, 0)$ lies on line ℓ_0
30 : $P_{37} = (2, 0, 1, 0)$ lies on line ℓ_1
31 : $P_{38} = (3, 0, 1, 0)$ lies on line ℓ_1
32 : $P_{39} = (4, 0, 1, 0)$ lies on line ℓ_1
33 : $P_{40} = (5, 0, 1, 0)$ lies on line ℓ_1
34 : $P_{41} = (6, 0, 1, 0)$ lies on line ℓ_1
35 : $P_{42} = (7, 0, 1, 0)$ lies on line ℓ_1
36 : $P_{43} = (8, 0, 1, 0)$ lies on line ℓ_1
37 : $P_{44} = (9, 0, 1, 0)$ lies on line ℓ_1
38 : $P_{45} = (10, 0, 1, 0)$ lies on line ℓ_1
39 : $P_{46} = (11, 0, 1, 0)$ lies on line ℓ_1
40 : $P_{47} = (12, 0, 1, 0)$ lies on line ℓ_1
41 : $P_{48} = (13, 0, 1, 0)$ lies on line ℓ_1
42 : $P_{49} = (14, 0, 1, 0)$ lies on line ℓ_1
43 : $P_{50} = (15, 0, 1, 0)$ lies on line ℓ_1
44 : $P_{51} = (16, 0, 1, 0)$ lies on line ℓ_1
45 : $P_{52} = (17, 0, 1, 0)$ lies on line ℓ_1
46 : $P_{53} = (18, 0, 1, 0)$ lies on line ℓ_1
47 : $P_{54} = (19, 0, 1, 0)$ lies on line ℓ_1
48 : $P_{55} = (20, 0, 1, 0)$ lies on line ℓ_1
49 : $P_{56} = (21, 0, 1, 0)$ lies on line ℓ_1
50 : $P_{57} = (22, 0, 1, 0)$ lies on line ℓ_1
51 : $P_{58} = (23, 0, 1, 0)$ lies on line ℓ_1
52 : $P_{59} = (24, 0, 1, 0)$ lies on line ℓ_1
53 : $P_{60} = (25, 0, 1, 0)$ lies on line ℓ_1
54 : $P_{61} = (26, 0, 1, 0)$ lies on line ℓ_1
55 : $P_{62} = (27, 0, 1, 0)$ lies on line ℓ_1
56 : $P_{63} = (28, 0, 1, 0)$ lies on line ℓ_1
57 : $P_{64} = (29, 0, 1, 0)$ lies on line ℓ_1
58 : $P_{65} = (30, 0, 1, 0)$ lies on line ℓ_1
59 : $P_{66} = (31, 0, 1, 0)$ lies on line ℓ_1
60 : $P_{102} = (3, 2, 1, 0)$ lies on line ℓ_2
61 : $P_{133} = (2, 3, 1, 0)$ lies on line ℓ_2
62 : $P_{168} = (5, 4, 1, 0)$ lies on line ℓ_2
63 : $P_{199} = (4, 5, 1, 0)$ lies on line ℓ_2
64 : $P_{234} = (7, 6, 1, 0)$ lies on line ℓ_2
65 : $P_{265} = (6, 7, 1, 0)$ lies on line ℓ_2
66 : $P_{300} = (9, 8, 1, 0)$ lies on line ℓ_2
67 : $P_{331} = (8, 9, 1, 0)$ lies on line ℓ_2
68 : $P_{366} = (11, 10, 1, 0)$ lies on line ℓ_2
69 : $P_{397} = (10, 11, 1, 0)$ lies on line ℓ_2
70 : $P_{432} = (13, 12, 1, 0)$ lies on line ℓ_2
71 : $P_{463} = (12, 13, 1, 0)$ lies on line ℓ_2
72 : $P_{498} = (15, 14, 1, 0)$ lies on line ℓ_2
73 : $P_{529} = (14, 15, 1, 0)$ lies on line ℓ_2
74 : $P_{564} = (17, 16, 1, 0)$ lies on line ℓ_2
75 : $P_{595} = (16, 17, 1, 0)$ lies on line ℓ_2
76 : $P_{630} = (19, 18, 1, 0)$ lies on line ℓ_2
77 : $P_{661} = (18, 19, 1, 0)$ lies on line ℓ_2
78 : $P_{696} = (21, 20, 1, 0)$ lies on line ℓ_2
79 : $P_{727} = (20, 21, 1, 0)$ lies on line ℓ_2
80 : $P_{762} = (23, 22, 1, 0)$ lies on line ℓ_2
81 : $P_{793} = (22, 23, 1, 0)$ lies on line ℓ_2
82 : $P_{828} = (25, 24, 1, 0)$ lies on line ℓ_2
83 : $P_{859} = (24, 25, 1, 0)$ lies on line ℓ_2
84 : $P_{894} = (27, 26, 1, 0)$ lies on line ℓ_2
85 : $P_{925} = (26, 27, 1, 0)$ lies on line ℓ_2
86 : $P_{960} = (29, 28, 1, 0)$ lies on line ℓ_2
87 : $P_{991} = (28, 29, 1, 0)$ lies on line ℓ_2
88 : $P_{1026} = (31, 30, 1, 0)$ lies on line ℓ_2
89 : $P_{1057} = (30, 31, 1, 0)$ lies on line ℓ_2
90 : $P_{1090} = (0, 1, 0, 1)$ lies on line ℓ_3
91 : $P_{1122} = (0, 2, 0, 1)$ lies on line ℓ_3
92 : $P_{1123} = (1, 2, 0, 1)$ lies on line ℓ_4
93 : $P_{1154} = (0, 3, 0, 1)$ lies on line ℓ_3
94 : $P_{1155} = (1, 3, 0, 1)$ lies on line ℓ_4
95 : $P_{1186} = (0, 4, 0, 1)$ lies on line ℓ_3
96 : $P_{1187} = (1, 4, 0, 1)$ lies on line ℓ_4
97 : $P_{1218} = (0, 5, 0, 1)$ lies on line ℓ_3
98 : $P_{1219} = (1, 5, 0, 1)$ lies on line ℓ_4
99 : $P_{1250} = (0, 6, 0, 1)$ lies on line ℓ_3
100 : $P_{1251} = (1, 6, 0, 1)$ lies on line ℓ_4
101 : $P_{1282} = (0, 7, 0, 1)$ lies on line ℓ_3
102 : $P_{1283} = (1, 7, 0, 1)$ lies on line ℓ_4
103 : $P_{1314} = (0, 8, 0, 1)$ lies on line ℓ_3
104 : $P_{1315} = (1, 8, 0, 1)$ lies on line ℓ_4
105 : $P_{1346} = (0, 9, 0, 1)$ lies on line ℓ_3
106 : $P_{1347} = (1, 9, 0, 1)$ lies on line ℓ_4
107 : $P_{1378} = (0, 10, 0, 1)$ lies on line ℓ_3
108 : $P_{1379} = (1, 10, 0, 1)$ lies on line ℓ_4
109 : $P_{1410} = (0, 11, 0, 1)$ lies on line ℓ_3
110 : $P_{1411} = (1, 11, 0, 1)$ lies on line ℓ_4
111 : $P_{1442} = (0, 12, 0, 1)$ lies on line ℓ_3
112 : $P_{1443} = (1, 12, 0, 1)$ lies on line ℓ_4
113 : $P_{1474} = (0, 13, 0, 1)$ lies on line ℓ_3
114 : $P_{1475} = (1, 13, 0, 1)$ lies on line ℓ_4
115 : $P_{1506} = (0, 14, 0, 1)$ lies on line ℓ_3
116 : $P_{1507} = (1, 14, 0, 1)$ lies on line ℓ_4
117 : $P_{1538} = (0, 15, 0, 1)$ lies on line ℓ_3
118 : $P_{1539} = (1, 15, 0, 1)$ lies on line ℓ_4
119 : $P_{1570} = (0, 16, 0, 1)$ lies on line ℓ_3
120 : $P_{1571} = (1, 16, 0, 1)$ lies on line ℓ_4
121 : $P_{1602} = (0, 17, 0, 1)$ lies on line ℓ_3

122 : $P_{1603} = (1, 17, 0, 1)$ lies on line ℓ_4
123 : $P_{1634} = (0, 18, 0, 1)$ lies on line ℓ_3
124 : $P_{1635} = (1, 18, 0, 1)$ lies on line ℓ_4
125 : $P_{1666} = (0, 19, 0, 1)$ lies on line ℓ_3
126 : $P_{1667} = (1, 19, 0, 1)$ lies on line ℓ_4
127 : $P_{1698} = (0, 20, 0, 1)$ lies on line ℓ_3
128 : $P_{1699} = (1, 20, 0, 1)$ lies on line ℓ_4
129 : $P_{1730} = (0, 21, 0, 1)$ lies on line ℓ_3
130 : $P_{1731} = (1, 21, 0, 1)$ lies on line ℓ_4
131 : $P_{1762} = (0, 22, 0, 1)$ lies on line ℓ_3
132 : $P_{1763} = (1, 22, 0, 1)$ lies on line ℓ_4
133 : $P_{1794} = (0, 23, 0, 1)$ lies on line ℓ_3
134 : $P_{1795} = (1, 23, 0, 1)$ lies on line ℓ_4
135 : $P_{1826} = (0, 24, 0, 1)$ lies on line ℓ_3
136 : $P_{1827} = (1, 24, 0, 1)$ lies on line ℓ_4
137 : $P_{1858} = (0, 25, 0, 1)$ lies on line ℓ_3
138 : $P_{1859} = (1, 25, 0, 1)$ lies on line ℓ_4
139 : $P_{1890} = (0, 26, 0, 1)$ lies on line ℓ_3
140 : $P_{1891} = (1, 26, 0, 1)$ lies on line ℓ_4
141 : $P_{1922} = (0, 27, 0, 1)$ lies on line ℓ_3
142 : $P_{1923} = (1, 27, 0, 1)$ lies on line ℓ_4
143 : $P_{1954} = (0, 28, 0, 1)$ lies on line ℓ_3
144 : $P_{1955} = (1, 28, 0, 1)$ lies on line ℓ_4
145 : $P_{1986} = (0, 29, 0, 1)$ lies on line ℓ_3
146 : $P_{1987} = (1, 29, 0, 1)$ lies on line ℓ_4
147 : $P_{2018} = (0, 30, 0, 1)$ lies on line ℓ_3
148 : $P_{2019} = (1, 30, 0, 1)$ lies on line ℓ_4
149 : $P_{2050} = (0, 31, 0, 1)$ lies on line ℓ_3
150 : $P_{2051} = (1, 31, 0, 1)$ lies on line ℓ_4
151 : $P_{2082} = (0, 0, 1, 1)$ lies on line ℓ_5
152 : $P_{2114} = (0, 1, 1, 1)$ lies on line ℓ_7
153 : $P_{3105} = (0, 0, 2, 1)$ lies on line ℓ_5
154 : $P_{3106} = (1, 0, 2, 1)$ lies on line ℓ_6
155 : $P_{3169} = (0, 2, 2, 1)$ lies on line ℓ_7
156 : $P_{3202} = (1, 3, 2, 1)$ lies on line ℓ_8
157 : $P_{4129} = (0, 0, 3, 1)$ lies on line ℓ_5
158 : $P_{4130} = (1, 0, 3, 1)$ lies on line ℓ_6
159 : $P_{4194} = (1, 2, 3, 1)$ lies on line ℓ_8
160 : $P_{4225} = (0, 3, 3, 1)$ lies on line ℓ_7
161 : $P_{5153} = (0, 0, 4, 1)$ lies on line ℓ_5
162 : $P_{5154} = (1, 0, 4, 1)$ lies on line ℓ_6
163 : $P_{5281} = (0, 4, 4, 1)$ lies on line ℓ_7
164 : $P_{5314} = (1, 5, 4, 1)$ lies on line ℓ_8
165 : $P_{6177} = (0, 0, 5, 1)$ lies on line ℓ_5
166 : $P_{6178} = (1, 0, 5, 1)$ lies on line ℓ_6
167 : $P_{6306} = (1, 4, 5, 1)$ lies on line ℓ_8
168 : $P_{6337} = (0, 5, 5, 1)$ lies on line ℓ_7
169 : $P_{7201} = (0, 0, 6, 1)$ lies on line ℓ_5
170 : $P_{7202} = (1, 0, 6, 1)$ lies on line ℓ_6
171 : $P_{7393} = (0, 6, 6, 1)$ lies on line ℓ_7
172 : $P_{7426} = (1, 7, 6, 1)$ lies on line ℓ_8
173 : $P_{8225} = (0, 0, 7, 1)$ lies on line ℓ_5
174 : $P_{8226} = (1, 0, 7, 1)$ lies on line ℓ_6
175 : $P_{8418} = (1, 6, 7, 1)$ lies on line ℓ_8
176 : $P_{8449} = (0, 7, 7, 1)$ lies on line ℓ_7
177 : $P_{9249} = (0, 0, 8, 1)$ lies on line ℓ_5
178 : $P_{9250} = (1, 0, 8, 1)$ lies on line ℓ_6
179 : $P_{9505} = (0, 8, 8, 1)$ lies on line ℓ_7
180 : $P_{9538} = (1, 9, 8, 1)$ lies on line ℓ_8
181 : $P_{10273} = (0, 0, 9, 1)$ lies on line ℓ_5
182 : $P_{10274} = (1, 0, 9, 1)$ lies on line ℓ_6
183 : $P_{10530} = (1, 8, 9, 1)$ lies on line ℓ_8
184 : $P_{10561} = (0, 9, 9, 1)$ lies on line ℓ_7
185 : $P_{11297} = (0, 0, 10, 1)$ lies on line ℓ_5
186 : $P_{11298} = (1, 0, 10, 1)$ lies on line ℓ_6
187 : $P_{11617} = (0, 10, 10, 1)$ lies on line ℓ_7
188 : $P_{11650} = (1, 11, 10, 1)$ lies on line ℓ_8
189 : $P_{12321} = (0, 0, 11, 1)$ lies on line ℓ_5
190 : $P_{12322} = (1, 0, 11, 1)$ lies on line ℓ_6
191 : $P_{12642} = (1, 10, 11, 1)$ lies on line ℓ_8
192 : $P_{12673} = (0, 11, 11, 1)$ lies on line ℓ_7
193 : $P_{13345} = (0, 0, 12, 1)$ lies on line ℓ_5
194 : $P_{13346} = (1, 0, 12, 1)$ lies on line ℓ_6
195 : $P_{13729} = (0, 12, 12, 1)$ lies on line ℓ_7
196 : $P_{13762} = (1, 13, 12, 1)$ lies on line ℓ_8
197 : $P_{14369} = (0, 0, 13, 1)$ lies on line ℓ_5
198 : $P_{14370} = (1, 0, 13, 1)$ lies on line ℓ_6
199 : $P_{14754} = (1, 12, 13, 1)$ lies on line ℓ_8
200 : $P_{14785} = (0, 13, 13, 1)$ lies on line ℓ_7
201 : $P_{15393} = (0, 0, 14, 1)$ lies on line ℓ_5
202 : $P_{15394} = (1, 0, 14, 1)$ lies on line ℓ_6
203 : $P_{15841} = (0, 14, 14, 1)$ lies on line ℓ_7
204 : $P_{15874} = (1, 15, 14, 1)$ lies on line ℓ_8
205 : $P_{16417} = (0, 0, 15, 1)$ lies on line ℓ_5
206 : $P_{16418} = (1, 0, 15, 1)$ lies on line ℓ_6
207 : $P_{16866} = (1, 14, 15, 1)$ lies on line ℓ_8
208 : $P_{16897} = (0, 15, 15, 1)$ lies on line ℓ_7
209 : $P_{17441} = (0, 0, 16, 1)$ lies on line ℓ_5
210 : $P_{17442} = (1, 0, 16, 1)$ lies on line ℓ_6
211 : $P_{17953} = (0, 16, 16, 1)$ lies on line ℓ_7
212 : $P_{17986} = (1, 17, 16, 1)$ lies on line ℓ_8
213 : $P_{18465} = (0, 0, 17, 1)$ lies on line ℓ_5
214 : $P_{18466} = (1, 0, 17, 1)$ lies on line ℓ_6
215 : $P_{18978} = (1, 16, 17, 1)$ lies on line ℓ_8
216 : $P_{19009} = (0, 17, 17, 1)$ lies on line ℓ_7
217 : $P_{19489} = (0, 0, 18, 1)$ lies on line ℓ_5
218 : $P_{19490} = (1, 0, 18, 1)$ lies on line ℓ_6
219 : $P_{20065} = (0, 18, 18, 1)$ lies on line ℓ_7
220 : $P_{20098} = (1, 19, 18, 1)$ lies on line ℓ_8
221 : $P_{20513} = (0, 0, 19, 1)$ lies on line ℓ_5
222 : $P_{20514} = (1, 0, 19, 1)$ lies on line ℓ_6
223 : $P_{21090} = (1, 18, 19, 1)$ lies on line ℓ_8
224 : $P_{21121} = (0, 19, 19, 1)$ lies on line ℓ_7
225 : $P_{21537} = (0, 0, 20, 1)$ lies on line ℓ_5
226 : $P_{21538} = (1, 0, 20, 1)$ lies on line ℓ_6
227 : $P_{22177} = (0, 20, 20, 1)$ lies on line ℓ_7
228 : $P_{22210} = (1, 21, 20, 1)$ lies on line ℓ_8
229 : $P_{22561} = (0, 0, 21, 1)$ lies on line ℓ_5

230 : $P_{22562} = (1, 0, 21, 1)$ lies on line ℓ_6
231 : $P_{23202} = (1, 20, 21, 1)$ lies on line ℓ_8
232 : $P_{23233} = (0, 21, 21, 1)$ lies on line ℓ_7
233 : $P_{23585} = (0, 0, 22, 1)$ lies on line ℓ_5
234 : $P_{23586} = (1, 0, 22, 1)$ lies on line ℓ_6
235 : $P_{24289} = (0, 22, 22, 1)$ lies on line ℓ_7
236 : $P_{24322} = (1, 23, 22, 1)$ lies on line ℓ_8
237 : $P_{24609} = (0, 0, 23, 1)$ lies on line ℓ_5
238 : $P_{24610} = (1, 0, 23, 1)$ lies on line ℓ_6
239 : $P_{25314} = (1, 22, 23, 1)$ lies on line ℓ_8
240 : $P_{25345} = (0, 23, 23, 1)$ lies on line ℓ_7
241 : $P_{25633} = (0, 0, 24, 1)$ lies on line ℓ_5
242 : $P_{25634} = (1, 0, 24, 1)$ lies on line ℓ_6
243 : $P_{26401} = (0, 24, 24, 1)$ lies on line ℓ_7
244 : $P_{26434} = (1, 25, 24, 1)$ lies on line ℓ_8
245 : $P_{26657} = (0, 0, 25, 1)$ lies on line ℓ_5
246 : $P_{26658} = (1, 0, 25, 1)$ lies on line ℓ_6
247 : $P_{27426} = (1, 24, 25, 1)$ lies on line ℓ_8
248 : $P_{27457} = (0, 25, 25, 1)$ lies on line ℓ_7
249 : $P_{27681} = (0, 0, 26, 1)$ lies on line ℓ_5
250 : $P_{27682} = (1, 0, 26, 1)$ lies on line ℓ_6
251 : $P_{28513} = (0, 26, 26, 1)$ lies on line ℓ_7
252 : $P_{28546} = (1, 27, 26, 1)$ lies on line ℓ_8
253 : $P_{28705} = (0, 0, 27, 1)$ lies on line ℓ_5
254 : $P_{28706} = (1, 0, 27, 1)$ lies on line ℓ_6
255 : $P_{29538} = (1, 26, 27, 1)$ lies on line ℓ_8
256 : $P_{29569} = (0, 27, 27, 1)$ lies on line ℓ_7
257 : $P_{29729} = (0, 0, 28, 1)$ lies on line ℓ_5
258 : $P_{29730} = (1, 0, 28, 1)$ lies on line ℓ_6
259 : $P_{30625} = (0, 28, 28, 1)$ lies on line ℓ_7
260 : $P_{30658} = (1, 29, 28, 1)$ lies on line ℓ_8
261 : $P_{30753} = (0, 0, 29, 1)$ lies on line ℓ_5
262 : $P_{30754} = (1, 0, 29, 1)$ lies on line ℓ_6
263 : $P_{31650} = (1, 28, 29, 1)$ lies on line ℓ_8
264 : $P_{31681} = (0, 29, 29, 1)$ lies on line ℓ_7
265 : $P_{31777} = (0, 0, 30, 1)$ lies on line ℓ_5
266 : $P_{31778} = (1, 0, 30, 1)$ lies on line ℓ_6
267 : $P_{32737} = (0, 30, 30, 1)$ lies on line ℓ_7
268 : $P_{32770} = (1, 31, 30, 1)$ lies on line ℓ_8
269 : $P_{32801} = (0, 0, 31, 1)$ lies on line ℓ_5
270 : $P_{32802} = (1, 0, 31, 1)$ lies on line ℓ_6
271 : $P_{33762} = (1, 30, 31, 1)$ lies on line ℓ_8
272 : $P_{33793} = (0, 31, 31, 1)$ lies on line ℓ_7

The single points on the surface are:

Points on surface but on no line

The surface has 870 points not on any line:
The points on the surface but not on lines are:

0 : $P_{2166} = (21, 2, 1, 1)$
1 : $P_{2167} = (22, 2, 1, 1)$
2 : $P_{2234} = (25, 4, 1, 1)$
3 : $P_{2237} = (28, 4, 1, 1)$
4 : $P_{2289} = (16, 6, 1, 1)$
5 : $P_{2296} = (23, 6, 1, 1)$
6 : $P_{2332} = (27, 7, 1, 1)$
7 : $P_{2334} = (29, 7, 1, 1)$
8 : $P_{2517} = (20, 13, 1, 1)$
9 : $P_{2521} = (24, 13, 1, 1)$
10 : $P_{2599} = (6, 16, 1, 1)$
11 : $P_{2616} = (23, 16, 1, 1)$
12 : $P_{2734} = (13, 20, 1, 1)$
13 : $P_{2745} = (24, 20, 1, 1)$
14 : $P_{2755} = (2, 21, 1, 1)$
15 : $P_{2775} = (22, 21, 1, 1)$
16 : $P_{2787} = (2, 22, 1, 1)$
17 : $P_{2806} = (21, 22, 1, 1)$
18 : $P_{2823} = (6, 23, 1, 1)$
19 : $P_{2833} = (16, 23, 1, 1)$
20 : $P_{2862} = (13, 24, 1, 1)$
21 : $P_{2869} = (20, 24, 1, 1)$
22 : $P_{2885} = (4, 25, 1, 1)$
23 : $P_{2909} = (28, 25, 1, 1)$
24 : $P_{2952} = (7, 27, 1, 1)$
25 : $P_{2974} = (29, 27, 1, 1)$
26 : $P_{2981} = (4, 28, 1, 1)$
27 : $P_{3002} = (25, 28, 1, 1)$
28 : $P_{3016} = (7, 29, 1, 1)$
29 : $P_{3036} = (27, 29, 1, 1)$
30 : $P_{3158} = (21, 1, 2, 1)$
31 : $P_{3159} = (22, 1, 2, 1)$
32 : $P_{3174} = (5, 2, 2, 1)$
33 : $P_{3207} = (6, 3, 2, 1)$
34 : $P_{3270} = (5, 5, 2, 1)$
35 : $P_{3279} = (14, 5, 2, 1)$
36 : $P_{3335} = (6, 7, 2, 1)$
37 : $P_{3338} = (9, 7, 2, 1)$
38 : $P_{3407} = (14, 9, 2, 1)$
39 : $P_{3422} = (29, 9, 2, 1)$
40 : $P_{3432} = (7, 10, 2, 1)$
41 : $P_{3443} = (18, 10, 2, 1)$
42 : $P_{3498} = (9, 12, 2, 1)$
43 : $P_{3505} = (16, 12, 2, 1)$

44 : $P_{3592} = (7, 15, 2, 1)$
45 : $P_{3609} = (24, 15, 2, 1)$
46 : $P_{3685} = (4, 18, 2, 1)$
47 : $P_{3749} = (4, 20, 2, 1)$
48 : $P_{3753} = (8, 20, 2, 1)$
49 : $P_{3799} = (22, 21, 2, 1)$
50 : $P_{3801} = (24, 21, 2, 1)$
51 : $P_{3830} = (21, 22, 2, 1)$
52 : $P_{3838} = (29, 22, 2, 1)$
53 : $P_{3939} = (2, 26, 2, 1)$
54 : $P_{3955} = (18, 26, 2, 1)$
55 : $P_{4073} = (8, 30, 2, 1)$
56 : $P_{4081} = (16, 30, 2, 1)$
57 : $P_{4199} = (6, 2, 3, 1)$
58 : $P_{4229} = (4, 3, 3, 1)$
59 : $P_{4261} = (4, 4, 3, 1)$
60 : $P_{4266} = (9, 4, 3, 1)$
61 : $P_{4343} = (22, 6, 3, 1)$
62 : $P_{4350} = (29, 6, 3, 1)$
63 : $P_{4359} = (6, 7, 3, 1)$
64 : $P_{4367} = (14, 7, 3, 1)$
65 : $P_{4387} = (2, 8, 3, 1)$
66 : $P_{4412} = (27, 8, 3, 1)$
67 : $P_{4419} = (2, 9, 3, 1)$
68 : $P_{4441} = (24, 9, 3, 1)$
69 : $P_{4463} = (14, 10, 3, 1)$
70 : $P_{4466} = (17, 10, 3, 1)$
71 : $P_{4586} = (9, 14, 3, 1)$
72 : $P_{4603} = (26, 14, 3, 1)$
73 : $P_{4656} = (15, 16, 3, 1)$
74 : $P_{4668} = (27, 16, 3, 1)$
75 : $P_{4715} = (10, 18, 3, 1)$
76 : $P_{4729} = (24, 18, 3, 1)$
77 : $P_{4744} = (7, 19, 3, 1)$
78 : $P_{4759} = (22, 19, 3, 1)$
79 : $P_{4872} = (7, 23, 3, 1)$
80 : $P_{4891} = (26, 23, 3, 1)$
81 : $P_{4914} = (17, 24, 3, 1)$
82 : $P_{4926} = (29, 24, 3, 1)$
83 : $P_{4996} = (3, 27, 3, 1)$
84 : $P_{5003} = (10, 27, 3, 1)$
85 : $P_{5040} = (15, 28, 3, 1)$
86 : $P_{5210} = (25, 1, 4, 1)$
87 : $P_{5213} = (28, 1, 4, 1)$
88 : $P_{5253} = (4, 3, 4, 1)$
89 : $P_{5258} = (9, 3, 4, 1)$
90 : $P_{5298} = (17, 4, 4, 1)$
91 : $P_{5333} = (20, 5, 4, 1)$
92 : $P_{5457} = (16, 9, 4, 1)$
93 : $P_{5527} = (22, 11, 4, 1)$
94 : $P_{5535} = (30, 11, 4, 1)$
95 : $P_{5610} = (9, 14, 4, 1)$
96 : $P_{5622} = (21, 14, 4, 1)$
97 : $P_{5714} = (17, 17, 4, 1)$
98 : $P_{5727} = (30, 17, 4, 1)$
99 : $P_{5771} = (10, 19, 4, 1)$
100 : $P_{5774} = (13, 19, 4, 1)$
101 : $P_{5836} = (11, 21, 4, 1)$
102 : $P_{5845} = (20, 21, 4, 1)$
103 : $P_{5975} = (22, 25, 4, 1)$
104 : $P_{5981} = (28, 25, 4, 1)$
105 : $P_{5996} = (11, 26, 4, 1)$
106 : $P_{5998} = (13, 26, 4, 1)$
107 : $P_{6056} = (7, 28, 4, 1)$
108 : $P_{6074} = (25, 28, 4, 1)$
109 : $P_{6091} = (10, 29, 4, 1)$
110 : $P_{6097} = (16, 29, 4, 1)$
111 : $P_{6152} = (7, 31, 4, 1)$
112 : $P_{6166} = (21, 31, 4, 1)$
113 : $P_{6246} = (5, 2, 5, 1)$
114 : $P_{6255} = (14, 2, 5, 1)$
115 : $P_{6325} = (20, 4, 5, 1)$
116 : $P_{6353} = (16, 5, 5, 1)$
117 : $P_{6413} = (12, 7, 5, 1)$
118 : $P_{6423} = (22, 7, 5, 1)$
119 : $P_{6454} = (21, 8, 5, 1)$
120 : $P_{6458} = (25, 8, 5, 1)$
121 : $P_{6472} = (7, 9, 5, 1)$
122 : $P_{6479} = (14, 9, 5, 1)$
123 : $P_{6499} = (2, 10, 5, 1)$
124 : $P_{6501} = (4, 10, 5, 1)$
125 : $P_{6533} = (4, 11, 5, 1)$
126 : $P_{6536} = (7, 11, 5, 1)$
127 : $P_{6595} = (2, 13, 5, 1)$
128 : $P_{6624} = (31, 13, 5, 1)$
129 : $P_{6637} = (12, 14, 5, 1)$
130 : $P_{6655} = (30, 14, 5, 1)$
131 : $P_{6700} = (11, 16, 5, 1)$
132 : $P_{6705} = (16, 16, 5, 1)$
133 : $P_{6839} = (22, 20, 5, 1)$
134 : $P_{6842} = (25, 20, 5, 1)$
135 : $P_{6869} = (20, 21, 5, 1)$
136 : $P_{6879} = (30, 21, 5, 1)$
137 : $P_{6944} = (31, 23, 5, 1)$
138 : $P_{6948} = (3, 24, 5, 1)$
139 : $P_{6966} = (21, 24, 5, 1)$
140 : $P_{7140} = (3, 30, 5, 1)$
141 : $P_{7148} = (11, 30, 5, 1)$
142 : $P_{7249} = (16, 1, 6, 1)$
143 : $P_{7256} = (23, 1, 6, 1)$
144 : $P_{7319} = (22, 3, 6, 1)$
145 : $P_{7326} = (29, 3, 6, 1)$
146 : $P_{7414} = (21, 6, 6, 1)$
147 : $P_{7443} = (18, 7, 6, 1)$
148 : $P_{7668} = (19, 14, 6, 1)$
149 : $P_{7706} = (25, 15, 6, 1)$
150 : $P_{7712} = (31, 15, 6, 1)$
151 : $P_{7736} = (23, 16, 6, 1)$

$152: P_{7738} = (25, 16, 6, 1)$
$153: P_{7786} = (9, 18, 6, 1)$
$154: P_{7788} = (11, 18, 6, 1)$
$155: P_{7827} = (18, 19, 6, 1)$
$156: P_{7831} = (22, 19, 6, 1)$
$157: P_{7878} = (5, 21, 6, 1)$
$158: P_{7894} = (21, 21, 6, 1)$
$159: P_{7910} = (5, 22, 6, 1)$
$160: P_{7936} = (31, 22, 6, 1)$
$161: P_{7949} = (12, 23, 6, 1)$
$162: P_{7953} = (16, 23, 6, 1)$
$163: P_{7975} = (6, 24, 6, 1)$
$164: P_{7998} = (29, 24, 6, 1)$
$165: P_{8067} = (2, 27, 6, 1)$
$166: P_{8084} = (19, 27, 6, 1)$
$167: P_{8138} = (9, 29, 6, 1)$
$168: P_{8141} = (12, 29, 6, 1)$
$169: P_{8195} = (2, 31, 6, 1)$
$170: P_{8204} = (11, 31, 6, 1)$
$171: P_{8284} = (27, 1, 7, 1)$
$172: P_{8286} = (29, 1, 7, 1)$
$173: P_{8295} = (6, 2, 7, 1)$
$174: P_{8298} = (9, 2, 7, 1)$
$175: P_{8327} = (6, 3, 7, 1)$
$176: P_{8335} = (14, 3, 7, 1)$
$177: P_{8397} = (12, 5, 7, 1)$
$178: P_{8407} = (22, 5, 7, 1)$
$179: P_{8435} = (18, 6, 7, 1)$
$180: P_{8469} = (20, 7, 7, 1)$
$181: P_{8559} = (14, 10, 7, 1)$
$182: P_{8573} = (28, 10, 7, 1)$
$183: P_{8579} = (2, 11, 7, 1)$
$184: P_{8600} = (23, 11, 7, 1)$
$185: P_{8618} = (9, 12, 7, 1)$
$186: P_{8675} = (2, 14, 7, 1)$
$187: P_{8685} = (12, 14, 7, 1)$
$188: P_{8774} = (5, 17, 7, 1)$
$189: P_{8797} = (28, 17, 7, 1)$
$190: P_{8838} = (5, 19, 7, 1)$
$191: P_{8851} = (18, 19, 7, 1)$
$192: P_{8885} = (20, 20, 7, 1)$
$193: P_{8887} = (22, 20, 7, 1)$
$194: P_{9028} = (3, 25, 7, 1)$
$195: P_{9032} = (7, 25, 7, 1)$
$196: P_{9112} = (23, 27, 7, 1)$
$197: P_{9118} = (29, 27, 7, 1)$
$198: P_{9156} = (3, 29, 7, 1)$
$199: P_{9180} = (27, 29, 7, 1)$
$200: P_{9347} = (2, 3, 8, 1)$
$201: P_{9372} = (27, 3, 8, 1)$
$202: P_{9430} = (21, 5, 8, 1)$
$203: P_{9434} = (25, 5, 8, 1)$
$204: P_{9516} = (11, 8, 8, 1)$
$205: P_{9539} = (2, 9, 8, 1)$
$206: P_{9612} = (11, 11, 8, 1)$
$207: P_{9625} = (24, 11, 8, 1)$
$208: P_{9650} = (17, 12, 8, 1)$
$209: P_{9664} = (31, 12, 8, 1)$
$210: P_{9775} = (14, 16, 8, 1)$
$211: P_{9788} = (27, 16, 8, 1)$
$212: P_{9833} = (8, 18, 8, 1)$
$213: P_{9838} = (13, 18, 8, 1)$
$214: P_{9898} = (9, 20, 8, 1)$
$215: P_{9914} = (25, 20, 8, 1)$
$216: P_{9930} = (9, 21, 8, 1)$
$217: P_{9938} = (17, 21, 8, 1)$
$218: P_{9967} = (14, 22, 8, 1)$
$219: P_{9990} = (5, 23, 8, 1)$
$220: P_{9998} = (13, 23, 8, 1)$
$221: P_{10027} = (10, 24, 8, 1)$
$222: P_{10038} = (21, 24, 8, 1)$
$223: P_{10086} = (5, 26, 8, 1)$
$224: P_{10091} = (10, 26, 8, 1)$
$225: P_{10137} = (24, 27, 8, 1)$
$226: P_{10144} = (31, 27, 8, 1)$
$227: P_{10351} = (14, 2, 9, 1)$
$228: P_{10366} = (29, 2, 9, 1)$
$229: P_{10371} = (2, 3, 9, 1)$
$230: P_{10393} = (24, 3, 9, 1)$
$231: P_{10417} = (16, 4, 9, 1)$
$232: P_{10440} = (7, 5, 9, 1)$
$233: P_{10447} = (14, 5, 9, 1)$
$234: P_{10531} = (2, 8, 9, 1)$
$235: P_{10571} = (10, 9, 9, 1)$
$236: P_{10603} = (10, 10, 9, 1)$
$237: P_{10620} = (27, 10, 9, 1)$
$238: P_{10632} = (7, 11, 9, 1)$
$239: P_{10656} = (31, 11, 9, 1)$
$240: P_{10712} = (23, 13, 9, 1)$
$241: P_{10717} = (28, 13, 9, 1)$
$242: P_{10864} = (15, 18, 9, 1)$
$243: P_{10873} = (24, 18, 9, 1)$
$244: P_{10890} = (9, 19, 9, 1)$
$245: P_{10904} = (23, 19, 9, 1)$
$246: P_{10924} = (11, 20, 9, 1)$
$247: P_{10928} = (15, 20, 9, 1)$
$248: P_{10988} = (11, 22, 9, 1)$
$249: P_{11006} = (29, 22, 9, 1)$
$250: P_{11068} = (27, 24, 9, 1)$
$251: P_{11069} = (28, 24, 9, 1)$
$252: P_{11217} = (16, 29, 9, 1)$
$253: P_{11232} = (31, 29, 9, 1)$
$254: P_{11368} = (7, 2, 10, 1)$
$255: P_{11379} = (18, 2, 10, 1)$
$256: P_{11407} = (14, 3, 10, 1)$
$257: P_{11410} = (17, 3, 10, 1)$
$258: P_{11459} = (2, 5, 10, 1)$
$259: P_{11461} = (4, 5, 10, 1)$

$260: P_{11535} = (14, 7, 10, 1)$
$261: P_{11549} = (28, 7, 10, 1)$
$262: P_{11595} = (10, 9, 10, 1)$
$263: P_{11612} = (27, 9, 10, 1)$
$264: P_{11632} = (15, 10, 10, 1)$
$265: P_{11653} = (4, 11, 10, 1)$
$266: P_{11715} = (2, 13, 10, 1)$
$267: P_{11743} = (30, 13, 10, 1)$
$268: P_{11784} = (7, 15, 10, 1)$
$269: P_{11792} = (15, 15, 10, 1)$
$270: P_{11847} = (6, 17, 10, 1)$
$271: P_{11869} = (28, 17, 10, 1)$
$272: P_{12082} = (17, 24, 10, 1)$
$273: P_{12092} = (27, 24, 10, 1)$
$274: P_{12127} = (30, 25, 10, 1)$
$275: P_{12141} = (12, 26, 10, 1)$
$276: P_{12147} = (18, 26, 10, 1)$
$277: P_{12204} = (11, 28, 10, 1)$
$278: P_{12205} = (12, 28, 10, 1)$
$279: P_{12231} = (6, 29, 10, 1)$
$280: P_{12236} = (11, 29, 10, 1)$
$281: P_{12471} = (22, 4, 11, 1)$
$282: P_{12479} = (30, 4, 11, 1)$
$283: P_{12485} = (4, 5, 11, 1)$
$284: P_{12488} = (7, 5, 11, 1)$
$285: P_{12547} = (2, 7, 11, 1)$
$286: P_{12568} = (23, 7, 11, 1)$
$287: P_{12588} = (11, 8, 11, 1)$
$288: P_{12601} = (24, 8, 11, 1)$
$289: P_{12616} = (7, 9, 11, 1)$
$290: P_{12640} = (31, 9, 11, 1)$
$291: P_{12645} = (4, 10, 11, 1)$
$292: P_{12687} = (14, 11, 11, 1)$
$293: P_{12771} = (2, 14, 11, 1)$
$294: P_{12783} = (14, 14, 11, 1)$
$295: P_{12819} = (18, 15, 11, 1)$
$296: P_{12822} = (21, 15, 11, 1)$
$297: P_{12846} = (13, 16, 11, 1)$
$298: P_{12886} = (21, 17, 11, 1)$
$299: P_{12895} = (30, 17, 11, 1)$
$300: P_{13038} = (13, 22, 11, 1)$
$301: P_{13043} = (18, 22, 11, 1)$
$302: P_{13136} = (15, 25, 11, 1)$
$303: P_{13143} = (22, 25, 11, 1)$
$304: P_{13208} = (23, 27, 11, 1)$
$305: P_{13209} = (24, 27, 11, 1)$
$306: P_{13264} = (15, 29, 11, 1)$
$307: P_{13280} = (31, 29, 11, 1)$
$308: P_{13418} = (9, 2, 12, 1)$
$309: P_{13425} = (16, 2, 12, 1)$
$310: P_{13578} = (9, 7, 12, 1)$
$311: P_{13618} = (17, 8, 12, 1)$
$312: P_{13632} = (31, 8, 12, 1)$
$313: P_{13756} = (27, 12, 12, 1)$
$314: P_{13783} = (22, 13, 12, 1)$
$315: P_{13813} = (20, 14, 12, 1)$
$316: P_{13816} = (23, 14, 12, 1)$
$317: P_{13844} = (19, 15, 12, 1)$
$318: P_{13853} = (28, 15, 12, 1)$
$319: P_{13869} = (12, 16, 12, 1)$
$320: P_{13876} = (19, 16, 12, 1)$
$321: P_{13956} = (3, 19, 12, 1)$
$322: P_{13961} = (8, 19, 12, 1)$
$323: P_{14034} = (17, 21, 12, 1)$
$324: P_{14040} = (23, 21, 12, 1)$
$325: P_{14055} = (6, 22, 12, 1)$
$326: P_{14069} = (20, 22, 12, 1)$
$327: P_{14089} = (8, 23, 12, 1)$
$328: P_{14103} = (22, 23, 12, 1)$
$329: P_{14236} = (27, 27, 12, 1)$
$330: P_{14240} = (31, 27, 12, 1)$
$331: P_{14244} = (3, 28, 12, 1)$
$332: P_{14247} = (6, 28, 12, 1)$
$333: P_{14318} = (13, 30, 12, 1)$
$334: P_{14321} = (16, 30, 12, 1)$
$335: P_{14350} = (13, 31, 12, 1)$
$336: P_{14365} = (28, 31, 12, 1)$
$337: P_{14421} = (20, 1, 13, 1)$
$338: P_{14425} = (24, 1, 13, 1)$
$339: P_{14531} = (2, 5, 13, 1)$
$340: P_{14560} = (31, 5, 13, 1)$
$341: P_{14680} = (23, 9, 13, 1)$
$342: P_{14685} = (28, 9, 13, 1)$
$343: P_{14691} = (2, 10, 13, 1)$
$344: P_{14719} = (30, 10, 13, 1)$
$345: P_{14775} = (22, 12, 13, 1)$
$346: P_{14811} = (26, 13, 13, 1)$
$347: P_{14876} = (27, 15, 13, 1)$
$348: P_{14926} = (13, 17, 13, 1)$
$349: P_{14928} = (15, 17, 13, 1)$
$350: P_{14992} = (15, 19, 13, 1)$
$351: P_{15000} = (23, 19, 13, 1)$
$352: P_{15015} = (6, 20, 13, 1)$
$353: P_{15033} = (24, 20, 13, 1)$
$354: P_{15127} = (22, 23, 13, 1)$
$355: P_{15136} = (31, 23, 13, 1)$
$356: P_{15157} = (20, 24, 13, 1)$
$357: P_{15165} = (28, 24, 13, 1)$
$358: P_{15196} = (27, 25, 13, 1)$
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764 : $P_{30061} = (12, 10, 28, 1)$
765 : $P_{30116} = (3, 12, 28, 1)$
766 : $P_{30119} = (6, 12, 28, 1)$
767 : $P_{30256} = (15, 16, 28, 1)$
768 : $P_{30270} = (29, 16, 28, 1)$
769 : $P_{30292} = (19, 17, 28, 1)$
770 : $P_{30302} = (29, 17, 28, 1)$
771 : $P_{30340} = (3, 19, 28, 1)$
772 : $P_{30353} = (16, 19, 28, 1)$
773 : $P_{30386} = (17, 20, 28, 1)$
774 : $P_{30397} = (28, 20, 28, 1)$
775 : $P_{30439} = (6, 22, 28, 1)$
776 : $P_{30455} = (22, 22, 28, 1)$
777 : $P_{30533} = (4, 25, 28, 1)$
778 : $P_{30546} = (17, 25, 28, 1)$
779 : $P_{30573} = (12, 26, 28, 1)$
780 : $P_{30585} = (24, 26, 28, 1)$
781 : $P_{30647} = (22, 28, 28, 1)$
782 : $P_{30668} = (11, 29, 28, 1)$
783 : $P_{30708} = (19, 30, 28, 1)$
784 : $P_{30713} = (24, 30, 28, 1)$
785 : $P_{30728} = (7, 31, 28, 1)$
786 : $P_{30737} = (16, 31, 28, 1)$
787 : $P_{30792} = (7, 1, 29, 1)$
788 : $P_{30812} = (27, 1, 29, 1)$
789 : $P_{30891} = (10, 4, 29, 1)$
790 : $P_{30897} = (16, 4, 29, 1)$
791 : $P_{30954} = (9, 6, 29, 1)$
792 : $P_{30957} = (12, 6, 29, 1)$
793 : $P_{30980} = (3, 7, 29, 1)$
794 : $P_{31004} = (27, 7, 29, 1)$
795 : $P_{31057} = (16, 9, 29, 1)$
796 : $P_{31072} = (31, 9, 29, 1)$
797 : $P_{31079} = (6, 10, 29, 1)$
798 : $P_{31084} = (11, 10, 29, 1)$
799 : $P_{31120} = (15, 11, 29, 1)$

800 : $P_{31136} = (31, 11, 29, 1)$
801 : $P_{31303} = (6, 17, 29, 1)$
802 : $P_{31322} = (25, 17, 29, 1)$
803 : $P_{31338} = (9, 18, 29, 1)$
804 : $P_{31349} = (20, 18, 29, 1)$
805 : $P_{31371} = (10, 19, 29, 1)$
806 : $P_{31450} = (25, 21, 29, 1)$
807 : $P_{31454} = (29, 21, 29, 1)$
808 : $P_{31501} = (12, 23, 29, 1)$
809 : $P_{31512} = (23, 23, 29, 1)$
810 : $P_{31556} = (3, 25, 29, 1)$
811 : $P_{31568} = (15, 25, 29, 1)$
812 : $P_{31624} = (7, 27, 29, 1)$
813 : $P_{31637} = (20, 27, 29, 1)$
814 : $P_{31660} = (11, 28, 29, 1)$
815 : $P_{31704} = (23, 29, 29, 1)$
816 : $P_{31849} = (8, 2, 30, 1)$
817 : $P_{31857} = (16, 2, 30, 1)$
818 : $P_{31940} = (3, 5, 30, 1)$
819 : $P_{31948} = (11, 5, 30, 1)$
820 : $P_{32174} = (13, 12, 30, 1)$
821 : $P_{32177} = (16, 12, 30, 1)$
822 : $P_{32261} = (4, 15, 30, 1)$
823 : $P_{32287} = (30, 15, 30, 1)$
824 : $P_{32300} = (11, 16, 30, 1)$
825 : $P_{32317} = (28, 16, 30, 1)$
826 : $P_{32340} = (19, 17, 30, 1)$
827 : $P_{32347} = (26, 17, 30, 1)$
828 : $P_{32371} = (18, 18, 30, 1)$
829 : $P_{32381} = (28, 18, 30, 1)$
830 : $P_{32425} = (8, 20, 30, 1)$
831 : $P_{32453} = (4, 21, 30, 1)$
832 : $P_{32475} = (26, 21, 30, 1)$
833 : $P_{32548} = (3, 24, 30, 1)$
834 : $P_{32576} = (31, 24, 30, 1)$
835 : $P_{32606} = (29, 25, 30, 1)$
836 : $P_{32608} = (31, 25, 30, 1)$
837 : $P_{32633} = (24, 26, 30, 1)$
838 : $P_{32638} = (29, 26, 30, 1)$
839 : $P_{32692} = (19, 28, 30, 1)$
840 : $P_{32697} = (24, 28, 30, 1)$
841 : $P_{32755} = (18, 30, 30, 1)$
842 : $P_{32782} = (13, 31, 30, 1)$
843 : $P_{32936} = (7, 4, 31, 1)$
844 : $P_{32950} = (21, 4, 31, 1)$
845 : $P_{32995} = (2, 6, 31, 1)$
846 : $P_{33004} = (11, 6, 31, 1)$
847 : $P_{33198} = (13, 12, 31, 1)$
848 : $P_{33213} = (28, 12, 31, 1)$
849 : $P_{33223} = (6, 13, 31, 1)$
850 : $P_{33225} = (8, 13, 31, 1)$
851 : $P_{33270} = (21, 14, 31, 1)$
852 : $P_{33280} = (31, 14, 31, 1)$
853 : $P_{33290} = (9, 15, 31, 1)$
854 : $P_{33309} = (28, 15, 31, 1)$
855 : $P_{33388} = (11, 18, 31, 1)$
856 : $P_{33400} = (23, 18, 31, 1)$
857 : $P_{33425} = (16, 19, 31, 1)$
858 : $P_{33428} = (19, 19, 31, 1)$
859 : $P_{33447} = (6, 20, 31, 1)$
860 : $P_{33459} = (18, 20, 31, 1)$
861 : $P_{33610} = (9, 25, 31, 1)$
862 : $P_{33619} = (18, 25, 31, 1)$
863 : $P_{33641} = (8, 26, 31, 1)$
864 : $P_{33656} = (23, 26, 31, 1)$
865 : $P_{33667} = (2, 27, 31, 1)$
866 : $P_{33704} = (7, 28, 31, 1)$
867 : $P_{33713} = (16, 28, 31, 1)$
868 : $P_{33774} = (13, 30, 31, 1)$
869 : $P_{33812} = (19, 31, 31, 1)$

Line Intersection Graph

	0	1	2	3	4	5	6	7	8
0	0	1	1	1	1	0	0	0	0
1	1	0	1	0	0	1	1	0	0
2	1	1	0	0	0	0	0	1	1
3	1	0	0	0	1	1	0	1	0
4	1	0	0	1	0	0	1	0	1
5	0	1	0	1	0	0	1	1	0
6	0	1	0	0	1	1	0	0	1
7	0	0	1	1	0	1	0	0	1
8	0	0	1	0	1	0	1	1	0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4
in point	P_0	P_5	P_1	P_1

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_5	ℓ_6
in point	P_0	P_{36}	P_2	P_2

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_7	ℓ_8
in point	P_5	P_{36}	P_{67}	P_{67}

Line 3 intersects

Line	ℓ_0	ℓ_4	ℓ_5	ℓ_7
in point	P_1	P_1	P_3	P_3

Line 4 intersects

Line	ℓ_0	ℓ_3	ℓ_6	ℓ_8
in point	P_1	P_1	P_{1059}	P_{1091}

Line 5 intersects

Line	ℓ_1	ℓ_3	ℓ_6	ℓ_7
in point	P_2	P_3	P_2	P_3

Line 6 intersects

Line	ℓ_1	ℓ_4	ℓ_5	ℓ_8
in point	P_2	P_{1059}	P_2	P_{2083}

Line 7 intersects

Line	ℓ_2	ℓ_3	ℓ_5	ℓ_8
in point	P_{67}	P_3	P_3	P_{67}

Line 8 intersects

Line	ℓ_2	ℓ_4	ℓ_6	ℓ_7
in point	P_{67}	P_{1091}	P_{2083}	P_{67}

The surface has 1153 points:
Too many to print.