

Rank-65760 over GF(32)

January 15, 2021

The equation

The equation of the surface is :

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

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

The point rank of the equation over GF(32) is -2111764442

General information

Number of lines	1
Number of points	1025
Number of singular points	0
Number of Eckardt points	0
Number of double points	0
Number of single points	33
Number of points off lines	992
Number of Hesse planes	0
Number of axes	0
Type of points on lines	33
Type of lines on points	$1^{33}, 0^{992}$

Singular Points

The surface has 0 singular points:

The 1 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{1082369} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{1082369} = \mathbf{Pl}(0, 0, 0, 1, 0, 1)_{36865}$$

Rank of lines: (1082369)

Rank of points on Klein quadric: (36865)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 0 Double points:

The double points on the surface are:

Single Points

The surface has 33 single points:

The single points on the surface are:

- | | |
|---|---|
| 0 : $P_1 = (0, 1, 0, 0)$ lies on line ℓ_0 | 17 : $P_{2593} = (0, 16, 1, 1)$ lies on line ℓ_0 |
| 1 : $P_{2082} = (0, 0, 1, 1)$ lies on line ℓ_0 | 18 : $P_{2625} = (0, 17, 1, 1)$ lies on line ℓ_0 |
| 2 : $P_{2114} = (0, 1, 1, 1)$ lies on line ℓ_0 | 19 : $P_{2657} = (0, 18, 1, 1)$ lies on line ℓ_0 |
| 3 : $P_{2145} = (0, 2, 1, 1)$ lies on line ℓ_0 | 20 : $P_{2689} = (0, 19, 1, 1)$ lies on line ℓ_0 |
| 4 : $P_{2177} = (0, 3, 1, 1)$ lies on line ℓ_0 | 21 : $P_{2721} = (0, 20, 1, 1)$ lies on line ℓ_0 |
| 5 : $P_{2209} = (0, 4, 1, 1)$ lies on line ℓ_0 | 22 : $P_{2753} = (0, 21, 1, 1)$ lies on line ℓ_0 |
| 6 : $P_{2241} = (0, 5, 1, 1)$ lies on line ℓ_0 | 23 : $P_{2785} = (0, 22, 1, 1)$ lies on line ℓ_0 |
| 7 : $P_{2273} = (0, 6, 1, 1)$ lies on line ℓ_0 | 24 : $P_{2817} = (0, 23, 1, 1)$ lies on line ℓ_0 |
| 8 : $P_{2305} = (0, 7, 1, 1)$ lies on line ℓ_0 | 25 : $P_{2849} = (0, 24, 1, 1)$ lies on line ℓ_0 |
| 9 : $P_{2337} = (0, 8, 1, 1)$ lies on line ℓ_0 | 26 : $P_{2881} = (0, 25, 1, 1)$ lies on line ℓ_0 |
| 10 : $P_{2369} = (0, 9, 1, 1)$ lies on line ℓ_0 | 27 : $P_{2913} = (0, 26, 1, 1)$ lies on line ℓ_0 |
| 11 : $P_{2401} = (0, 10, 1, 1)$ lies on line ℓ_0 | 28 : $P_{2945} = (0, 27, 1, 1)$ lies on line ℓ_0 |
| 12 : $P_{2433} = (0, 11, 1, 1)$ lies on line ℓ_0 | 29 : $P_{2977} = (0, 28, 1, 1)$ lies on line ℓ_0 |
| 13 : $P_{2465} = (0, 12, 1, 1)$ lies on line ℓ_0 | 30 : $P_{3009} = (0, 29, 1, 1)$ lies on line ℓ_0 |
| 14 : $P_{2497} = (0, 13, 1, 1)$ lies on line ℓ_0 | 31 : $P_{3041} = (0, 30, 1, 1)$ lies on line ℓ_0 |
| 15 : $P_{2529} = (0, 14, 1, 1)$ lies on line ℓ_0 | 32 : $P_{3073} = (0, 31, 1, 1)$ lies on line ℓ_0 |
| 16 : $P_{2561} = (0, 15, 1, 1)$ lies on line ℓ_0 | |

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 : $P_{36} = (1, 0, 1, 0)$ | 10 : $P_{542} = (27, 15, 1, 0)$ |
| 1 : $P_{272} = (13, 7, 1, 0)$ | 11 : $P_{615} = (4, 18, 1, 0)$ |
| 2 : $P_{326} = (3, 9, 1, 0)$ | 12 : $P_{623} = (12, 18, 1, 0)$ |
| 3 : $P_{339} = (16, 9, 1, 0)$ | 13 : $P_{637} = (26, 18, 1, 0)$ |
| 4 : $P_{349} = (26, 9, 1, 0)$ | 14 : $P_{734} = (27, 21, 1, 0)$ |
| 5 : $P_{390} = (3, 11, 1, 0)$ | 15 : $P_{775} = (4, 23, 1, 0)$ |
| 6 : $P_{392} = (5, 11, 1, 0)$ | 16 : $P_{819} = (16, 24, 1, 0)$ |
| 7 : $P_{400} = (13, 11, 1, 0)$ | 17 : $P_{933} = (2, 28, 1, 0)$ |
| 8 : $P_{520} = (5, 15, 1, 0)$ | 18 : $P_{1029} = (2, 31, 1, 0)$ |
| 9 : $P_{532} = (17, 15, 1, 0)$ | 19 : $P_{1039} = (12, 31, 1, 0)$ |

20 : $P_{1044} = (17, 31, 1, 0)$	74 : $P_{2734} = (13, 20, 1, 1)$
21 : $P_{1130} = (8, 2, 0, 1)$	75 : $P_{2745} = (24, 20, 1, 1)$
22 : $P_{1166} = (12, 3, 0, 1)$	76 : $P_{2755} = (2, 21, 1, 1)$
23 : $P_{1196} = (10, 4, 0, 1)$	77 : $P_{2775} = (22, 21, 1, 1)$
24 : $P_{1244} = (26, 5, 0, 1)$	78 : $P_{2787} = (2, 22, 1, 1)$
25 : $P_{1274} = (24, 6, 0, 1)$	79 : $P_{2806} = (21, 22, 1, 1)$
26 : $P_{1297} = (15, 7, 0, 1)$	80 : $P_{2823} = (6, 23, 1, 1)$
27 : $P_{1329} = (15, 8, 0, 1)$	81 : $P_{2833} = (16, 23, 1, 1)$
28 : $P_{1333} = (19, 8, 0, 1)$	82 : $P_{2862} = (13, 24, 1, 1)$
29 : $P_{1335} = (21, 8, 0, 1)$	83 : $P_{2869} = (20, 24, 1, 1)$
30 : $P_{1351} = (5, 9, 0, 1)$	84 : $P_{2885} = (4, 25, 1, 1)$
31 : $P_{1386} = (8, 10, 0, 1)$	85 : $P_{2909} = (28, 25, 1, 1)$
32 : $P_{1406} = (28, 10, 0, 1)$	86 : $P_{2952} = (7, 27, 1, 1)$
33 : $P_{1409} = (31, 10, 0, 1)$	87 : $P_{2974} = (29, 27, 1, 1)$
34 : $P_{1427} = (17, 11, 0, 1)$	88 : $P_{2981} = (4, 28, 1, 1)$
35 : $P_{1447} = (5, 12, 0, 1)$	89 : $P_{3002} = (25, 28, 1, 1)$
36 : $P_{1504} = (30, 13, 0, 1)$	90 : $P_{3016} = (7, 29, 1, 1)$
37 : $P_{1516} = (10, 14, 0, 1)$	91 : $P_{3036} = (27, 29, 1, 1)$
38 : $P_{1524} = (18, 14, 0, 1)$	92 : $P_{3116} = (11, 0, 2, 1)$
39 : $P_{1529} = (23, 14, 0, 1)$	93 : $P_{3150} = (13, 1, 2, 1)$
40 : $P_{1550} = (12, 15, 0, 1)$	94 : $P_{3174} = (5, 2, 2, 1)$
41 : $P_{1584} = (14, 16, 0, 1)$	95 : $P_{3235} = (2, 4, 2, 1)$
42 : $P_{1605} = (3, 17, 0, 1)$	96 : $P_{3270} = (5, 5, 2, 1)$
43 : $P_{1637} = (3, 18, 0, 1)$	97 : $P_{3328} = (31, 6, 2, 1)$
44 : $P_{1673} = (7, 19, 0, 1)$	98 : $P_{3345} = (16, 7, 2, 1)$
45 : $P_{1677} = (11, 19, 0, 1)$	99 : $P_{3365} = (4, 8, 2, 1)$
46 : $P_{1696} = (30, 19, 0, 1)$	100 : $P_{3404} = (11, 9, 2, 1)$
47 : $P_{1705} = (7, 20, 0, 1)$	101 : $P_{3413} = (20, 9, 2, 1)$
48 : $P_{1761} = (31, 21, 0, 1)$	102 : $P_{3416} = (23, 9, 2, 1)$
49 : $P_{1790} = (28, 22, 0, 1)$	103 : $P_{3431} = (6, 10, 2, 1)$
50 : $P_{1803} = (9, 23, 0, 1)$	104 : $P_{3444} = (19, 10, 2, 1)$
51 : $P_{1837} = (11, 24, 0, 1)$	105 : $P_{3455} = (30, 10, 2, 1)$
52 : $P_{1881} = (23, 25, 0, 1)$	106 : $P_{3550} = (29, 13, 2, 1)$
53 : $P_{1907} = (17, 26, 0, 1)$	107 : $P_{3557} = (4, 14, 2, 1)$
54 : $P_{1941} = (19, 27, 0, 1)$	108 : $P_{3559} = (6, 14, 2, 1)$
55 : $P_{1972} = (18, 28, 0, 1)$	109 : $P_{3566} = (13, 14, 2, 1)$
56 : $P_{2007} = (21, 29, 0, 1)$	110 : $P_{3607} = (22, 15, 2, 1)$
57 : $P_{2027} = (9, 30, 0, 1)$	111 : $P_{3710} = (29, 18, 2, 1)$
58 : $P_{2032} = (14, 30, 0, 1)$	112 : $P_{3793} = (16, 21, 2, 1)$
59 : $P_{2042} = (24, 30, 0, 1)$	113 : $P_{3839} = (30, 22, 2, 1)$
60 : $P_{2076} = (26, 31, 0, 1)$	114 : $P_{3853} = (12, 23, 2, 1)$
61 : $P_{2083} = (1, 0, 1, 1)$	115 : $P_{3917} = (12, 25, 2, 1)$
62 : $P_{2166} = (21, 2, 1, 1)$	116 : $P_{3988} = (19, 27, 2, 1)$
63 : $P_{2167} = (22, 2, 1, 1)$	117 : $P_{3991} = (22, 27, 2, 1)$
64 : $P_{2234} = (25, 4, 1, 1)$	118 : $P_{4000} = (31, 27, 2, 1)$
65 : $P_{2237} = (28, 4, 1, 1)$	119 : $P_{4024} = (23, 28, 2, 1)$
66 : $P_{2289} = (16, 6, 1, 1)$	120 : $P_{4117} = (20, 31, 2, 1)$
67 : $P_{2296} = (23, 6, 1, 1)$	121 : $P_{4134} = (5, 0, 3, 1)$
68 : $P_{2332} = (27, 7, 1, 1)$	122 : $P_{4208} = (15, 2, 3, 1)$
69 : $P_{2334} = (29, 7, 1, 1)$	123 : $P_{4233} = (8, 3, 3, 1)$
70 : $P_{2517} = (20, 13, 1, 1)$	124 : $P_{4248} = (23, 3, 3, 1)$
71 : $P_{2521} = (24, 13, 1, 1)$	125 : $P_{4254} = (29, 3, 3, 1)$
72 : $P_{2599} = (6, 16, 1, 1)$	126 : $P_{4287} = (30, 4, 3, 1)$
73 : $P_{2616} = (23, 16, 1, 1)$	127 : $P_{4326} = (5, 6, 3, 1)$

128 : $P_{4393} = (8, 8, 3, 1)$	182 : $P_{6359} = (22, 5, 5, 1)$
129 : $P_{4469} = (20, 10, 3, 1)$	183 : $P_{6361} = (24, 5, 5, 1)$
130 : $P_{4502} = (21, 11, 3, 1)$	184 : $P_{6388} = (19, 6, 5, 1)$
131 : $P_{4529} = (16, 12, 3, 1)$	185 : $P_{6417} = (16, 7, 5, 1)$
132 : $P_{4572} = (27, 13, 3, 1)$	186 : $P_{6463} = (30, 8, 5, 1)$
133 : $P_{4592} = (15, 14, 3, 1)$	187 : $P_{6507} = (10, 10, 5, 1)$
134 : $P_{4594} = (17, 14, 3, 1)$	188 : $P_{6654} = (29, 14, 5, 1)$
135 : $P_{4612} = (3, 15, 3, 1)$	189 : $P_{6685} = (28, 15, 5, 1)$
136 : $P_{4751} = (14, 19, 3, 1)$	190 : $P_{6708} = (19, 16, 5, 1)$
137 : $P_{4828} = (27, 21, 3, 1)$	191 : $P_{6766} = (13, 18, 5, 1)$
138 : $P_{4843} = (10, 22, 3, 1)$	192 : $P_{6767} = (14, 18, 5, 1)$
139 : $P_{4888} = (23, 23, 3, 1)$	193 : $P_{6769} = (16, 18, 5, 1)$
140 : $P_{4901} = (4, 24, 3, 1)$	194 : $P_{6815} = (30, 19, 5, 1)$
141 : $P_{4959} = (30, 25, 3, 1)$	195 : $P_{6834} = (17, 20, 5, 1)$
142 : $P_{5042} = (17, 28, 3, 1)$	196 : $P_{6903} = (22, 22, 5, 1)$
143 : $P_{5077} = (20, 29, 3, 1)$	197 : $P_{6909} = (28, 22, 5, 1)$
144 : $P_{5078} = (21, 29, 3, 1)$	198 : $P_{6910} = (29, 22, 5, 1)$
145 : $P_{5086} = (29, 29, 3, 1)$	199 : $P_{6925} = (12, 23, 5, 1)$
146 : $P_{5103} = (14, 30, 3, 1)$	200 : $P_{6969} = (24, 24, 5, 1)$
147 : $P_{5125} = (4, 31, 3, 1)$	201 : $P_{6991} = (14, 25, 5, 1)$
148 : $P_{5131} = (10, 31, 3, 1)$	202 : $P_{7022} = (13, 26, 5, 1)$
149 : $P_{5137} = (16, 31, 3, 1)$	203 : $P_{7043} = (2, 27, 5, 1)$
150 : $P_{5168} = (15, 0, 4, 1)$	204 : $P_{7075} = (2, 28, 5, 1)$
151 : $P_{5212} = (27, 1, 4, 1)$	205 : $P_{7149} = (12, 30, 5, 1)$
152 : $P_{5225} = (8, 2, 4, 1)$	206 : $P_{7168} = (31, 30, 5, 1)$
153 : $P_{5235} = (18, 2, 4, 1)$	207 : $P_{7174} = (5, 31, 5, 1)$
154 : $P_{5242} = (25, 2, 4, 1)$	208 : $P_{7237} = (4, 1, 6, 1)$
155 : $P_{5298} = (17, 4, 4, 1)$	209 : $P_{7301} = (4, 3, 6, 1)$
156 : $P_{5371} = (26, 6, 4, 1)$	210 : $P_{7307} = (10, 3, 6, 1)$
157 : $P_{5463} = (22, 9, 4, 1)$	211 : $P_{7309} = (12, 3, 6, 1)$
158 : $P_{5489} = (16, 10, 4, 1)$	212 : $P_{7388} = (27, 5, 6, 1)$
159 : $P_{5520} = (15, 11, 4, 1)$	213 : $P_{7446} = (21, 7, 6, 1)$
160 : $P_{5529} = (24, 11, 4, 1)$	214 : $P_{7501} = (12, 9, 6, 1)$
161 : $P_{5534} = (29, 11, 4, 1)$	215 : $P_{7514} = (25, 9, 6, 1)$
162 : $P_{5609} = (8, 14, 4, 1)$	216 : $P_{7518} = (29, 9, 6, 1)$
163 : $P_{5620} = (19, 14, 4, 1)$	217 : $P_{7539} = (18, 10, 6, 1)$
164 : $P_{5621} = (20, 14, 4, 1)$	218 : $P_{7575} = (22, 11, 6, 1)$
165 : $P_{5669} = (4, 16, 4, 1)$	219 : $P_{7672} = (23, 14, 6, 1)$
166 : $P_{5714} = (17, 17, 4, 1)$	220 : $P_{7691} = (10, 15, 6, 1)$
167 : $P_{5758} = (29, 18, 4, 1)$	221 : $P_{7716} = (3, 16, 6, 1)$
168 : $P_{5811} = (18, 20, 4, 1)$	222 : $P_{7806} = (29, 18, 6, 1)$
169 : $P_{5838} = (13, 21, 4, 1)$	223 : $P_{7815} = (6, 19, 6, 1)$
170 : $P_{5913} = (24, 23, 4, 1)$	224 : $P_{7849} = (8, 20, 6, 1)$
171 : $P_{5947} = (26, 24, 4, 1)$	225 : $P_{7862} = (21, 20, 6, 1)$
172 : $P_{5972} = (19, 25, 4, 1)$	226 : $P_{7876} = (3, 21, 6, 1)$
173 : $P_{6039} = (22, 27, 4, 1)$	227 : $P_{7930} = (25, 22, 6, 1)$
174 : $P_{6062} = (13, 28, 4, 1)$	228 : $P_{7996} = (27, 24, 6, 1)$
175 : $P_{6129} = (16, 30, 4, 1)$	229 : $P_{8003} = (2, 25, 6, 1)$
176 : $P_{6133} = (20, 30, 4, 1)$	230 : $P_{8041} = (8, 26, 6, 1)$
177 : $P_{6140} = (27, 30, 4, 1)$	231 : $P_{8087} = (22, 27, 6, 1)$
178 : $P_{6170} = (25, 31, 4, 1)$	232 : $P_{8131} = (2, 29, 6, 1)$
179 : $P_{6194} = (17, 0, 5, 1)$	233 : $P_{8179} = (18, 30, 6, 1)$
180 : $P_{6336} = (31, 4, 5, 1)$	234 : $P_{8216} = (23, 31, 6, 1)$
181 : $P_{6347} = (10, 5, 5, 1)$	235 : $P_{8238} = (13, 0, 7, 1)$

236 : $P_{8245} = (20, 0, 7, 1)$	290 : $P_{9853} = (28, 18, 8, 1)$
237 : $P_{8249} = (24, 0, 7, 1)$	291 : $P_{9855} = (30, 18, 8, 1)$
238 : $P_{8260} = (3, 1, 7, 1)$	292 : $P_{9952} = (31, 21, 8, 1)$
239 : $P_{8357} = (4, 4, 7, 1)$	293 : $P_{9976} = (23, 22, 8, 1)$
240 : $P_{8388} = (3, 5, 7, 1)$	294 : $P_{10003} = (18, 23, 8, 1)$
241 : $P_{8410} = (25, 5, 7, 1)$	295 : $P_{10060} = (11, 25, 8, 1)$
242 : $P_{8415} = (30, 5, 7, 1)$	296 : $P_{10092} = (11, 26, 8, 1)$
243 : $P_{8445} = (28, 6, 7, 1)$	297 : $P_{10134} = (21, 27, 8, 1)$
244 : $P_{8453} = (4, 7, 7, 1)$	298 : $P_{10228} = (19, 30, 8, 1)$
245 : $P_{8465} = (16, 7, 7, 1)$	299 : $P_{10307} = (2, 1, 9, 1)$
246 : $P_{8467} = (18, 7, 7, 1)$	300 : $P_{10351} = (14, 2, 9, 1)$
247 : $P_{8504} = (23, 8, 7, 1)$	301 : $P_{10373} = (4, 3, 9, 1)$
248 : $P_{8520} = (7, 9, 7, 1)$	302 : $P_{10425} = (24, 4, 9, 1)$
249 : $P_{8558} = (13, 10, 7, 1)$	303 : $P_{10447} = (14, 5, 9, 1)$
250 : $P_{8604} = (27, 11, 7, 1)$	304 : $P_{10456} = (23, 5, 9, 1)$
251 : $P_{8635} = (26, 12, 7, 1)$	305 : $P_{10462} = (29, 5, 9, 1)$
252 : $P_{8745} = (8, 16, 7, 1)$	306 : $P_{10574} = (13, 9, 9, 1)$
253 : $P_{8746} = (9, 16, 7, 1)$	307 : $P_{10595} = (2, 10, 9, 1)$
254 : $P_{8753} = (16, 16, 7, 1)$	308 : $P_{10684} = (27, 12, 9, 1)$
255 : $P_{8770} = (1, 17, 7, 1)$	309 : $P_{10702} = (13, 13, 9, 1)$
256 : $P_{8780} = (11, 17, 7, 1)$	310 : $P_{10725} = (4, 14, 9, 1)$
257 : $P_{8795} = (26, 17, 7, 1)$	311 : $P_{10738} = (17, 14, 9, 1)$
258 : $P_{8819} = (18, 18, 7, 1)$	312 : $P_{10747} = (26, 14, 9, 1)$
259 : $P_{8853} = (20, 19, 7, 1)$	313 : $P_{10778} = (25, 15, 9, 1)$
260 : $P_{8880} = (15, 20, 7, 1)$	314 : $P_{10794} = (9, 16, 9, 1)$
261 : $P_{8943} = (14, 22, 7, 1)$	315 : $P_{10846} = (29, 17, 9, 1)$
262 : $P_{8962} = (1, 23, 7, 1)$	316 : $P_{10854} = (5, 18, 9, 1)$
263 : $P_{8973} = (12, 23, 7, 1)$	317 : $P_{10969} = (24, 21, 9, 1)$
264 : $P_{8988} = (27, 23, 7, 1)$	318 : $P_{10978} = (1, 22, 9, 1)$
265 : $P_{9016} = (23, 24, 7, 1)$	319 : $P_{10984} = (7, 22, 9, 1)$
266 : $P_{9114} = (25, 27, 7, 1)$	320 : $P_{10994} = (17, 22, 9, 1)$
267 : $P_{9133} = (12, 28, 7, 1)$	321 : $P_{11048} = (7, 24, 9, 1)$
268 : $P_{9136} = (15, 28, 7, 1)$	322 : $P_{11085} = (12, 25, 9, 1)$
269 : $P_{9151} = (30, 28, 7, 1)$	323 : $P_{11160} = (23, 27, 9, 1)$
270 : $P_{9164} = (11, 29, 7, 1)$	324 : $P_{11181} = (12, 28, 9, 1)$
271 : $P_{9181} = (28, 29, 7, 1)$	325 : $P_{11227} = (26, 29, 9, 1)$
272 : $P_{9194} = (9, 30, 7, 1)$	326 : $P_{11234} = (1, 30, 9, 1)$
273 : $P_{9225} = (8, 31, 7, 1)$	327 : $P_{11238} = (5, 30, 9, 1)$
274 : $P_{9231} = (14, 31, 7, 1)$	328 : $P_{11260} = (27, 30, 9, 1)$
275 : $P_{9241} = (24, 31, 7, 1)$	329 : $P_{11290} = (25, 31, 9, 1)$
276 : $P_{9263} = (14, 0, 8, 1)$	330 : $P_{11327} = (30, 0, 10, 1)$
277 : $P_{9344} = (31, 2, 8, 1)$	331 : $P_{11389} = (28, 2, 10, 1)$
278 : $P_{9407} = (30, 4, 8, 1)$	332 : $P_{11408} = (15, 3, 10, 1)$
279 : $P_{9428} = (19, 5, 8, 1)$	333 : $P_{11443} = (18, 4, 10, 1)$
280 : $P_{9455} = (14, 6, 8, 1)$	334 : $P_{11504} = (15, 6, 10, 1)$
281 : $P_{9462} = (21, 6, 8, 1)$	335 : $P_{11597} = (12, 9, 10, 1)$
282 : $P_{9469} = (28, 6, 8, 1)$	336 : $P_{11604} = (19, 9, 10, 1)$
283 : $P_{9478} = (5, 7, 8, 1)$	337 : $P_{11608} = (23, 9, 10, 1)$
284 : $P_{9560} = (23, 9, 8, 1)$	338 : $P_{11673} = (24, 11, 10, 1)$
285 : $P_{9574} = (5, 10, 8, 1)$	339 : $P_{11762} = (17, 14, 10, 1)$
286 : $P_{9618} = (17, 11, 8, 1)$	340 : $P_{11789} = (12, 15, 10, 1)$
287 : $P_{9683} = (18, 13, 8, 1)$	341 : $P_{11828} = (19, 16, 10, 1)$
288 : $P_{9705} = (8, 14, 8, 1)$	342 : $P_{11849} = (8, 17, 10, 1)$
289 : $P_{9842} = (17, 18, 8, 1)$	343 : $P_{11913} = (8, 19, 10, 1)$

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 743 : $P_{25624} = (23, 31, 23, 1)$
 744 : $P_{25639} = (6, 0, 24, 1)$
 745 : $P_{25649} = (16, 0, 24, 1)$
 746 : $P_{25656} = (23, 0, 24, 1)$
 747 : $P_{25691} = (26, 1, 24, 1)$
 748 : $P_{25699} = (2, 2, 24, 1)$
 749 : $P_{25743} = (14, 3, 24, 1)$
 750 : $P_{25751} = (22, 3, 24, 1)$
 751 : $P_{25755} = (26, 3, 24, 1)$
 752 : $P_{25765} = (4, 4, 24, 1)$
 753 : $P_{25779} = (18, 4, 24, 1)$
 754 : $P_{25780} = (19, 4, 24, 1)$
 755 : $P_{25794} = (1, 5, 24, 1)$
 756 : $P_{25802} = (9, 5, 24, 1)$
 757 : $P_{25805} = (12, 5, 24, 1)$
 758 : $P_{25836} = (11, 6, 24, 1)$
 759 : $P_{25905} = (16, 8, 24, 1)$
 760 : $P_{25934} = (13, 9, 24, 1)$
 761 : $P_{26071} = (22, 13, 24, 1)$
 762 : $P_{26099} = (18, 14, 24, 1)$
 763 : $P_{26123} = (10, 15, 24, 1)$
 764 : $P_{26132} = (19, 15, 24, 1)$
 765 : $P_{26136} = (23, 15, 24, 1)$
 766 : $P_{26189} = (12, 17, 24, 1)$
 767 : $P_{26233} = (24, 18, 24, 1)$
 768 : $P_{26269} = (28, 19, 24, 1)$
 769 : $P_{26282} = (9, 20, 24, 1)$
 770 : $P_{26294} = (21, 20, 24, 1)$
 771 : $P_{26316} = (11, 21, 24, 1)$
 772 : $P_{26319} = (14, 21, 24, 1)$
 773 : $P_{26322} = (17, 21, 24, 1)$
 774 : $P_{26397} = (28, 23, 24, 1)$
 775 : $P_{26403} = (2, 24, 24, 1)$

776 : $P_{26405} = (4, 24, 24, 1)$
 777 : $P_{26432} = (31, 24, 24, 1)$
 778 : $P_{26454} = (21, 25, 24, 1)$
 779 : $P_{26530} = (1, 28, 24, 1)$
 780 : $P_{26542} = (13, 28, 24, 1)$
 781 : $P_{26546} = (17, 28, 24, 1)$
 782 : $P_{26571} = (10, 29, 24, 1)$
 783 : $P_{26599} = (6, 30, 24, 1)$
 784 : $P_{26656} = (31, 31, 24, 1)$
 785 : $P_{26691} = (2, 1, 25, 1)$
 786 : $P_{26766} = (13, 3, 25, 1)$
 787 : $P_{26811} = (26, 4, 25, 1)$
 788 : $P_{26856} = (7, 6, 25, 1)$
 789 : $P_{26868} = (19, 6, 25, 1)$
 790 : $P_{26907} = (26, 7, 25, 1)$
 791 : $P_{26944} = (31, 8, 25, 1)$
 792 : $P_{26974} = (29, 9, 25, 1)$
 793 : $P_{27005} = (28, 10, 25, 1)$
 794 : $P_{27017} = (8, 11, 25, 1)$
 795 : $P_{27060} = (19, 12, 25, 1)$
 796 : $P_{27102} = (29, 13, 25, 1)$
 797 : $P_{27136} = (31, 14, 25, 1)$
 798 : $P_{27165} = (28, 15, 25, 1)$
 799 : $P_{27250} = (17, 18, 25, 1)$
 800 : $P_{27253} = (20, 18, 25, 1)$
 801 : $P_{27255} = (22, 18, 25, 1)$
 802 : $P_{27324} = (27, 20, 25, 1)$
 803 : $P_{27388} = (27, 22, 25, 1)$
 804 : $P_{27406} = (13, 23, 25, 1)$
 805 : $P_{27432} = (7, 24, 25, 1)$
 806 : $P_{27491} = (2, 26, 25, 1)$
 807 : $P_{27497} = (8, 26, 25, 1)$
 808 : $P_{27506} = (17, 26, 25, 1)$
 809 : $P_{27607} = (22, 29, 25, 1)$
 810 : $P_{27642} = (25, 30, 25, 1)$
 811 : $P_{27669} = (20, 31, 25, 1)$
 812 : $P_{27684} = (3, 0, 26, 1)$
 813 : $P_{27759} = (14, 2, 26, 1)$
 814 : $P_{27918} = (13, 7, 26, 1)$
 815 : $P_{27943} = (6, 8, 26, 1)$
 816 : $P_{27976} = (7, 9, 26, 1)$
 817 : $P_{28006} = (5, 10, 26, 1)$
 818 : $P_{28012} = (11, 10, 26, 1)$
 819 : $P_{28059} = (26, 11, 26, 1)$
 820 : $P_{28139} = (10, 14, 26, 1)$
 821 : $P_{28163} = (2, 15, 26, 1)$
 822 : $P_{28165} = (4, 15, 26, 1)$
 823 : $P_{28169} = (8, 15, 26, 1)$
 824 : $P_{28206} = (13, 16, 26, 1)$
 825 : $P_{28229} = (4, 17, 26, 1)$
 826 : $P_{28308} = (19, 19, 26, 1)$
 827 : $P_{28327} = (6, 20, 26, 1)$
 828 : $P_{28328} = (7, 20, 26, 1)$
 829 : $P_{28341} = (20, 20, 26, 1)$

830 : $P_{28358} = (5, 21, 26, 1)$
 831 : $P_{28399} = (14, 22, 26, 1)$
 832 : $P_{28419} = (2, 23, 26, 1)$
 833 : $P_{28484} = (3, 25, 26, 1)$
 834 : $P_{28532} = (19, 26, 26, 1)$
 835 : $P_{28533} = (20, 26, 26, 1)$
 836 : $P_{28541} = (28, 26, 26, 1)$
 837 : $P_{28556} = (11, 27, 26, 1)$
 838 : $P_{28605} = (28, 28, 26, 1)$
 839 : $P_{28617} = (8, 29, 26, 1)$
 840 : $P_{28651} = (10, 30, 26, 1)$
 841 : $P_{28714} = (9, 0, 27, 1)$
 842 : $P_{28753} = (16, 1, 27, 1)$
 843 : $P_{28796} = (27, 2, 27, 1)$
 844 : $P_{28804} = (3, 3, 27, 1)$
 845 : $P_{28933} = (4, 7, 27, 1)$
 846 : $P_{28975} = (14, 8, 27, 1)$
 847 : $P_{28986} = (25, 8, 27, 1)$
 848 : $P_{28991} = (30, 8, 27, 1)$
 849 : $P_{29027} = (2, 10, 27, 1)$
 850 : $P_{29041} = (16, 10, 27, 1)$
 851 : $P_{29050} = (25, 10, 27, 1)$
 852 : $P_{29086} = (29, 11, 27, 1)$
 853 : $P_{29136} = (15, 13, 27, 1)$
 854 : $P_{29150} = (29, 13, 27, 1)$
 855 : $P_{29151} = (30, 13, 27, 1)$
 856 : $P_{29191} = (6, 15, 27, 1)$
 857 : $P_{29237} = (20, 16, 27, 1)$
 858 : $P_{29287} = (6, 18, 27, 1)$
 859 : $P_{29290} = (9, 18, 27, 1)$
 860 : $P_{29309} = (28, 18, 27, 1)$
 861 : $P_{29315} = (2, 19, 27, 1)$
 862 : $P_{29405} = (28, 21, 27, 1)$
 863 : $P_{29426} = (17, 22, 27, 1)$
 864 : $P_{29477} = (4, 24, 27, 1)$
 865 : $P_{29520} = (15, 25, 27, 1)$
 866 : $P_{29572} = (3, 27, 27, 1)$
 867 : $P_{29618} = (17, 28, 27, 1)$
 868 : $P_{29647} = (14, 29, 27, 1)$
 869 : $P_{29717} = (20, 31, 27, 1)$
 870 : $P_{29731} = (2, 0, 28, 1)$
 871 : $P_{29750} = (21, 0, 28, 1)$
 872 : $P_{29751} = (22, 0, 28, 1)$
 873 : $P_{29778} = (17, 1, 28, 1)$
 874 : $P_{29830} = (5, 3, 28, 1)$
 875 : $P_{29877} = (20, 4, 28, 1)$
 876 : $P_{29940} = (19, 6, 28, 1)$
 877 : $P_{29954} = (1, 7, 28, 1)$
 878 : $P_{29956} = (3, 7, 28, 1)$
 879 : $P_{29957} = (4, 7, 28, 1)$
 880 : $P_{30000} = (15, 8, 28, 1)$
 881 : $P_{30031} = (14, 9, 28, 1)$
 882 : $P_{30036} = (19, 9, 28, 1)$
 883 : $P_{30038} = (21, 9, 28, 1)$

884 : $P_{30071} = (22, 10, 28, 1)$
 885 : $P_{30092} = (11, 11, 28, 1)$
 886 : $P_{30121} = (8, 12, 28, 1)$
 887 : $P_{30130} = (17, 12, 28, 1)$
 888 : $P_{30133} = (20, 12, 28, 1)$
 889 : $P_{30158} = (13, 13, 28, 1)$
 890 : $P_{30184} = (7, 14, 28, 1)$
 891 : $P_{30237} = (28, 15, 28, 1)$
 892 : $P_{30408} = (7, 21, 28, 1)$
 893 : $P_{30451} = (18, 22, 28, 1)$
 894 : $P_{30500} = (3, 24, 28, 1)$
 895 : $P_{30505} = (8, 24, 28, 1)$
 896 : $P_{30515} = (18, 24, 28, 1)$
 897 : $P_{30553} = (24, 25, 28, 1)$
 898 : $P_{30560} = (31, 25, 28, 1)$
 899 : $P_{30562} = (1, 26, 28, 1)$
 900 : $P_{30566} = (5, 26, 28, 1)$
 901 : $P_{30592} = (31, 26, 28, 1)$
 902 : $P_{30607} = (14, 27, 28, 1)$
 903 : $P_{30608} = (15, 27, 28, 1)$
 904 : $P_{30620} = (27, 27, 28, 1)$
 905 : $P_{30636} = (11, 28, 28, 1)$
 906 : $P_{30638} = (13, 28, 28, 1)$
 907 : $P_{30652} = (27, 28, 28, 1)$
 908 : $P_{30681} = (24, 29, 28, 1)$
 909 : $P_{30691} = (2, 30, 28, 1)$
 910 : $P_{30725} = (4, 31, 28, 1)$
 911 : $P_{30798} = (13, 1, 29, 1)$
 912 : $P_{30887} = (6, 4, 29, 1)$
 913 : $P_{30927} = (14, 5, 29, 1)$
 914 : $P_{30965} = (20, 6, 29, 1)$
 915 : $P_{31020} = (11, 8, 29, 1)$
 916 : $P_{31048} = (7, 9, 29, 1)$
 917 : $P_{31102} = (29, 10, 29, 1)$
 918 : $P_{31130} = (25, 11, 29, 1)$
 919 : $P_{31141} = (4, 12, 29, 1)$
 920 : $P_{31236} = (3, 15, 29, 1)$
 921 : $P_{31253} = (20, 15, 29, 1)$
 922 : $P_{31258} = (25, 15, 29, 1)$
 923 : $P_{31300} = (3, 17, 29, 1)$
 924 : $P_{31310} = (13, 17, 29, 1)$
 925 : $P_{31327} = (30, 17, 29, 1)$
 926 : $P_{31359} = (30, 18, 29, 1)$
 927 : $P_{31368} = (7, 19, 29, 1)$
 928 : $P_{31409} = (16, 20, 29, 1)$
 929 : $P_{31429} = (4, 21, 29, 1)$
 930 : $P_{31471} = (14, 22, 29, 1)$
 931 : $P_{31480} = (23, 22, 29, 1)$
 932 : $P_{31506} = (17, 23, 29, 1)$
 933 : $P_{31569} = (16, 25, 29, 1)$
 934 : $P_{31634} = (17, 27, 29, 1)$
 935 : $P_{31672} = (23, 28, 29, 1)$
 936 : $P_{31724} = (11, 30, 29, 1)$
 937 : $P_{31751} = (6, 31, 29, 1)$
 938 : $P_{31785} = (8, 0, 30, 1)$

939 : $P_{31920} = (15, 4, 30, 1)$
 940 : $P_{32063} = (30, 8, 30, 1)$
 941 : $P_{32111} = (14, 10, 30, 1)$
 942 : $P_{32204} = (11, 13, 30, 1)$
 943 : $P_{32260} = (3, 15, 30, 1)$
 944 : $P_{32264} = (7, 15, 30, 1)$
 945 : $P_{32267} = (10, 15, 30, 1)$
 946 : $P_{32313} = (24, 16, 30, 1)$
 947 : $P_{32339} = (18, 17, 30, 1)$
 948 : $P_{32356} = (3, 18, 30, 1)$
 949 : $P_{32411} = (26, 19, 30, 1)$
 950 : $P_{32438} = (21, 20, 30, 1)$
 951 : $P_{32464} = (15, 21, 30, 1)$
 952 : $P_{32488} = (7, 22, 30, 1)$
 953 : $P_{32489} = (8, 22, 30, 1)$
 954 : $P_{32505} = (24, 22, 30, 1)$
 955 : $P_{32539} = (26, 23, 30, 1)$
 956 : $P_{32556} = (11, 24, 30, 1)$
 957 : $P_{32623} = (14, 26, 30, 1)$
 958 : $P_{32651} = (10, 27, 30, 1)$
 959 : $P_{32723} = (18, 29, 30, 1)$
 960 : $P_{32790} = (21, 31, 30, 1)$
 961 : $P_{32846} = (13, 1, 31, 1)$
 962 : $P_{32896} = (31, 2, 31, 1)$
 963 : $P_{32903} = (6, 3, 31, 1)$
 964 : $P_{32933} = (4, 4, 31, 1)$
 965 : $P_{32977} = (16, 5, 31, 1)$
 966 : $P_{33010} = (17, 6, 31, 1)$
 967 : $P_{33030} = (5, 7, 31, 1)$
 968 : $P_{33060} = (3, 8, 31, 1)$
 969 : $P_{33074} = (17, 8, 31, 1)$
 970 : $P_{33084} = (27, 8, 31, 1)$
 971 : $P_{33118} = (29, 9, 31, 1)$
 972 : $P_{33122} = (1, 10, 31, 1)$
 973 : $P_{33137} = (16, 10, 31, 1)$
 974 : $P_{33147} = (26, 10, 31, 1)$
 975 : $P_{33182} = (29, 11, 31, 1)$
 976 : $P_{33212} = (27, 12, 31, 1)$
 977 : $P_{33225} = (8, 13, 31, 1)$
 978 : $P_{33307} = (26, 15, 31, 1)$
 979 : $P_{33334} = (21, 16, 31, 1)$
 980 : $P_{33422} = (13, 19, 31, 1)$
 981 : $P_{33442} = (1, 20, 31, 1)$
 982 : $P_{33444} = (3, 20, 31, 1)$
 983 : $P_{33464} = (23, 20, 31, 1)$
 984 : $P_{33597} = (28, 24, 31, 1)$
 985 : $P_{33639} = (6, 26, 31, 1)$
 986 : $P_{33641} = (8, 26, 31, 1)$
 987 : $P_{33654} = (21, 26, 31, 1)$
 988 : $P_{33693} = (28, 27, 31, 1)$
 989 : $P_{33720} = (23, 28, 31, 1)$
 990 : $P_{33734} = (5, 29, 31, 1)$
 991 : $P_{33797} = (4, 31, 31, 1)$

Line Intersection Graph

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

Neighbor sets in the line intersection graph:
Line 0 intersects

Line
in point

The surface has 1025 points:
Too many to print.