

Rank-65614 over GF(32)

January 15, 2021

The equation

The equation of the surface is :

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

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

The point rank of the equation over GF(32) is -2112814010

General information

Number of lines	1
Number of points	1025
Number of singular points	1
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 1 singular points:

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

The 1 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1082401} = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1082401} = \mathbf{Pl}(0, 1, 0, 0, 0, 1)_{34881}$$

Rank of lines: (1082401)
Rank of points on Klein quadric: (34881)

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 : $P_2 = (0, 0, 1, 0)$ lies on line ℓ_0 | 17 : $P_{17473} = (0, 1, 16, 1)$ lies on line ℓ_0 |
| 1 : $P_{1090} = (0, 1, 0, 1)$ lies on line ℓ_0 | 18 : $P_{18497} = (0, 1, 17, 1)$ lies on line ℓ_0 |
| 2 : $P_{2114} = (0, 1, 1, 1)$ lies on line ℓ_0 | 19 : $P_{19521} = (0, 1, 18, 1)$ lies on line ℓ_0 |
| 3 : $P_{3137} = (0, 1, 2, 1)$ lies on line ℓ_0 | 20 : $P_{20545} = (0, 1, 19, 1)$ lies on line ℓ_0 |
| 4 : $P_{4161} = (0, 1, 3, 1)$ lies on line ℓ_0 | 21 : $P_{21569} = (0, 1, 20, 1)$ lies on line ℓ_0 |
| 5 : $P_{5185} = (0, 1, 4, 1)$ lies on line ℓ_0 | 22 : $P_{22593} = (0, 1, 21, 1)$ lies on line ℓ_0 |
| 6 : $P_{6209} = (0, 1, 5, 1)$ lies on line ℓ_0 | 23 : $P_{23617} = (0, 1, 22, 1)$ lies on line ℓ_0 |
| 7 : $P_{7233} = (0, 1, 6, 1)$ lies on line ℓ_0 | 24 : $P_{24641} = (0, 1, 23, 1)$ lies on line ℓ_0 |
| 8 : $P_{8257} = (0, 1, 7, 1)$ lies on line ℓ_0 | 25 : $P_{25665} = (0, 1, 24, 1)$ lies on line ℓ_0 |
| 9 : $P_{9281} = (0, 1, 8, 1)$ lies on line ℓ_0 | 26 : $P_{26689} = (0, 1, 25, 1)$ lies on line ℓ_0 |
| 10 : $P_{10305} = (0, 1, 9, 1)$ lies on line ℓ_0 | 27 : $P_{27713} = (0, 1, 26, 1)$ lies on line ℓ_0 |
| 11 : $P_{11329} = (0, 1, 10, 1)$ lies on line ℓ_0 | 28 : $P_{28737} = (0, 1, 27, 1)$ lies on line ℓ_0 |
| 12 : $P_{12353} = (0, 1, 11, 1)$ lies on line ℓ_0 | 29 : $P_{29761} = (0, 1, 28, 1)$ lies on line ℓ_0 |
| 13 : $P_{13377} = (0, 1, 12, 1)$ lies on line ℓ_0 | 30 : $P_{30785} = (0, 1, 29, 1)$ lies on line ℓ_0 |
| 14 : $P_{14401} = (0, 1, 13, 1)$ lies on line ℓ_0 | 31 : $P_{31809} = (0, 1, 30, 1)$ lies on line ℓ_0 |
| 15 : $P_{15425} = (0, 1, 14, 1)$ lies on line ℓ_0 | 32 : $P_{32833} = (0, 1, 31, 1)$ lies on line ℓ_0 |
| 16 : $P_{16449} = (0, 1, 15, 1)$ 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 : $P_5 = (1, 1, 0, 0)$ | 6 : $P_{305} = (14, 8, 1, 0)$ |
| 1 : $P_{129} = (30, 2, 1, 0)$ | 7 : $P_{307} = (16, 8, 1, 0)$ |
| 2 : $P_{155} = (24, 3, 1, 0)$ | 8 : $P_{321} = (30, 8, 1, 0)$ |
| 3 : $P_{182} = (19, 4, 1, 0)$ | 9 : $P_{368} = (13, 10, 1, 0)$ |
| 4 : $P_{202} = (7, 5, 1, 0)$ | 10 : $P_{374} = (19, 10, 1, 0)$ |
| 5 : $P_{264} = (5, 7, 1, 0)$ | 11 : $P_{385} = (30, 10, 1, 0)$ |

12 : $P_{447} = (28, 12, 1, 0)$	66 : $P_{2408} = (7, 10, 1, 1)$
13 : $P_{461} = (10, 13, 1, 0)$	67 : $P_{2410} = (9, 10, 1, 1)$
14 : $P_{491} = (8, 14, 1, 0)$	68 : $P_{2416} = (15, 10, 1, 1)$
15 : $P_{502} = (19, 14, 1, 0)$	69 : $P_{2540} = (11, 14, 1, 1)$
16 : $P_{510} = (27, 14, 1, 0)$	70 : $P_{2550} = (21, 14, 1, 1)$
17 : $P_{555} = (8, 16, 1, 0)$	71 : $P_{2560} = (31, 14, 1, 1)$
18 : $P_{600} = (21, 17, 1, 0)$	72 : $P_{2698} = (9, 19, 1, 1)$
19 : $P_{647} = (4, 19, 1, 0)$	73 : $P_{2712} = (23, 19, 1, 1)$
20 : $P_{653} = (10, 19, 1, 0)$	74 : $P_{2720} = (31, 19, 1, 1)$
21 : $P_{657} = (14, 19, 1, 0)$	75 : $P_{2736} = (15, 20, 1, 1)$
22 : $P_{724} = (17, 21, 1, 0)$	76 : $P_{2803} = (18, 22, 1, 1)$
23 : $P_{797} = (26, 23, 1, 0)$	77 : $P_{2890} = (9, 25, 1, 1)$
24 : $P_{806} = (3, 24, 1, 0)$	78 : $P_{3040} = (31, 29, 1, 1)$
25 : $P_{890} = (23, 26, 1, 0)$	79 : $P_{3056} = (15, 30, 1, 1)$
26 : $P_{913} = (14, 27, 1, 0)$	80 : $P_{3059} = (18, 30, 1, 1)$
27 : $P_{943} = (12, 28, 1, 0)$	81 : $P_{3069} = (28, 30, 1, 1)$
28 : $P_{997} = (2, 30, 1, 0)$	82 : $P_{3145} = (8, 1, 2, 1)$
29 : $P_{1003} = (8, 30, 1, 0)$	83 : $P_{3146} = (9, 1, 2, 1)$
30 : $P_{1005} = (10, 30, 1, 0)$	84 : $P_{3185} = (16, 2, 2, 1)$
31 : $P_{1091} = (1, 1, 0, 1)$	85 : $P_{3214} = (13, 3, 2, 1)$
32 : $P_{1133} = (11, 2, 0, 1)$	86 : $P_{3343} = (14, 7, 2, 1)$
33 : $P_{1159} = (5, 3, 0, 1)$	87 : $P_{3382} = (21, 8, 2, 1)$
34 : $P_{1201} = (15, 4, 0, 1)$	88 : $P_{3397} = (4, 9, 2, 1)$
35 : $P_{1235} = (17, 5, 0, 1)$	89 : $P_{3472} = (15, 11, 2, 1)$
36 : $P_{1295} = (13, 7, 0, 1)$	90 : $P_{3537} = (16, 13, 2, 1)$
37 : $P_{1302} = (20, 7, 0, 1)$	91 : $P_{3587} = (2, 15, 2, 1)$
38 : $P_{1306} = (24, 7, 0, 1)$	92 : $P_{3601} = (16, 15, 2, 1)$
39 : $P_{1328} = (14, 8, 0, 1)$	93 : $P_{3604} = (19, 15, 2, 1)$
40 : $P_{1408} = (30, 10, 0, 1)$	94 : $P_{3635} = (18, 16, 2, 1)$
41 : $P_{1468} = (26, 12, 0, 1)$	95 : $P_{3700} = (19, 18, 2, 1)$
42 : $P_{1492} = (18, 13, 0, 1)$	96 : $P_{3756} = (11, 20, 2, 1)$
43 : $P_{1525} = (19, 14, 0, 1)$	97 : $P_{3798} = (21, 21, 2, 1)$
44 : $P_{1601} = (31, 16, 0, 1)$	98 : $P_{3843} = (2, 23, 2, 1)$
45 : $P_{1614} = (12, 17, 0, 1)$	99 : $P_{3875} = (2, 24, 2, 1)$
46 : $P_{1676} = (10, 19, 0, 1)$	100 : $P_{3943} = (6, 26, 2, 1)$
47 : $P_{1737} = (7, 21, 0, 1)$	101 : $P_{3962} = (25, 26, 2, 1)$
48 : $P_{1757} = (27, 21, 0, 1)$	102 : $P_{3967} = (30, 26, 2, 1)$
49 : $P_{1759} = (29, 21, 0, 1)$	103 : $P_{3983} = (14, 27, 2, 1)$
50 : $P_{1798} = (4, 23, 0, 1)$	104 : $P_{4015} = (14, 28, 2, 1)$
51 : $P_{1819} = (25, 23, 0, 1)$	105 : $P_{4040} = (7, 29, 2, 1)$
52 : $P_{1822} = (28, 23, 0, 1)$	106 : $P_{4052} = (19, 29, 2, 1)$
53 : $P_{1832} = (6, 24, 0, 1)$	107 : $P_{4054} = (21, 29, 2, 1)$
54 : $P_{1842} = (16, 24, 0, 1)$	108 : $P_{4229} = (4, 3, 3, 1)$
55 : $P_{1849} = (23, 24, 0, 1)$	109 : $P_{4278} = (21, 4, 3, 1)$
56 : $P_{1893} = (3, 26, 0, 1)$	110 : $P_{4308} = (19, 5, 3, 1)$
57 : $P_{1931} = (9, 27, 0, 1)$	111 : $P_{4412} = (27, 8, 3, 1)$
58 : $P_{1956} = (2, 28, 0, 1)$	112 : $P_{4427} = (10, 9, 3, 1)$
59 : $P_{1975} = (21, 28, 0, 1)$	113 : $P_{4438} = (21, 9, 3, 1)$
60 : $P_{1976} = (22, 28, 0, 1)$	114 : $P_{4447} = (30, 9, 3, 1)$
61 : $P_{2026} = (8, 30, 0, 1)$	115 : $P_{4480} = (31, 10, 3, 1)$
62 : $P_{2284} = (11, 6, 1, 1)$	116 : $P_{4487} = (6, 11, 3, 1)$
63 : $P_{2348} = (11, 8, 1, 1)$	117 : $P_{4507} = (26, 11, 3, 1)$
64 : $P_{2355} = (18, 8, 1, 1)$	118 : $P_{4510} = (29, 11, 3, 1)$
65 : $P_{2361} = (24, 8, 1, 1)$	119 : $P_{4566} = (21, 13, 3, 1)$

120 : $P_{4586} = (9, 14, 3, 1)$	174 : $P_{6771} = (18, 18, 5, 1)$
121 : $P_{4594} = (17, 14, 3, 1)$	175 : $P_{6894} = (13, 22, 5, 1)$
122 : $P_{4602} = (25, 14, 3, 1)$	176 : $P_{6935} = (22, 23, 5, 1)$
123 : $P_{4637} = (28, 15, 3, 1)$	177 : $P_{6967} = (22, 24, 5, 1)$
124 : $P_{4749} = (12, 19, 3, 1)$	178 : $P_{7069} = (28, 27, 5, 1)$
125 : $P_{4770} = (1, 20, 3, 1)$	179 : $P_{7091} = (18, 28, 5, 1)$
126 : $P_{4791} = (22, 20, 3, 1)$	180 : $P_{7106} = (1, 29, 5, 1)$
127 : $P_{4832} = (31, 21, 3, 1)$	181 : $P_{7130} = (25, 29, 5, 1)$
128 : $P_{4894} = (29, 23, 3, 1)$	182 : $P_{7143} = (6, 30, 5, 1)$
129 : $P_{4934} = (5, 25, 3, 1)$	183 : $P_{7148} = (11, 30, 5, 1)$
130 : $P_{4996} = (3, 27, 3, 1)$	184 : $P_{7149} = (12, 30, 5, 1)$
131 : $P_{5054} = (29, 28, 3, 1)$	185 : $P_{7192} = (23, 31, 5, 1)$
132 : $P_{5073} = (16, 29, 3, 1)$	186 : $P_{7235} = (2, 1, 6, 1)$
133 : $P_{5152} = (31, 31, 3, 1)$	187 : $P_{7236} = (3, 1, 6, 1)$
134 : $P_{5195} = (10, 1, 4, 1)$	188 : $P_{7277} = (12, 2, 6, 1)$
135 : $P_{5196} = (11, 1, 4, 1)$	189 : $P_{7321} = (24, 3, 6, 1)$
136 : $P_{5247} = (30, 2, 4, 1)$	190 : $P_{7362} = (1, 5, 6, 1)$
137 : $P_{5255} = (6, 3, 4, 1)$	191 : $P_{7375} = (14, 5, 6, 1)$
138 : $P_{5268} = (19, 3, 4, 1)$	192 : $P_{7421} = (28, 6, 6, 1)$
139 : $P_{5269} = (20, 3, 4, 1)$	193 : $P_{7451} = (26, 7, 6, 1)$
140 : $P_{5294} = (13, 4, 4, 1)$	194 : $P_{7467} = (10, 8, 6, 1)$
141 : $P_{5340} = (27, 5, 4, 1)$	195 : $P_{7570} = (17, 11, 6, 1)$
142 : $P_{5381} = (4, 7, 4, 1)$	196 : $P_{7591} = (6, 12, 6, 1)$
143 : $P_{5449} = (8, 9, 4, 1)$	197 : $P_{7644} = (27, 13, 6, 1)$
144 : $P_{5501} = (28, 10, 4, 1)$	198 : $P_{7664} = (15, 14, 6, 1)$
145 : $P_{5521} = (16, 11, 4, 1)$	199 : $P_{7686} = (5, 15, 6, 1)$
146 : $P_{5578} = (9, 13, 4, 1)$	200 : $P_{7714} = (1, 16, 6, 1)$
147 : $P_{5664} = (31, 15, 4, 1)$	201 : $P_{7724} = (11, 16, 6, 1)$
148 : $P_{5855} = (30, 21, 4, 1)$	202 : $P_{7760} = (15, 17, 6, 1)$
149 : $P_{5865} = (8, 22, 4, 1)$	203 : $P_{7762} = (17, 17, 6, 1)$
150 : $P_{5878} = (21, 22, 4, 1)$	204 : $P_{7776} = (31, 17, 6, 1)$
151 : $P_{5885} = (28, 22, 4, 1)$	205 : $P_{7849} = (8, 20, 6, 1)$
152 : $P_{5919} = (30, 23, 4, 1)$	206 : $P_{7874} = (1, 21, 6, 1)$
153 : $P_{5925} = (4, 24, 4, 1)$	207 : $P_{7878} = (5, 21, 6, 1)$
154 : $P_{6030} = (13, 27, 4, 1)$	208 : $P_{7983} = (14, 24, 6, 1)$
155 : $P_{6077} = (28, 28, 4, 1)$	209 : $P_{8014} = (13, 25, 6, 1)$
156 : $P_{6096} = (15, 29, 4, 1)$	210 : $P_{8023} = (22, 25, 6, 1)$
157 : $P_{6149} = (4, 31, 4, 1)$	211 : $P_{8027} = (26, 25, 6, 1)$
158 : $P_{6153} = (8, 31, 4, 1)$	212 : $P_{8038} = (5, 26, 6, 1)$
159 : $P_{6158} = (13, 31, 4, 1)$	213 : $P_{8050} = (17, 26, 6, 1)$
160 : $P_{6246} = (5, 2, 5, 1)$	214 : $P_{8054} = (21, 26, 6, 1)$
161 : $P_{6353} = (16, 5, 5, 1)$	215 : $P_{8094} = (29, 27, 6, 1)$
162 : $P_{6386} = (17, 6, 5, 1)$	216 : $P_{8100} = (3, 28, 6, 1)$
163 : $P_{6459} = (26, 8, 5, 1)$	217 : $P_{8132} = (3, 29, 6, 1)$
164 : $P_{6499} = (2, 10, 5, 1)$	218 : $P_{8141} = (12, 29, 6, 1)$
165 : $P_{6543} = (14, 11, 5, 1)$	219 : $P_{8143} = (14, 29, 6, 1)$
166 : $P_{6548} = (19, 11, 5, 1)$	220 : $P_{8163} = (2, 30, 6, 1)$
167 : $P_{6557} = (28, 11, 5, 1)$	221 : $P_{8186} = (25, 30, 6, 1)$
168 : $P_{6643} = (18, 14, 5, 1)$	222 : $P_{8187} = (26, 30, 6, 1)$
169 : $P_{6660} = (3, 15, 5, 1)$	223 : $P_{8195} = (2, 31, 6, 1)$
170 : $P_{6677} = (20, 15, 5, 1)$	224 : $P_{8205} = (12, 31, 6, 1)$
171 : $P_{6679} = (22, 15, 5, 1)$	225 : $P_{8208} = (15, 31, 6, 1)$
172 : $P_{6717} = (28, 16, 5, 1)$	226 : $P_{8302} = (13, 2, 7, 1)$
173 : $P_{6729} = (8, 17, 5, 1)$	227 : $P_{8356} = (3, 4, 7, 1)$

228 : $P_{8361} = (8, 4, 7, 1)$	282 : $P_{9932} = (11, 21, 8, 1)$
229 : $P_{8363} = (10, 4, 7, 1)$	283 : $P_{9935} = (14, 21, 8, 1)$
230 : $P_{8435} = (18, 6, 7, 1)$	284 : $P_{9976} = (23, 22, 8, 1)$
231 : $P_{8454} = (5, 7, 7, 1)$	285 : $P_{10133} = (20, 27, 8, 1)$
232 : $P_{8476} = (27, 7, 7, 1)$	286 : $P_{10183} = (6, 29, 8, 1)$
233 : $P_{8480} = (31, 7, 7, 1)$	287 : $P_{10261} = (20, 31, 8, 1)$
234 : $P_{8493} = (12, 8, 7, 1)$	288 : $P_{10325} = (20, 1, 9, 1)$
235 : $P_{8530} = (17, 9, 7, 1)$	289 : $P_{10326} = (21, 1, 9, 1)$
236 : $P_{8555} = (10, 10, 7, 1)$	290 : $P_{10361} = (24, 2, 9, 1)$
237 : $P_{8600} = (23, 11, 7, 1)$	291 : $P_{10400} = (31, 3, 9, 1)$
238 : $P_{8622} = (13, 12, 7, 1)$	292 : $P_{10406} = (5, 4, 9, 1)$
239 : $P_{8665} = (24, 13, 7, 1)$	293 : $P_{10559} = (30, 8, 9, 1)$
240 : $P_{8679} = (6, 14, 7, 1)$	294 : $P_{10580} = (19, 9, 9, 1)$
241 : $P_{8683} = (10, 14, 7, 1)$	295 : $P_{10613} = (20, 10, 9, 1)$
242 : $P_{8686} = (13, 14, 7, 1)$	296 : $P_{10645} = (20, 11, 9, 1)$
243 : $P_{8726} = (21, 15, 7, 1)$	297 : $P_{10665} = (8, 12, 9, 1)$
244 : $P_{8767} = (30, 16, 7, 1)$	298 : $P_{10674} = (17, 12, 9, 1)$
245 : $P_{8776} = (7, 17, 7, 1)$	299 : $P_{10681} = (24, 12, 9, 1)$
246 : $P_{8787} = (18, 17, 7, 1)$	300 : $P_{10745} = (24, 14, 9, 1)$
247 : $P_{8789} = (20, 17, 7, 1)$	301 : $P_{10757} = (4, 15, 9, 1)$
248 : $P_{8860} = (27, 19, 7, 1)$	302 : $P_{10811} = (26, 16, 9, 1)$
249 : $P_{8892} = (27, 20, 7, 1)$	303 : $P_{10860} = (11, 18, 9, 1)$
250 : $P_{8922} = (25, 21, 7, 1)$	304 : $P_{10926} = (13, 20, 9, 1)$
251 : $P_{8967} = (6, 23, 7, 1)$	305 : $P_{10929} = (16, 20, 9, 1)$
252 : $P_{8979} = (18, 23, 7, 1)$	306 : $P_{10941} = (28, 20, 9, 1)$
253 : $P_{8982} = (21, 23, 7, 1)$	307 : $P_{10954} = (9, 21, 9, 1)$
254 : $P_{9014} = (21, 24, 7, 1)$	308 : $P_{11048} = (7, 24, 9, 1)$
255 : $P_{9031} = (6, 25, 7, 1)$	309 : $P_{11085} = (12, 25, 9, 1)$
256 : $P_{9033} = (8, 25, 7, 1)$	310 : $P_{11230} = (29, 29, 9, 1)$
257 : $P_{9040} = (15, 25, 7, 1)$	311 : $P_{11236} = (3, 30, 9, 1)$
258 : $P_{9111} = (22, 27, 7, 1)$	312 : $P_{11254} = (21, 30, 9, 1)$
259 : $P_{9147} = (26, 28, 7, 1)$	313 : $P_{11256} = (23, 30, 9, 1)$
260 : $P_{9161} = (8, 29, 7, 1)$	314 : $P_{11266} = (1, 31, 9, 1)$
261 : $P_{9186} = (1, 30, 7, 1)$	315 : $P_{11286} = (21, 31, 9, 1)$
262 : $P_{9189} = (4, 30, 7, 1)$	316 : $P_{11390} = (29, 2, 10, 1)$
263 : $P_{9228} = (11, 31, 7, 1)$	317 : $P_{11429} = (4, 4, 10, 1)$
264 : $P_{9315} = (2, 2, 8, 1)$	318 : $P_{11443} = (18, 4, 10, 1)$
265 : $P_{9341} = (28, 2, 8, 1)$	319 : $P_{11448} = (23, 4, 10, 1)$
266 : $P_{9344} = (31, 2, 8, 1)$	320 : $P_{11467} = (10, 5, 10, 1)$
267 : $P_{9353} = (8, 3, 8, 1)$	321 : $P_{11623} = (6, 10, 10, 1)$
268 : $P_{9388} = (11, 4, 8, 1)$	322 : $P_{11696} = (15, 12, 10, 1)$
269 : $P_{9397} = (20, 4, 8, 1)$	323 : $P_{11802} = (25, 15, 10, 1)$
270 : $P_{9407} = (30, 4, 8, 1)$	324 : $P_{11824} = (15, 16, 10, 1)$
271 : $P_{9422} = (13, 5, 8, 1)$	325 : $P_{11828} = (19, 16, 10, 1)$
272 : $P_{9430} = (21, 5, 8, 1)$	326 : $P_{11838} = (29, 16, 10, 1)$
273 : $P_{9434} = (25, 5, 8, 1)$	327 : $P_{11847} = (6, 17, 10, 1)$
274 : $P_{9456} = (15, 6, 8, 1)$	328 : $P_{11868} = (27, 17, 10, 1)$
275 : $P_{9492} = (19, 7, 8, 1)$	329 : $P_{11869} = (28, 17, 10, 1)$
276 : $P_{9530} = (25, 8, 8, 1)$	330 : $P_{11902} = (29, 18, 10, 1)$
277 : $P_{9623} = (22, 11, 8, 1)$	331 : $P_{11968} = (31, 20, 10, 1)$
278 : $P_{9649} = (16, 12, 8, 1)$	332 : $P_{11977} = (8, 21, 10, 1)$
279 : $P_{9690} = (25, 13, 8, 1)$	333 : $P_{12021} = (20, 22, 10, 1)$
280 : $P_{9804} = (11, 17, 8, 1)$	334 : $P_{12121} = (24, 25, 10, 1)$
281 : $P_{9925} = (4, 21, 8, 1)$	335 : $P_{12142} = (13, 26, 10, 1)$

336 : $P_{12167} = (6, 27, 10, 1)$
 337 : $P_{12208} = (15, 28, 10, 1)$
 338 : $P_{12209} = (16, 28, 10, 1)$
 339 : $P_{12223} = (30, 28, 10, 1)$
 340 : $P_{12381} = (28, 1, 11, 1)$
 341 : $P_{12382} = (29, 1, 11, 1)$
 342 : $P_{12456} = (7, 4, 11, 1)$
 343 : $P_{12499} = (18, 5, 11, 1)$
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 750 : $P_{26122} = (9, 15, 24, 1)$
 751 : $P_{26168} = (23, 16, 24, 1)$
 752 : $P_{26193} = (16, 17, 24, 1)$
 753 : $P_{26214} = (5, 18, 24, 1)$
 754 : $P_{26258} = (17, 19, 24, 1)$
 755 : $P_{26292} = (19, 20, 24, 1)$
 756 : $P_{26317} = (12, 21, 24, 1)$
 757 : $P_{26348} = (11, 22, 24, 1)$
 758 : $P_{26356} = (19, 22, 24, 1)$
 759 : $P_{26362} = (25, 22, 24, 1)$
 760 : $P_{26376} = (7, 23, 24, 1)$
 761 : $P_{26404} = (3, 24, 24, 1)$
 762 : $P_{26414} = (13, 24, 24, 1)$
 763 : $P_{26416} = (15, 24, 24, 1)$
 764 : $P_{26464} = (31, 25, 24, 1)$
 765 : $P_{26513} = (16, 27, 24, 1)$
 766 : $P_{26536} = (7, 28, 24, 1)$
 767 : $P_{26554} = (25, 28, 24, 1)$

768 : $P_{26560} = (31, 28, 24, 1)$
 769 : $P_{26606} = (13, 30, 24, 1)$
 770 : $P_{26715} = (26, 1, 25, 1)$
 771 : $P_{26716} = (27, 1, 25, 1)$
 772 : $P_{26754} = (1, 3, 25, 1)$
 773 : $P_{26763} = (10, 3, 25, 1)$
 774 : $P_{26786} = (1, 4, 25, 1)$
 775 : $P_{26794} = (9, 4, 25, 1)$
 776 : $P_{26822} = (5, 5, 25, 1)$
 777 : $P_{26828} = (11, 5, 25, 1)$
 778 : $P_{26832} = (15, 5, 25, 1)$
 779 : $P_{26868} = (19, 6, 25, 1)$
 780 : $P_{26882} = (1, 7, 25, 1)$
 781 : $P_{26884} = (3, 7, 25, 1)$
 782 : $P_{26950} = (5, 9, 25, 1)$
 783 : $P_{26988} = (11, 10, 25, 1)$
 784 : $P_{27012} = (3, 11, 25, 1)$
 785 : $P_{27044} = (3, 12, 25, 1)$
 786 : $P_{27046} = (5, 12, 25, 1)$
 787 : $P_{27048} = (7, 12, 25, 1)$
 788 : $P_{27093} = (20, 13, 25, 1)$
 789 : $P_{27117} = (12, 14, 25, 1)$
 790 : $P_{27127} = (22, 14, 25, 1)$
 791 : $P_{27132} = (27, 14, 25, 1)$
 792 : $P_{27148} = (11, 15, 25, 1)$
 793 : $P_{27154} = (17, 15, 25, 1)$
 794 : $P_{27164} = (27, 15, 25, 1)$
 795 : $P_{27182} = (13, 16, 25, 1)$
 796 : $P_{27226} = (25, 17, 25, 1)$
 797 : $P_{27273} = (8, 19, 25, 1)$
 798 : $P_{27307} = (10, 20, 25, 1)$
 799 : $P_{27314} = (17, 20, 25, 1)$
 800 : $P_{27323} = (26, 20, 25, 1)$
 801 : $P_{27355} = (26, 21, 25, 1)$
 802 : $P_{27373} = (12, 22, 25, 1)$
 803 : $P_{27377} = (16, 22, 25, 1)$
 804 : $P_{27390} = (29, 22, 25, 1)$
 805 : $P_{27403} = (10, 23, 25, 1)$
 806 : $P_{27437} = (12, 24, 25, 1)$
 807 : $P_{27478} = (21, 25, 25, 1)$
 808 : $P_{27512} = (23, 26, 25, 1)$
 809 : $P_{27538} = (17, 27, 25, 1)$
 810 : $P_{27752} = (7, 2, 26, 1)$
 811 : $P_{27807} = (30, 3, 26, 1)$
 812 : $P_{27874} = (1, 6, 26, 1)$
 813 : $P_{27902} = (29, 6, 26, 1)$
 814 : $P_{27920} = (15, 7, 26, 1)$
 815 : $P_{27952} = (15, 8, 26, 1)$
 816 : $P_{27981} = (12, 9, 26, 1)$
 817 : $P_{27989} = (20, 9, 26, 1)$
 818 : $P_{27994} = (25, 9, 26, 1)$
 819 : $P_{28006} = (5, 10, 26, 1)$
 820 : $P_{28019} = (18, 10, 26, 1)$
 821 : $P_{28023} = (22, 10, 26, 1)$

822 : $P_{28054} = (21, 11, 26, 1)$
 823 : $P_{28123} = (26, 13, 26, 1)$
 824 : $P_{28176} = (15, 15, 26, 1)$
 825 : $P_{28200} = (7, 16, 26, 1)$
 826 : $P_{28264} = (7, 18, 26, 1)$
 827 : $P_{28265} = (8, 18, 26, 1)$
 828 : $P_{28271} = (14, 18, 26, 1)$
 829 : $P_{28302} = (13, 19, 26, 1)$
 830 : $P_{28325} = (4, 20, 26, 1)$
 831 : $P_{28373} = (20, 21, 26, 1)$
 832 : $P_{28388} = (3, 22, 26, 1)$
 833 : $P_{28515} = (2, 26, 26, 1)$
 834 : $P_{28597} = (20, 28, 26, 1)$
 835 : $P_{28658} = (17, 30, 26, 1)$
 836 : $P_{28755} = (18, 1, 27, 1)$
 837 : $P_{28756} = (19, 1, 27, 1)$
 838 : $P_{28864} = (31, 4, 27, 1)$
 839 : $P_{28906} = (9, 6, 27, 1)$
 840 : $P_{28936} = (7, 7, 27, 1)$
 841 : $P_{29004} = (11, 9, 27, 1)$
 842 : $P_{29061} = (4, 11, 27, 1)$
 843 : $P_{29084} = (27, 11, 27, 1)$
 844 : $P_{29087} = (30, 11, 27, 1)$
 845 : $P_{29103} = (14, 12, 27, 1)$
 846 : $P_{29111} = (22, 12, 27, 1)$
 847 : $P_{29114} = (25, 12, 27, 1)$
 848 : $P_{29131} = (10, 13, 27, 1)$
 849 : $P_{29221} = (4, 16, 27, 1)$
 850 : $P_{29283} = (2, 18, 27, 1)$
 851 : $P_{29320} = (7, 19, 27, 1)$
 852 : $P_{29352} = (7, 20, 27, 1)$
 853 : $P_{29369} = (24, 20, 27, 1)$
 854 : $P_{29375} = (30, 20, 27, 1)$
 855 : $P_{29387} = (10, 21, 27, 1)$
 856 : $P_{29468} = (27, 23, 27, 1)$
 857 : $P_{29483} = (10, 24, 27, 1)$
 858 : $P_{29553} = (16, 26, 27, 1)$
 859 : $P_{29573} = (4, 27, 27, 1)$
 860 : $P_{29628} = (27, 28, 27, 1)$
 861 : $P_{29727} = (30, 31, 27, 1)$
 862 : $P_{29814} = (21, 2, 28, 1)$
 863 : $P_{29827} = (2, 3, 28, 1)$
 864 : $P_{29863} = (6, 4, 28, 1)$
 865 : $P_{29964} = (11, 7, 28, 1)$
 866 : $P_{29976} = (23, 7, 28, 1)$
 867 : $P_{29982} = (29, 7, 28, 1)$
 868 : $P_{29986} = (1, 8, 28, 1)$
 869 : $P_{29998} = (13, 8, 28, 1)$
 870 : $P_{30048} = (31, 9, 28, 1)$
 871 : $P_{30053} = (4, 10, 28, 1)$
 872 : $P_{30159} = (14, 13, 28, 1)$
 873 : $P_{30162} = (17, 13, 28, 1)$
 874 : $P_{30175} = (30, 13, 28, 1)$
 875 : $P_{30180} = (3, 14, 28, 1)$

876 : $P_{30235} = (26, 15, 28, 1)$
 877 : $P_{30243} = (2, 16, 28, 1)$
 878 : $P_{30328} = (23, 18, 28, 1)$
 879 : $P_{30339} = (2, 19, 28, 1)$
 880 : $P_{30366} = (29, 19, 28, 1)$
 881 : $P_{30367} = (30, 19, 28, 1)$
 882 : $P_{30383} = (14, 20, 28, 1)$
 883 : $P_{30387} = (18, 20, 28, 1)$
 884 : $P_{30398} = (29, 20, 28, 1)$
 885 : $P_{30424} = (23, 21, 28, 1)$
 886 : $P_{30437} = (4, 22, 28, 1)$
 887 : $P_{30485} = (20, 23, 28, 1)$
 888 : $P_{30502} = (5, 24, 28, 1)$
 889 : $P_{30543} = (14, 25, 28, 1)$
 890 : $P_{30572} = (11, 26, 28, 1)$
 891 : $P_{30583} = (22, 26, 28, 1)$
 892 : $P_{30589} = (28, 26, 28, 1)$
 893 : $P_{30601} = (8, 27, 28, 1)$
 894 : $P_{30629} = (4, 28, 28, 1)$
 895 : $P_{30634} = (9, 28, 28, 1)$
 896 : $P_{30637} = (12, 28, 28, 1)$
 897 : $P_{30668} = (11, 29, 28, 1)$
 898 : $P_{30719} = (30, 30, 28, 1)$
 899 : $P_{30728} = (7, 31, 28, 1)$
 900 : $P_{30801} = (16, 1, 29, 1)$
 901 : $P_{30802} = (17, 1, 29, 1)$
 902 : $P_{30821} = (4, 2, 29, 1)$
 903 : $P_{30878} = (29, 3, 29, 1)$
 904 : $P_{30906} = (25, 4, 29, 1)$
 905 : $P_{30925} = (12, 5, 29, 1)$
 906 : $P_{30936} = (23, 5, 29, 1)$
 907 : $P_{30939} = (26, 5, 29, 1)$
 908 : $P_{31014} = (5, 8, 29, 1)$
 909 : $P_{31025} = (16, 8, 29, 1)$
 910 : $P_{31029} = (20, 8, 29, 1)$
 911 : $P_{31044} = (3, 9, 29, 1)$
 912 : $P_{31057} = (16, 9, 29, 1)$
 913 : $P_{31059} = (18, 9, 29, 1)$
 914 : $P_{31138} = (1, 12, 29, 1)$
 915 : $P_{31156} = (19, 12, 29, 1)$
 916 : $P_{31231} = (30, 14, 29, 1)$
 917 : $P_{31268} = (3, 16, 29, 1)$
 918 : $P_{31318} = (21, 17, 29, 1)$
 919 : $P_{31341} = (12, 18, 29, 1)$
 920 : $P_{31379} = (18, 19, 29, 1)$
 921 : $P_{31395} = (2, 20, 29, 1)$
 922 : $P_{31398} = (5, 20, 29, 1)$
 923 : $P_{31399} = (6, 20, 29, 1)$
 924 : $P_{31444} = (19, 21, 29, 1)$
 925 : $P_{31471} = (14, 22, 29, 1)$
 926 : $P_{31490} = (1, 23, 29, 1)$
 927 : $P_{31501} = (12, 23, 29, 1)$
 928 : $P_{31538} = (17, 24, 29, 1)$
 929 : $P_{31556} = (3, 25, 29, 1)$

930 : $P_{31570} = (17, 25, 29, 1)$
 931 : $P_{31572} = (19, 25, 29, 1)$
 932 : $P_{31594} = (9, 26, 29, 1)$
 933 : $P_{31603} = (18, 26, 29, 1)$
 934 : $P_{31611} = (26, 26, 29, 1)$
 935 : $P_{31618} = (1, 27, 29, 1)$
 936 : $P_{31648} = (31, 27, 29, 1)$
 937 : $P_{31654} = (5, 28, 29, 1)$
 938 : $P_{31705} = (24, 29, 29, 1)$
 939 : $P_{31771} = (26, 31, 29, 1)$
 940 : $P_{31891} = (18, 3, 30, 1)$
 941 : $P_{31934} = (29, 4, 30, 1)$
 942 : $P_{31939} = (2, 5, 30, 1)$
 943 : $P_{31991} = (22, 6, 30, 1)$
 944 : $P_{32154} = (25, 11, 30, 1)$
 945 : $P_{32191} = (30, 12, 30, 1)$
 946 : $P_{32200} = (7, 13, 30, 1)$
 947 : $P_{32204} = (11, 13, 30, 1)$
 948 : $P_{32206} = (13, 13, 30, 1)$
 949 : $P_{32314} = (25, 16, 30, 1)$
 950 : $P_{32373} = (20, 18, 30, 1)$
 951 : $P_{32438} = (21, 20, 30, 1)$
 952 : $P_{32490} = (9, 22, 30, 1)$
 953 : $P_{32527} = (14, 23, 30, 1)$
 954 : $P_{32553} = (8, 24, 30, 1)$
 955 : $P_{32563} = (18, 24, 30, 1)$
 956 : $P_{32572} = (27, 24, 30, 1)$
 957 : $P_{32613} = (4, 26, 30, 1)$
 958 : $P_{32633} = (24, 26, 30, 1)$
 959 : $P_{32638} = (29, 26, 30, 1)$
 960 : $P_{32651} = (10, 27, 30, 1)$
 961 : $P_{32659} = (18, 27, 30, 1)$
 962 : $P_{32666} = (25, 27, 30, 1)$
 963 : $P_{32766} = (29, 30, 30, 1)$
 964 : $P_{32857} = (24, 1, 31, 1)$
 965 : $P_{32858} = (25, 1, 31, 1)$
 966 : $P_{32882} = (17, 2, 31, 1)$
 967 : $P_{32964} = (3, 5, 31, 1)$
 968 : $P_{32989} = (28, 5, 31, 1)$
 969 : $P_{32991} = (30, 5, 31, 1)$
 970 : $P_{32999} = (6, 6, 31, 1)$
 971 : $P_{33085} = (28, 8, 31, 1)$
 972 : $P_{33116} = (27, 9, 31, 1)$
 973 : $P_{33133} = (12, 10, 31, 1)$
 974 : $P_{33142} = (21, 10, 31, 1)$
 975 : $P_{33145} = (24, 10, 31, 1)$
 976 : $P_{33154} = (1, 11, 31, 1)$
 977 : $P_{33177} = (24, 11, 31, 1)$
 978 : $P_{33196} = (11, 12, 31, 1)$
 979 : $P_{33245} = (28, 13, 31, 1)$
 980 : $P_{33299} = (18, 15, 31, 1)$
 981 : $P_{33402} = (25, 18, 31, 1)$
 982 : $P_{33434} = (25, 19, 31, 1)$
 983 : $P_{33600} = (31, 24, 31, 1)$

984 : $P_{33603} = (2, 25, 31, 1)$
985 : $P_{33605} = (4, 25, 31, 1)$
986 : $P_{33608} = (7, 25, 31, 1)$
987 : $P_{33691} = (26, 27, 31, 1)$
988 : $P_{33720} = (23, 28, 31, 1)$

989 : $P_{33734} = (5, 29, 31, 1)$
990 : $P_{33771} = (10, 30, 31, 1)$
991 : $P_{33807} = (14, 31, 31, 1)$

Line Intersection Graph

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

Neighbor sets in the line intersection graph:
Line 0 intersects

Line
in point

The surface has 1025 points:
Too many to print.