Rank-65612 over GF(16)

January 15, 2021

The equation

The equation of the surface is :

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

(1, 0, 0, 1, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(16) is 303112470

General information

Number of lines	1
Number of points	257
Number of singular points	2
Number of Eckardt points	0
Number of double points	0
Number of single points	17
Number of points off lines	240
Number of Hesse planes	0
Number of axes	0
Type of points on lines	17
Type of lines on points	1^{17}, 0^{240}

Singular Points

The surface has 2 singular points:

$0: \ P_1 = \mathbf{P}(0,1,0,0) = \mathbf{P}(0,1,0,0)$
$1: \ P_2 = \mathbf{P}(0,0,1,0) = \mathbf{P}(0,0,1,0)$

The 1 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \left[\begin{array}{cccc} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{array}\right]_{69888} = \left[\begin{array}{cccc} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{array}\right]_{69888} = \mathbf{Pl}(0,0,0,0,0,1)_{4625}$$

Rank of lines: (69888)
Rank of points on Klein quadric: (4625)

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 17 single points:
The single points on the surface are:

0 : $P_1 = (0,1,0,0)$ lies on line ℓ_0
1 : $P_2 = (0,0,1,0)$ lies on line ℓ_0
2 : $P_{35} = (0,1,1,0)$ lies on line ℓ_0
3 : $P_{51} = (0,2,1,0)$ lies on line ℓ_0
4 : $P_{67} = (0,3,1,0)$ lies on line ℓ_0
5 : $P_{83} = (0,4,1,0)$ lies on line ℓ_0
6 : $P_{99} = (0,5,1,0)$ lies on line ℓ_0
7 : $P_{115} = (0,6,1,0)$ lies on line ℓ_0
8 : $P_{131} = (0,7,1,0)$ lies on line ℓ_0
9 : $P_{147} = (0,8,1,0)$ lies on line ℓ_0
10 : $P_{163} = (0,9,1,0)$ lies on line ℓ_0
11 : $P_{179} = (0,10,1,0)$ lies on line ℓ_0
12 : $P_{195} = (0,11,1,0)$ lies on line ℓ_0
13 : $P_{211} = (0,12,1,0)$ lies on line ℓ_0
14 : $P_{227} = (0,13,1,0)$ lies on line ℓ_0
15 : $P_{243} = (0,14,1,0)$ lies on line ℓ_0
16 : $P_{259} = (0,15,1,0)$ lies on line ℓ_0

The single points on the surface are:

Points on surface but on no line

The surface has 240 points not on any line:
The points on the surface but not on lines are:

0 : $P_4 = (1,1,1,1)$
1 : $P_{36} = (1,1,1,0)$
2 : $P_{65} = (14,2,1,0)$
3 : $P_{82} = (15,3,1,0)$
4 : $P_{85} = (2,4,1,0)$
5 : $P_{102} = (3,5,1,0)$
6 : $P_{127} = (12,6,1,0)$
7 : $P_{144} = (13,7,1,0)$
8 : $P_{152} = (5,8,1,0)$
9 : $P_{167} = (4,9,1,0)$
10 : $P_{190} = (11,10,1,0)$
11 : $P_{205} = (10,11,1,0)$
12 : $P_{218} = (7,12,1,0)$
13 : $P_{233} = (6,13,1,0)$
14 : $P_{252} = (9,14,1,0)$
15 : $P_{267} = (8,15,1,0)$
16 : $P_{566} = (5,2,1,1)$
17 : $P_{590} = (13,3,1,1)$
18 : $P_{601} = (8,4,1,1)$
19 : $P_{616} = (7,5,1,1)$
20 : $P_{669} = (12,8,1,1)$
21 : $P_{688} = (15,9,1,1)$
22 : $P_{691} = (2,10,1,1)$
23 : $P_{698} = (9,10,1,1)$
24 : $P_{699} = (10,10,1,1)$
25 : $P_{709} = (4,11,1,1)$
26 : $P_{716} = (11,11,1,1)$
27 : $P_{719} = (14,11,1,1)$

$28: P_{756} = (3, 14, 1, 1)$
$29: P_{775} = (6, 15, 1, 1)$
$30: P_{806} = (5, 1, 2, 1)$
$31: P_{825} = (8, 2, 2, 1)$
$32: P_{861} = (12, 4, 2, 1)$
$33: P_{867} = (2, 5, 2, 1)$
$34: P_{874} = (9, 5, 2, 1)$
$35: P_{875} = (10, 5, 2, 1)$
$36: P_{900} = (3, 7, 2, 1)$
$37: P_{928} = (15, 8, 2, 1)$
$38: P_{933} = (4, 9, 2, 1)$
$39: P_{940} = (11, 9, 2, 1)$
$40: P_{943} = (14, 9, 2, 1)$
$41: P_{967} = (6, 11, 2, 1)$
$42: P_{978} = (1, 12, 2, 1)$
$43: P_{1006} = (13, 13, 2, 1)$
$44: P_{1016} = (7, 14, 2, 1)$
$45: P_{1070} = (13, 1, 3, 1)$
$46: P_{1096} = (7, 3, 3, 1)$
$47: P_{1127} = (6, 5, 3, 1)$
$48: P_{1139} = (2, 6, 3, 1)$
$49: P_{1146} = (9, 6, 3, 1)$
$50: P_{1147} = (10, 6, 3, 1)$
$51: P_{1168} = (15, 7, 3, 1)$
$52: P_{1170} = (1, 8, 3, 1)$
$53: P_{1190} = (5, 9, 3, 1)$
$54: P_{1225} = (8, 11, 3, 1)$
$55: P_{1252} = (3, 13, 3, 1)$
$56: P_{1269} = (4, 14, 3, 1)$
$57: P_{1276} = (11, 14, 3, 1)$
$58: P_{1279} = (14, 14, 3, 1)$
$59: P_{1293} = (12, 15, 3, 1)$
$60: P_{1321} = (8, 1, 4, 1)$
$61: P_{1341} = (12, 2, 4, 1)$
$62: P_{1376} = (15, 4, 4, 1)$
$63: P_{1394} = (1, 6, 4, 1)$
$64: P_{1416} = (7, 7, 4, 1)$
$65: P_{1429} = (4, 8, 4, 1)$
$66: P_{1436} = (11, 8, 4, 1)$
$67: P_{1439} = (14, 8, 4, 1)$
$68: P_{1447} = (6, 9, 4, 1)$
$69: P_{1470} = (13, 10, 4, 1)$
$70: P_{1494} = (5, 12, 4, 1)$
$71: P_{1523} = (2, 14, 4, 1)$
$72: P_{1530} = (9, 14, 4, 1)$
$73: P_{1531} = (10, 14, 4, 1)$
$74: P_{1540} = (3, 15, 4, 1)$
$75: P_{1576} = (7, 1, 5, 1)$
$76: P_{1587} = (2, 2, 5, 1)$
$77: P_{1594} = (9, 2, 5, 1)$
$78: P_{1595} = (10, 2, 5, 1)$
$79: P_{1607} = (6, 3, 5, 1)$
$80: P_{1645} = (12, 5, 5, 1)$
$81: P_{1670} = (5, 7, 5, 1)$
$82: P_{1694} = (13, 8, 5, 1)$
$83: P_{1728} = (15, 10, 5, 1)$
$84: P_{1748} = (3, 12, 5, 1)$
$85: P_{1765} = (4, 13, 5, 1)$
$86: P_{1772} = (11, 13, 5, 1)$
$87: P_{1775} = (14, 13, 5, 1)$
$88: P_{1785} = (8, 14, 5, 1)$
$89: P_{1794} = (1, 15, 5, 1)$
$90: P_{1859} = (2, 3, 6, 1)$
$91: P_{1866} = (9, 3, 6, 1)$
$92: P_{1867} = (10, 3, 6, 1)$
$93: P_{1874} = (1, 4, 6, 1)$
$94: P_{1925} = (4, 7, 6, 1)$
$95: P_{1932} = (11, 7, 6, 1)$
$96: P_{1935} = (14, 7, 6, 1)$
$97: P_{1942} = (5, 8, 6, 1)$
$98: P_{1961} = (8, 9, 6, 1)$
$99: P_{1972} = (3, 10, 6, 1)$
$100: P_{1997} = (12, 11, 6, 1)$
$101: P_{2014} = (13, 12, 6, 1)$
$102: P_{2024} = (7, 13, 6, 1)$
$103: P_{2039} = (6, 14, 6, 1)$
$104: P_{2064} = (15, 15, 6, 1)$
$105: P_{2100} = (3, 2, 7, 1)$
$106: P_{2128} = (15, 3, 7, 1)$
$107: P_{2136} = (7, 4, 7, 1)$
$108: P_{2150} = (5, 5, 7, 1)$
$109: P_{2165} = (4, 6, 7, 1)$
$110: P_{2172} = (11, 6, 7, 1)$
$111: P_{2175} = (14, 6, 7, 1)$
$112: P_{2195} = (2, 8, 7, 1)$
$113: P_{2202} = (9, 8, 7, 1)$
$114: P_{2203} = (10, 8, 7, 1)$
$115: P_{2233} = (8, 10, 7, 1)$
$116: P_{2254} = (13, 11, 7, 1)$
$117: P_{2263} = (6, 12, 7, 1)$
$118: P_{2285} = (12, 13, 7, 1)$
$119: P_{2290} = (1, 14, 7, 1)$
$120: P_{2349} = (12, 1, 8, 1)$
$121: P_{2368} = (15, 2, 8, 1)$
$122: P_{2370} = (1, 3, 8, 1)$
$123: P_{2389} = (4, 4, 8, 1)$
$124: P_{2396} = (11, 4, 8, 1)$
$125: P_{2399} = (14, 4, 8, 1)$
$126: P_{2414} = (13, 5, 8, 1)$
$127: P_{2422} = (5, 6, 8, 1)$
$128: P_{2435} = (2, 7, 8, 1)$
$129: P_{2442} = (9, 7, 8, 1)$
$130: P_{2443} = (10, 7, 8, 1)$
$131: P_{2455} = (6, 8, 8, 1)$
$132: P_{2500} = (3, 11, 8, 1)$
$133: P_{2521} = (8, 12, 8, 1)$
$134: P_{2568} = (7, 15, 8, 1)$
$135: P_{2608} = (15, 1, 9, 1)$

136 : $P_{2613} = (4, 2, 9, 1)$
137 : $P_{2620} = (11, 2, 9, 1)$
138 : $P_{2623} = (14, 2, 9, 1)$
139 : $P_{2630} = (5, 3, 9, 1)$
140 : $P_{2647} = (6, 4, 9, 1)$
141 : $P_{2681} = (8, 6, 9, 1)$
142 : $P_{2724} = (3, 9, 9, 1)$
143 : $P_{2760} = (7, 11, 9, 1)$
144 : $P_{2781} = (12, 12, 9, 1)$
145 : $P_{2786} = (1, 13, 9, 1)$
146 : $P_{2814} = (13, 14, 9, 1)$
147 : $P_{2819} = (2, 15, 9, 1)$
148 : $P_{2826} = (9, 15, 9, 1)$
149 : $P_{2827} = (10, 15, 9, 1)$
150 : $P_{2851} = (2, 1, 10, 1)$
151 : $P_{2858} = (9, 1, 10, 1)$
152 : $P_{2859} = (10, 1, 10, 1)$
153 : $P_{2910} = (13, 4, 10, 1)$
154 : $P_{2928} = (15, 5, 10, 1)$
155 : $P_{2932} = (3, 6, 10, 1)$
156 : $P_{2953} = (8, 7, 10, 1)$
157 : $P_{2997} = (4, 10, 10, 1)$
158 : $P_{3004} = (11, 10, 10, 1)$
159 : $P_{3007} = (14, 10, 10, 1)$
160 : $P_{3010} = (1, 11, 10, 1)$
161 : $P_{3032} = (7, 12, 10, 1)$
162 : $P_{3047} = (6, 13, 10, 1)$
163 : $P_{3069} = (12, 14, 10, 1)$
164 : $P_{3078} = (5, 15, 10, 1)$
165 : $P_{3109} = (4, 1, 11, 1)$
166 : $P_{3116} = (11, 1, 11, 1)$
167 : $P_{3119} = (14, 1, 11, 1)$
168 : $P_{3127} = (6, 2, 11, 1)$
169 : $P_{3145} = (8, 3, 11, 1)$
170 : $P_{3197} = (12, 6, 11, 1)$
171 : $P_{3214} = (13, 7, 11, 1)$
172 : $P_{3220} = (3, 8, 11, 1)$
173 : $P_{3240} = (7, 9, 11, 1)$
174 : $P_{3250} = (1, 10, 11, 1)$
175 : $P_{3267} = (2, 11, 11, 1)$
176 : $P_{3274} = (9, 11, 11, 1)$
177 : $P_{3275} = (10, 11, 11, 1)$
178 : $P_{3296} = (15, 12, 11, 1)$
179 : $P_{3302} = (5, 13, 11, 1)$
180 : $P_{3378} = (1, 2, 12, 1)$
181 : $P_{3414} = (5, 4, 12, 1)$
182 : $P_{3428} = (3, 5, 12, 1)$
183 : $P_{3454} = (13, 6, 12, 1)$
184 : $P_{3463} = (6, 7, 12, 1)$
185 : $P_{3481} = (8, 8, 12, 1)$
186 : $P_{3501} = (12, 9, 12, 1)$
187 : $P_{3512} = (7, 10, 12, 1)$
188 : $P_{3536} = (15, 11, 12, 1)$
189 : $P_{3555} = (2, 13, 12, 1)$
190 : $P_{3562} = (9, 13, 12, 1)$
191 : $P_{3563} = (10, 13, 12, 1)$
192 : $P_{3589} = (4, 15, 12, 1)$
193 : $P_{3596} = (11, 15, 12, 1)$
194 : $P_{3599} = (14, 15, 12, 1)$
195 : $P_{3646} = (13, 2, 13, 1)$
196 : $P_{3652} = (3, 3, 13, 1)$
197 : $P_{3685} = (4, 5, 13, 1)$
198 : $P_{3692} = (11, 5, 13, 1)$
199 : $P_{3695} = (14, 5, 13, 1)$
200 : $P_{3704} = (7, 6, 13, 1)$
201 : $P_{3725} = (12, 7, 13, 1)$
202 : $P_{3746} = (1, 9, 13, 1)$
203 : $P_{3767} = (6, 10, 13, 1)$
204 : $P_{3782} = (5, 11, 13, 1)$
205 : $P_{3795} = (2, 12, 13, 1)$
206 : $P_{3802} = (9, 12, 13, 1)$
207 : $P_{3803} = (10, 12, 13, 1)$
208 : $P_{3840} = (15, 14, 13, 1)$
209 : $P_{3849} = (8, 15, 13, 1)$
210 : $P_{3876} = (3, 1, 14, 1)$
211 : $P_{3896} = (7, 2, 14, 1)$
212 : $P_{3909} = (4, 3, 14, 1)$
213 : $P_{3916} = (11, 3, 14, 1)$
214 : $P_{3919} = (14, 3, 14, 1)$
215 : $P_{3923} = (2, 4, 14, 1)$
216 : $P_{3930} = (9, 4, 14, 1)$
217 : $P_{3931} = (10, 4, 14, 1)$
218 : $P_{3945} = (8, 5, 14, 1)$
219 : $P_{3959} = (6, 6, 14, 1)$
220 : $P_{3970} = (1, 7, 14, 1)$
221 : $P_{4014} = (13, 9, 14, 1)$
222 : $P_{4029} = (12, 10, 14, 1)$
223 : $P_{4080} = (15, 13, 14, 1)$
224 : $P_{4086} = (5, 14, 14, 1)$
225 : $P_{4135} = (6, 1, 15, 1)$
226 : $P_{4173} = (12, 3, 15, 1)$
227 : $P_{4180} = (3, 4, 15, 1)$
228 : $P_{4194} = (1, 5, 15, 1)$
229 : $P_{4224} = (15, 6, 15, 1)$
230 : $P_{4248} = (7, 8, 15, 1)$
231 : $P_{4259} = (2, 9, 15, 1)$
232 : $P_{4266} = (9, 9, 15, 1)$
233 : $P_{4267} = (10, 9, 15, 1)$
234 : $P_{4278} = (5, 10, 15, 1)$
235 : $P_{4309} = (4, 12, 15, 1)$
236 : $P_{4316} = (11, 12, 15, 1)$
237 : $P_{4319} = (14, 12, 15, 1)$
238 : $P_{4329} = (8, 13, 15, 1)$
239 : $P_{4366} = (13, 15, 15, 1)$

Line Intersection Graph

	0
0	0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line
in point

The surface has 257 points:
The points on the surface are:

0 : $P_{1} = (0, 1, 0, 0)$
1 : $P_{2} = (0, 0, 1, 0)$
2 : $P_{4} = (1, 1, 1, 1)$
3 : $P_{35} = (0, 1, 1, 0)$
4 : $P_{36} = (1, 1, 1, 0)$
5 : $P_{51} = (0, 2, 1, 0)$
6 : $P_{65} = (14, 2, 1, 0)$
7 : $P_{67} = (0, 3, 1, 0)$
8 : $P_{82} = (15, 3, 1, 0)$
9 : $P_{83} = (0, 4, 1, 0)$
10 : $P_{85} = (2, 4, 1, 0)$
11 : $P_{99} = (0, 5, 1, 0)$
12 : $P_{102} = (3, 5, 1, 0)$
13 : $P_{115} = (0, 6, 1, 0)$
14 : $P_{127} = (12, 6, 1, 0)$
15 : $P_{131} = (0, 7, 1, 0)$
16 : $P_{144} = (13, 7, 1, 0)$
17 : $P_{147} = (0, 8, 1, 0)$
18 : $P_{152} = (5, 8, 1, 0)$
19 : $P_{163} = (0, 9, 1, 0)$
20 : $P_{167} = (4, 9, 1, 0)$
21 : $P_{179} = (0, 10, 1, 0)$
22 : $P_{190} = (11, 10, 1, 0)$
23 : $P_{195} = (0, 11, 1, 0)$
24 : $P_{205} = (10, 11, 1, 0)$
25 : $P_{211} = (0, 12, 1, 0)$
26 : $P_{218} = (7, 12, 1, 0)$
27 : $P_{227} = (0, 13, 1, 0)$
28 : $P_{233} = (6, 13, 1, 0)$
29 : $P_{243} = (0, 14, 1, 0)$
30 : $P_{252} = (9, 14, 1, 0)$
31 : $P_{259} = (0, 15, 1, 0)$
32 : $P_{267} = (8, 15, 1, 0)$
33 : $P_{566} = (5, 2, 1, 1)$
34 : $P_{590} = (13, 3, 1, 1)$
35 : $P_{601} = (8, 4, 1, 1)$
36 : $P_{616} = (7, 5, 1, 1)$
37 : $P_{669} = (12, 8, 1, 1)$
38 : $P_{688} = (15, 9, 1, 1)$
39 : $P_{691} = (2, 10, 1, 1)$
40 : $P_{698} = (9, 10, 1, 1)$
41 : $P_{699} = (10, 10, 1, 1)$
42 : $P_{709} = (4, 11, 1, 1)$
43 : $P_{716} = (11, 11, 1, 1)$
44 : $P_{719} = (14, 11, 1, 1)$
45 : $P_{756} = (3, 14, 1, 1)$
46 : $P_{775} = (6, 15, 1, 1)$
47 : $P_{806} = (5, 1, 2, 1)$
48 : $P_{825} = (8, 2, 2, 1)$
49 : $P_{861} = (12, 4, 2, 1)$
50 : $P_{867} = (2, 5, 2, 1)$
51 : $P_{874} = (9, 5, 2, 1)$
52 : $P_{875} = (10, 5, 2, 1)$
53 : $P_{900} = (3, 7, 2, 1)$
54 : $P_{928} = (15, 8, 2, 1)$
55 : $P_{933} = (4, 9, 2, 1)$
56 : $P_{940} = (11, 9, 2, 1)$
57 : $P_{943} = (14, 9, 2, 1)$
58 : $P_{967} = (6, 11, 2, 1)$
59 : $P_{978} = (1, 12, 2, 1)$
60 : $P_{1006} = (13, 13, 2, 1)$
61 : $P_{1016} = (7, 14, 2, 1)$
62 : $P_{1070} = (13, 1, 3, 1)$
63 : $P_{1096} = (7, 3, 3, 1)$
64 : $P_{1127} = (6, 5, 3, 1)$
65 : $P_{1139} = (2, 6, 3, 1)$
66 : $P_{1146} = (9, 6, 3, 1)$
67 : $P_{1147} = (10, 6, 3, 1)$
68 : $P_{1168} = (15, 7, 3, 1)$
69 : $P_{1170} = (1, 8, 3, 1)$
70 : $P_{1190} = (5, 9, 3, 1)$
71 : $P_{1225} = (8, 11, 3, 1)$
72 : $P_{1252} = (3, 13, 3, 1)$
73 : $P_{1269} = (4, 14, 3, 1)$
74 : $P_{1276} = (11, 14, 3, 1)$
75 : $P_{1279} = (14, 14, 3, 1)$
76 : $P_{1293} = (12, 15, 3, 1)$
77 : $P_{1321} = (8, 1, 4, 1)$
78 : $P_{1341} = (12, 2, 4, 1)$
79 : $P_{1376} = (15, 4, 4, 1)$
80 : $P_{1394} = (1, 6, 4, 1)$
81 : $P_{1416} = (7, 7, 4, 1)$
82 : $P_{1429} = (4, 8, 4, 1)$
83 : $P_{1436} = (11, 8, 4, 1)$
84 : $P_{1439} = (14, 8, 4, 1)$
85 : $P_{1447} = (6, 9, 4, 1)$
86 : $P_{1470} = (13, 10, 4, 1)$
87 : $P_{1494} = (5, 12, 4, 1)$
88 : $P_{1523} = (2, 14, 4, 1)$
89 : $P_{1530} = (9, 14, 4, 1)$
90 : $P_{1531} = (10, 14, 4, 1)$
91 : $P_{1540} = (3, 15, 4, 1)$
92 : $P_{1576} = (7, 1, 5, 1)$
93 : $P_{1587} = (2, 2, 5, 1)$
94 : $P_{1594} = (9, 2, 5, 1)$
95 : $P_{1595} = (10, 2, 5, 1)$
96 : $P_{1607} = (6, 3, 5, 1)$
97 : $P_{1645} = (12, 5, 5, 1)$
98 : $P_{1670} = (5, 7, 5, 1)$
99 : $P_{1694} = (13, 8, 5, 1)$
100 : $P_{1728} = (15, 10, 5, 1)$
101 : $P_{1748} = (3, 12, 5, 1)$
102 : $P_{1765} = (4, 13, 5, 1)$
103 : $P_{1772} = (11, 13, 5, 1)$
104 : $P_{1775} = (14, 13, 5, 1)$
105 : $P_{1785} = (8, 14, 5, 1)$
106 : $P_{1794} = (1, 15, 5, 1)$
107 : $P_{1859} = (2, 3, 6, 1)$
108 : $P_{1866} = (9, 3, 6, 1)$
109 : $P_{1867} = (10, 3, 6, 1)$
110 : $P_{1874} = (1, 4, 6, 1)$
111 : $P_{1925} = (4, 7, 6, 1)$
112 : $P_{1932} = (11, 7, 6, 1)$
113 : $P_{1935} = (14, 7, 6, 1)$
114 : $P_{1942} = (5, 8, 6, 1)$
115 : $P_{1961} = (8, 9, 6, 1)$
116 : $P_{1972} = (3, 10, 6, 1)$
117 : $P_{1997} = (12, 11, 6, 1)$
118 : $P_{2014} = (13, 12, 6, 1)$
119 : $P_{2024} = (7, 13, 6, 1)$
120 : $P_{2039} = (6, 14, 6, 1)$
121 : $P_{2064} = (15, 15, 6, 1)$
122 : $P_{2100} = (3, 2, 7, 1)$
123 : $P_{2128} = (15, 3, 7, 1)$
124 : $P_{2136} = (7, 4, 7, 1)$
125 : $P_{2150} = (5, 5, 7, 1)$

126 : $P_{2165} = (4, 6, 7, 1)$
127 : $P_{2172} = (11, 6, 7, 1)$
128 : $P_{2175} = (14, 6, 7, 1)$
129 : $P_{2195} = (2, 8, 7, 1)$
130 : $P_{2202} = (9, 8, 7, 1)$
131 : $P_{2203} = (10, 8, 7, 1)$
132 : $P_{2233} = (8, 10, 7, 1)$
133 : $P_{2254} = (13, 11, 7, 1)$
134 : $P_{2263} = (6, 12, 7, 1)$
135 : $P_{2285} = (12, 13, 7, 1)$
136 : $P_{2290} = (1, 14, 7, 1)$
137 : $P_{2349} = (12, 1, 8, 1)$
138 : $P_{2368} = (15, 2, 8, 1)$
139 : $P_{2370} = (1, 3, 8, 1)$
140 : $P_{2389} = (4, 4, 8, 1)$
141 : $P_{2396} = (11, 4, 8, 1)$
142 : $P_{2399} = (14, 4, 8, 1)$
143 : $P_{2414} = (13, 5, 8, 1)$
144 : $P_{2422} = (5, 6, 8, 1)$
145 : $P_{2435} = (2, 7, 8, 1)$
146 : $P_{2442} = (9, 7, 8, 1)$
147 : $P_{2443} = (10, 7, 8, 1)$
148 : $P_{2455} = (6, 8, 8, 1)$
149 : $P_{2500} = (3, 11, 8, 1)$
150 : $P_{2521} = (8, 12, 8, 1)$
151 : $P_{2568} = (7, 15, 8, 1)$
152 : $P_{2608} = (15, 1, 9, 1)$
153 : $P_{2613} = (4, 2, 9, 1)$
154 : $P_{2620} = (11, 2, 9, 1)$
155 : $P_{2623} = (14, 2, 9, 1)$
156 : $P_{2630} = (5, 3, 9, 1)$
157 : $P_{2647} = (6, 4, 9, 1)$
158 : $P_{2681} = (8, 6, 9, 1)$
159 : $P_{2724} = (3, 9, 9, 1)$
160 : $P_{2760} = (7, 11, 9, 1)$
161 : $P_{2781} = (12, 12, 9, 1)$
162 : $P_{2786} = (1, 13, 9, 1)$
163 : $P_{2814} = (13, 14, 9, 1)$
164 : $P_{2819} = (2, 15, 9, 1)$
165 : $P_{2826} = (9, 15, 9, 1)$
166 : $P_{2827} = (10, 15, 9, 1)$
167 : $P_{2851} = (2, 1, 10, 1)$
168 : $P_{2858} = (9, 1, 10, 1)$
169 : $P_{2859} = (10, 1, 10, 1)$
170 : $P_{2910} = (13, 4, 10, 1)$
171 : $P_{2928} = (15, 5, 10, 1)$
172 : $P_{2932} = (3, 6, 10, 1)$
173 : $P_{2953} = (8, 7, 10, 1)$
174 : $P_{2997} = (4, 10, 10, 1)$
175 : $P_{3004} = (11, 10, 10, 1)$
176 : $P_{3007} = (14, 10, 10, 1)$
177 : $P_{3010} = (1, 11, 10, 1)$
178 : $P_{3032} = (7, 12, 10, 1)$
179 : $P_{3047} = (6, 13, 10, 1)$
180 : $P_{3069} = (12, 14, 10, 1)$
181 : $P_{3078} = (5, 15, 10, 1)$
182 : $P_{3109} = (4, 1, 11, 1)$
183 : $P_{3116} = (11, 1, 11, 1)$
184 : $P_{3119} = (14, 1, 11, 1)$
185 : $P_{3127} = (6, 2, 11, 1)$
186 : $P_{3145} = (8, 3, 11, 1)$
187 : $P_{3197} = (12, 6, 11, 1)$
188 : $P_{3214} = (13, 7, 11, 1)$
189 : $P_{3220} = (3, 8, 11, 1)$
190 : $P_{3240} = (7, 9, 11, 1)$
191 : $P_{3250} = (1, 10, 11, 1)$
192 : $P_{3267} = (2, 11, 11, 1)$
193 : $P_{3274} = (9, 11, 11, 1)$
194 : $P_{3275} = (10, 11, 11, 1)$
195 : $P_{3296} = (15, 12, 11, 1)$
196 : $P_{3302} = (5, 13, 11, 1)$
197 : $P_{3378} = (1, 2, 12, 1)$
198 : $P_{3414} = (5, 4, 12, 1)$
199 : $P_{3428} = (3, 5, 12, 1)$
200 : $P_{3454} = (13, 6, 12, 1)$
201 : $P_{3463} = (6, 7, 12, 1)$
202 : $P_{3481} = (8, 8, 12, 1)$
203 : $P_{3501} = (12, 9, 12, 1)$
204 : $P_{3512} = (7, 10, 12, 1)$
205 : $P_{3536} = (15, 11, 12, 1)$
206 : $P_{3555} = (2, 13, 12, 1)$
207 : $P_{3562} = (9, 13, 12, 1)$
208 : $P_{3563} = (10, 13, 12, 1)$
209 : $P_{3589} = (4, 15, 12, 1)$
210 : $P_{3596} = (11, 15, 12, 1)$
211 : $P_{3599} = (14, 15, 12, 1)$
212 : $P_{3646} = (13, 2, 13, 1)$
213 : $P_{3652} = (3, 3, 13, 1)$
214 : $P_{3685} = (4, 5, 13, 1)$
215 : $P_{3692} = (11, 5, 13, 1)$
216 : $P_{3695} = (14, 5, 13, 1)$
217 : $P_{3704} = (7, 6, 13, 1)$
218 : $P_{3725} = (12, 7, 13, 1)$
219 : $P_{3746} = (1, 9, 13, 1)$
220 : $P_{3767} = (6, 10, 13, 1)$
221 : $P_{3782} = (5, 11, 13, 1)$
222 : $P_{3795} = (2, 12, 13, 1)$
223 : $P_{3802} = (9, 12, 13, 1)$
224 : $P_{3803} = (10, 12, 13, 1)$
225 : $P_{3840} = (15, 14, 13, 1)$
226 : $P_{3849} = (8, 15, 13, 1)$
227 : $P_{3876} = (3, 1, 14, 1)$
228 : $P_{3896} = (7, 2, 14, 1)$
229 : $P_{3909} = (4, 3, 14, 1)$
230 : $P_{3916} = (11, 3, 14, 1)$
231 : $P_{3919} = (14, 3, 14, 1)$
232 : $P_{3923} = (2, 4, 14, 1)$
233 : $P_{3930} = (9, 4, 14, 1)$
234 : $P_{3931} = (10, 4, 14, 1)$
235 : $P_{3945} = (8, 5, 14, 1)$
236 : $P_{3959} = (6, 6, 14, 1)$
237 : $P_{3970} = (1, 7, 14, 1)$
238 : $P_{4014} = (13, 9, 14, 1)$
239 : $P_{4029} = (12, 10, 14, 1)$
240 : $P_{4080} = (15, 13, 14, 1)$
241 : $P_{4086} = (5, 14, 14, 1)$
242 : $P_{4135} = (6, 1, 15, 1)$
243 : $P_{4173} = (12, 3, 15, 1)$
244 : $P_{4180} = (3, 4, 15, 1)$
245 : $P_{4194} = (1, 5, 15, 1)$
246 : $P_{4224} = (15, 6, 15, 1)$
247 : $P_{4248} = (7, 8, 15, 1)$
248 : $P_{4259} = (2, 9, 15, 1)$
249 : $P_{4266} = (9, 9, 15, 1)$
250 : $P_{4267} = (10, 9, 15, 1)$
251 : $P_{4278} = (5, 10, 15, 1)$
252 : $P_{4309} = (4, 12, 15, 1)$
253 : $P_{4316} = (11, 12, 15, 1)$
254 : $P_{4319} = (14, 12, 15, 1)$
255 : $P_{4329} = (8, 13, 15, 1)$
256 : $P_{4366} = (13, 15, 15, 1)$