

## The 131 monogenic virtual genetic codes for 9

$$p = |a_{\min}|_1 = \sum a_i,$$

$$b_i = \dim_F H^{2i}(\mathcal{N}_3^9; \mathbf{F}) = \dim_F H^{12-2i}(\mathcal{N}_3^9; \mathbf{F})$$

$$\text{or : } b_i = \dim_{F_2} H^i(\mathcal{N}_3^9; \mathbf{F}_2) = \dim_{F_2} H^{6-i}(\mathcal{N}_3^9; \mathbf{F})$$

	code	$a_{\min}$	p	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>
1	$\langle \rangle$	(0, 0, 0, 0, 0, 0, 0, 1)	1	0	0	0
2	$\langle 9 \rangle$	(1, 1, 1, 1, 1, 1, 1, 7)	15	1	1	1
3	$\langle 91 \rangle$	(0, 1, 1, 1, 1, 1, 1, 6)	13	2	2	2
4	$\langle 92 \rangle$	(1, 1, 2, 2, 2, 2, 2, 11)	25	3	3	3
5	$\langle 921 \rangle$	(0, 0, 1, 1, 1, 1, 1, 5)	11	3	4	4
6	$\langle 93 \rangle$	(1, 1, 1, 2, 2, 2, 2, 10)	23	4	4	4
7	$\langle 931 \rangle$	(0, 1, 1, 2, 2, 2, 2, 9)	21	4	6	6
8	$\langle 932 \rangle$	(1, 1, 1, 3, 3, 3, 3, 13)	31	4	7	7
9	$\langle 9321 \rangle$	(0, 0, 0, 1, 1, 1, 1, 4)	9	4	7	8
10	$\langle 94 \rangle$	(1, 1, 1, 1, 2, 2, 2, 9)	21	5	5	5
11	$\langle 941 \rangle$	(0, 1, 1, 1, 2, 2, 2, 8)	19	5	8	8
12	$\langle 942 \rangle$	(1, 1, 2, 2, 4, 4, 4, 15)	37	5	10	10
13	$\langle 9421 \rangle$	(0, 0, 1, 1, 2, 2, 2, 7)	17	5	10	12
14	$\langle 943 \rangle$	(1, 1, 1, 1, 3, 3, 3, 11)	27	5	11	11
15	$\langle 9431 \rangle$	(0, 1, 1, 1, 3, 3, 3, 10)	25	5	11	14
16	$\langle 9432 \rangle$	(1, 1, 1, 1, 4, 4, 4, 13)	33	5	11	15
17	$\langle 94321 \rangle$	(0, 0, 0, 0, 1, 1, 1, 3)	7	5	11	14
18	$\langle 95 \rangle$	(1, 1, 1, 1, 1, 2, 2, 8)	19	6	6	6
19	$\langle 951 \rangle$	(0, 1, 1, 1, 1, 2, 2, 7)	17	6	10	10
20	$\langle 952 \rangle$	(1, 1, 2, 2, 2, 4, 4, 13)	33	6	13	13
21	$\langle 9521 \rangle$	(0, 0, 1, 1, 1, 2, 2, 6)	15	6	13	16
22	$\langle 953 \rangle$	(2, 2, 2, 3, 3, 6, 6, 19)	49	6	15	15
23	$\langle 9531 \rangle$	(0, 1, 1, 2, 2, 4, 4, 11)	29	6	15	20
24	$\langle 9532 \rangle$	(1, 1, 1, 3, 3, 6, 6, 16)	43	6	15	22
25	$\langle 95321 \rangle$	(0, 0, 0, 1, 1, 2, 2, 5)	13	6	15	20
26	$\langle 954 \rangle$	(1, 1, 1, 1, 1, 3, 3, 9)	23	6	16	16
27	$\langle 9541 \rangle$	(0, 1, 1, 1, 1, 3, 3, 8)	21	6	16	22
28	$\langle 9542 \rangle$	(1, 1, 2, 2, 2, 6, 6, 15)	41	6	16	25

29	$\langle 95421 \rangle$	$(0, 0, 1, 1, 1, 3, 3, 3, 7)$	19	6	16	22
30	$\langle 9543 \rangle$	$(1, 1, 1, 1, 1, 4, 4, 4, 10)$	27	6	16	26
31	$\langle 95431 \rangle$	$(0, 1, 1, 1, 1, 4, 4, 4, 9)$	25	6	16	22
32	$\langle 95432 \rangle$	$(1, 1, 1, 1, 1, 5, 5, 5, 11)$	31	6	16	21
33	$\langle 954321 \rangle$	$(0, 0, 0, 0, 0, 1, 1, 1, 2)$	5	6	15	20
34	$\langle 96 \rangle$	$(1, 1, 1, 1, 1, 1, 2, 2, 7)$	17	7	7	7
35	$\langle 961 \rangle$	$(0, 1, 1, 1, 1, 1, 2, 2, 6)$	15	7	12	12
36	$\langle 962 \rangle$	$(1, 1, 2, 2, 2, 2, 4, 4, 11)$	29	7	16	16
37	$\langle 9621 \rangle$	$(0, 0, 1, 1, 1, 1, 2, 2, 5)$	13	7	16	20
38	$\langle 963 \rangle$	$(2, 2, 2, 3, 3, 3, 6, 6, 16)$	43	7	19	19
39	$\langle 9631 \rangle$	$(0, 1, 1, 2, 2, 2, 4, 4, 9)$	25	7	19	26
40	$\langle 9632 \rangle$	$(1, 1, 1, 3, 3, 3, 6, 6, 13)$	37	7	19	29
41	$\langle 96321 \rangle$	$(0, 0, 0, 1, 1, 1, 2, 2, 4)$	11	7	19	26
42	$\langle 964 \rangle$	$(2, 2, 2, 2, 3, 3, 6, 6, 15)$	41	7	21	21
43	$\langle 9641 \rangle$	$(0, 2, 2, 2, 3, 3, 6, 6, 13)$	37	7	21	30
44	$\langle 9642 \rangle$	(not a polygon space)	0	7	21	35
45	$\langle 96421 \rangle$	$(0, 0, 1, 1, 2, 2, 4, 4, 7)$	21	7	21	30
46	$\langle 9643 \rangle$	(not a polygon space)	0	7	21	37
47	$\langle 96431 \rangle$	$(0, 1, 1, 1, 3, 3, 6, 6, 10)$	31	7	21	30
48	$\langle 96432 \rangle$	$(1, 1, 1, 1, 4, 4, 8, 8, 13)$	41	7	21	28
49	$\langle 964321 \rangle$	$(0, 0, 0, 0, 1, 1, 2, 2, 3)$	9	7	19	26
50	$\langle 965 \rangle$	$(1, 1, 1, 1, 1, 1, 3, 3, 7)$	19	7	22	22
51	$\langle 9651 \rangle$	$(0, 1, 1, 1, 1, 1, 3, 3, 6)$	17	7	22	32
52	$\langle 9652 \rangle$	$(1, 1, 2, 2, 2, 2, 6, 6, 11)$	33	7	22	38
53	$\langle 96521 \rangle$	$(0, 0, 1, 1, 1, 1, 3, 3, 5)$	15	7	22	32
54	$\langle 9653 \rangle$	$(2, 2, 2, 3, 3, 3, 9, 9, 16)$	49	7	22	41
55	$\langle 96531 \rangle$	$(0, 1, 1, 2, 2, 2, 6, 6, 9)$	29	7	22	32
56	$\langle 96532 \rangle$	$(1, 1, 1, 3, 3, 3, 9, 9, 13)$	43	7	22	29
57	$\langle 965321 \rangle$	$(0, 0, 0, 1, 1, 1, 3, 3, 4)$	13	7	19	26
58	$\langle 9654 \rangle$	$(1, 1, 1, 1, 1, 1, 4, 4, 7)$	21	7	22	42
59	$\langle 96541 \rangle$	$(0, 1, 1, 1, 1, 1, 4, 4, 6)$	19	7	22	32
60	$\langle 96542 \rangle$	$(1, 1, 2, 2, 2, 2, 8, 8, 11)$	37	7	22	28
61	$\langle 965421 \rangle$	$(0, 0, 1, 1, 1, 1, 4, 4, 5)$	17	7	18	24

62	$\langle 96543 \rangle$	$(1, 1, 1, 1, 1, 1, 5, 5, 7)$	23	7	22	27
63	$\langle 965431 \rangle$	$(0, 1, 1, 1, 1, 1, 5, 5, 6)$	21	7	17	22
64	$\langle 965432 \rangle$	$(1, 1, 1, 1, 1, 1, 6, 6, 7)$	25	7	16	21
65	$\langle 9654321 \rangle$	$(0, 0, 0, 0, 0, 0, 1, 1, 1)$	3	6	15	20
66	$\langle 97 \rangle$	$(1, 1, 1, 1, 1, 1, 1, 2, 6)$	15	8	8	8
67	$\langle 971 \rangle$	$(0, 1, 1, 1, 1, 1, 1, 2, 5)$	13	8	14	14
68	$\langle 972 \rangle$	$(1, 1, 2, 2, 2, 2, 2, 4, 9)$	25	8	19	19
69	$\langle 9721 \rangle$	$(0, 0, 1, 1, 1, 1, 1, 2, 4)$	11	8	19	24
70	$\langle 973 \rangle$	$(2, 2, 2, 3, 3, 3, 3, 6, 13)$	37	8	23	23
71	$\langle 9731 \rangle$	$(0, 1, 1, 2, 2, 2, 2, 4, 7)$	21	8	23	32
72	$\langle 9732 \rangle$	$(1, 1, 1, 3, 3, 3, 3, 6, 10)$	31	8	23	36
73	$\langle 97321 \rangle$	$(0, 0, 0, 1, 1, 1, 1, 2, 3)$	9	8	23	32
74	$\langle 974 \rangle$	$(2, 2, 2, 2, 3, 3, 3, 6, 12)$	35	8	26	26
75	$\langle 9741 \rangle$	$(0, 2, 2, 2, 3, 3, 3, 6, 10)$	31	8	26	38
76	$\langle 9742 \rangle$	(not a polygon space)	0	8	26	45
77	$\langle 97421 \rangle$	$(0, 0, 1, 1, 2, 2, 2, 4, 5)$	17	8	26	38
78	$\langle 9743 \rangle$	(not a polygon space)	0	8	26	48
79	$\langle 97431 \rangle$	$(0, 1, 1, 1, 3, 3, 3, 6, 7)$	25	8	26	38
80	$\langle 97432 \rangle$	$(1, 1, 1, 1, 4, 4, 4, 8, 9)$	33	8	26	35
81	$\langle 974321 \rangle$	$(0, 0, 0, 0, 1, 1, 1, 2, 2)$	7	8	23	32
82	$\langle 975 \rangle$	$(2, 2, 2, 2, 2, 3, 3, 6, 11)$	33	8	28	28
83	$\langle 9751 \rangle$	$(0, 2, 2, 2, 2, 3, 3, 6, 9)$	29	8	28	42
84	$\langle 9752 \rangle$	(not a polygon space)	0	8	28	51
85	$\langle 97521 \rangle$	$(0, 0, 2, 2, 2, 3, 3, 6, 7)$	25	8	28	42
86	$\langle 9753 \rangle$	(not a polygon space)	0	8	28	56
87	$\langle 9754 \rangle$	(not a polygon space)	0	8	28	58
88	$\langle 976 \rangle$	$(1, 1, 1, 1, 1, 1, 1, 3, 5)$	15	8	29	29
89	$\langle 9761 \rangle$	$(0, 1, 1, 1, 1, 1, 1, 3, 4)$	13	8	29	44
90	$\langle 9762 \rangle$	$(1, 1, 2, 2, 2, 2, 2, 6, 7)$	25	8	29	54
91	$\langle 97621 \rangle$	$(0, 0, 1, 1, 1, 1, 1, 3, 3)$	11	8	29	44
92	$\langle 9763 \rangle$	$(2, 2, 2, 3, 3, 3, 3, 9, 10)$	37	8	29	60
93	$\langle 9764 \rangle$	$(3, 3, 3, 3, 4, 4, 4, 12, 13)$	49	8	29	63
94	$\langle 9765 \rangle$	$(1, 1, 1, 1, 1, 1, 1, 4, 4)$	15	8	29	64

95	$\langle 98 \rangle$	$(1, 1, 1, 1, 1, 1, 1, 5)$	13	9	9	9
96	$\langle 981 \rangle$	$(0, 1, 1, 1, 1, 1, 1, 4)$	11	9	16	16
97	$\langle 982 \rangle$	$(1, 1, 2, 2, 2, 2, 2, 7)$	21	9	22	22
98	$\langle 9821 \rangle$	$(0, 0, 1, 1, 1, 1, 1, 3)$	9	9	22	28
99	$\langle 983 \rangle$	$(2, 2, 2, 3, 3, 3, 3, 10)$	31	9	27	27
100	$\langle 9831 \rangle$	$(0, 1, 1, 2, 2, 2, 2, 5)$	17	9	27	38
101	$\langle 9832 \rangle$	$(1, 1, 1, 3, 3, 3, 3, 7)$	25	9	27	43
102	$\langle 98321 \rangle$	$(0, 0, 0, 1, 1, 1, 1, 2)$	7	9	27	38
103	$\langle 984 \rangle$	$(2, 2, 2, 2, 3, 3, 3, 9)$	29	9	31	31
104	$\langle 9841 \rangle$	$(0, 2, 2, 2, 3, 3, 3, 7)$	25	9	31	46
105	$\langle 9842 \rangle$	(not a polygon space)	0	9	31	55
106	$\langle 98421 \rangle$	$(0, 0, 1, 1, 2, 2, 2, 3)$	13	9	31	46
107	$\langle 9843 \rangle$	(not a polygon space)	0	9	31	59
108	$\langle 98431 \rangle$	$(0, 1, 1, 1, 3, 3, 3, 4)$	19	9	31	46
109	$\langle 98432 \rangle$	$(1, 1, 1, 1, 4, 4, 4, 5)$	25	9	31	42
110	$\langle 984321 \rangle$	$(0, 0, 0, 0, 1, 1, 1, 1)$	5	9	27	38
111	$\langle 985 \rangle$	$(2, 2, 2, 2, 2, 3, 3, 8)$	27	9	34	34
112	$\langle 9851 \rangle$	$(0, 2, 2, 2, 2, 3, 3, 6)$	23	9	34	52
113	$\langle 9852 \rangle$	(not a polygon space)	0	9	34	64
114	$\langle 98521 \rangle$	$(0, 0, 2, 2, 2, 3, 3, 4)$	19	9	34	52
115	$\langle 9853 \rangle$	(not a polygon space)	0	9	34	71
116	$\langle 9854 \rangle$	(not a polygon space)	0	9	34	74
117	$\langle 986 \rangle$	$(2, 2, 2, 2, 2, 3, 3, 7)$	25	9	36	36
118	$\langle 9861 \rangle$	$(0, 2, 2, 2, 2, 2, 3, 5)$	21	9	36	56
119	$\langle 9862 \rangle$	(not a polygon space)	0	9	36	70
120	$\langle 98621 \rangle$	$(0, 0, 2, 2, 2, 2, 3, 3)$	17	9	36	56
121	$\langle 9863 \rangle$	(not a polygon space)	0	9	36	79
122	$\langle 9864 \rangle$	(not a polygon space)	0	9	36	84
123	$\langle 9865 \rangle$	(not a polygon space)	0	9	36	86
124	$\langle 987 \rangle$	$(1, 1, 1, 1, 1, 1, 1, 3)$	11	9	37	37
125	$\langle 9871 \rangle$	$(0, 1, 1, 1, 1, 1, 1, 2)$	9	9	37	58
126	$\langle 9872 \rangle$	$(1, 1, 2, 2, 2, 2, 2, 3)$	17	9	37	73
127	$\langle 98721 \rangle$	$(0, 0, 1, 1, 1, 1, 1, 1)$	7	9	37	58

128	(9873)	(2, 2, 2, 3, 3, 3, 3, 3, 4)	25	9	37	83
129	(9874)	(3, 3, 3, 3, 4, 4, 4, 4, 5)	33	9	37	89
130	(9875)	(3, 3, 3, 3, 3, 4, 4, 4, 4)	31	9	37	92
131	(9876)	(1, 1, 1, 1, 1, 1, 1, 1, 1)	9	9	37	93