1. $\sum(0,1,2,3,6,7,12,13,14,15,24,25,30,31)$

x_4x_3 \ $x_2x_1x_0$	000	001	011	010	110	111	101	100
00	1	1	1	1	1	1	0	0
01	0	0	0	0	1	1	1	1
11	1	1	0	0	1	1	0	0
10	0	0	0	0	0	0	0	0

$y = \overline{x_4}\,\overline{x_3}\,\overline{x_2} + \overline{x_4}\,x_3\,x_2 + x_3\,x_2\,x_1 + \overline{x_4}\,x_2\,x_1 + x_4\,x_3\,\overline{x_2}$

x_4x_3 \ $x_2x_1x_0$	000	001	011	010	110	111	101	100
00	1	1	1	1	1	1	0	0
01	0	0	0	0	1	1	1	1
11	1	1	0	0	1	1	0	0
10	0	0	0	0	0	0	0	0

$y = (\overline{x_4} + x_3)(x_4 + \overline{x_3} + x_2)(x_3 + \overline{x_2} + x_1)(\overline{x_4} + \overline{x_2} + x_1)(\overline{x_3} + x_2 + \overline{x_1})$

Kod	Gray'a
0	0 0 0 0 0
1	0 0 0 0 1
2	0 0 0 1 1
3	0 0 0 1 0
4	0 0 1 1 0
5	0 0 1 1 1
6	0 0 1 0 1
7	0 0 1 0 0
8	0 1 1 0 0
9	0 1 1 0 1
10	0 1 1 1 1
11	0 1 1 1 0
12	0 1 0 1 0
13	0 1 0 1 1
14	0 1 0 0 1
15	0 1 0 0 0
16	1 1 0 0 0
17	1 1 0 0 1
18	1 1 0 1 1
19	1 1 0 1 0
20	1 1 1 1 0
21	1 1 1 1 1
22	1 1 1 0 1
23	1 1 1 0 0
24	1 0 1 0 0
25	1 0 1 0 1
26	1 0 1 1 1
27	1 0 1 1 0
28	1 0 0 1 0
29	1 0 0 1 1
30	1 0 0 0 1
31	1 0 0 0 0

0	0 0 0 0 0
1	0 0 0 0 1
2	0 0 0 1 0
3	0 0 0 1 1
6	0 0 1 1 0
7	0 0 1 1 1
12	0 1 1 0 0
24	1 1 0 0 0
13	0 1 1 0 1
14	0 1 1 1 0
25	1 1 0 0 1
30	1 1 1 1 0
31	1 1 1 1 1

0	0 0 0 0 0	✓
1	0 0 0 0 1	✓
2	0 0 0 1 0	✓
3	0 0 0 1 1	✓
6	0 0 1 1 0	✓
12	0 1 1 0 0	✓
24	1 1 0 0 0	✓
7	0 0 1 1 1	✓
13	0 1 1 0 1	✓
14	0 1 1 1 0	✓
25	1 1 0 0 1	✓
15	0 1 1 1 1	✓
30	1 1 1 1 0	✓
31	1 1 1 1 1	✓

0,1	0 0 0 0 -	
0,2	0 0 0 - 0	✓
1,3	0 0 0 - 1	✓
2,6	0 0 - 1 0	✓
3,7	0 0 - 1 1	✓
6,14	0 - 1 1 0	
12,14	0 1 1 - 0	✓
24,25	1 1 0 0 -	
13,15	0 1 1 - 1	✓
14,30	- 1 1 1 0	
30,31	1 1 1 1 -	

0,1,2,3	0 0 0 - -	
2,3,6,7	0 0 - 1 -	
12,13,14,15	0 1 1 - -	

$y = \overline{x_4}\,\overline{x_3}\,\overline{x_2} + \overline{x_4}\,x_3\,x_2 + x_3\,x_2\,x_1 + \overline{x_4}\,x_2\,x_1 + x_4\,x_3\,\overline{x_2}$

	0	1	2	3	6	7	12	13	14	15	24	25	30	31
0,1 0 0 0 0 -	X	X												
6,14 0 - 1 1 0					X				X					
✓ 24,25 1 1 0 0 -											X	X		
14,30 - 1 1 1 0									X				X	
✓ 30,31 1 1 1 1 -													X	X
✓ 0,1,2,3 0 0 0 - -	X	X	X	X										
✓ 2,3,6,7 0 0 - 1 -			X	X	X	X								
✓ 12,13,14,15 0 1 1 - -							X	X	X	X				

$x_4\,x_3\,\overline{x_2}$

$+\ x_4 x_3 x_2 x_1$

$+\ \overline{x_4}\,\overline{x_3}\,\overline{x_2}$

$+\ \overline{x_4}\,\overline{x_3}\,x_1$

$+\ \overline{x_4}\,x_3\,x_2$

?

2. $y = \sum(4, 5, 6, 7, 9, 10, 12, 13, 14, 15, 19, 20, 21, 22, 23)$

x_4x_3 \ $x_2x_1x_0$	000	001	011	010	110	111	101	100
00	0	0	0	0	1	1	1	1
01	0	1	0	1	1	1	1	1
11	0	0	0	0	0	0	0	0
10	0	0	1	0	1	1	1	1

$y = \bar{x}_3 x_2 + \bar{x}_4 x_2 + \bar{x}_4 x_3 x_1 \bar{x}_0 + \bar{x}_4 x_3 \bar{x}_1 x_0 + x_4 \bar{x}_3 x_1 x_0$

x_4x_3 \ $x_2x_1x_0$	000	001	011	010	110	111	101	100
00	0	0	0	0	1	1	1	1
01	0	1	0	1	1	1	1	1
11	0	0	0	0	0	0	0	0
10	0	0	1	0	1	1	1	1

$y = (\bar{x}_4 + \bar{x}_3)(x_4 + x_3 + x_2)(x_3 + x_2 + x_0)(x_2 + x_1 + x_0)(\bar{x}_3 + x_2 + \bar{x}_1 + \bar{x}_0)$

$f^1(x_3, x_2, x_1, x_0) = \sum(4, 5, 6, 7, 9, 10, 12, 13, 14, 15)$

4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
9	1	0	0	1
10	1	0	1	0
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

4 ✓	0	1	0	0
5 ✓	0	1	0	1
6 ✓	0	1	1	0
9 ✓	1	0	0	1
10 ✓	1	0	1	0
12 ✓	1	1	0	0
7 ✓	0	1	1	1
13 ✓	1	1	0	1
14 ✓	1	1	1	0
15 ✓	1	1	1	1

4,5 ✓	0	1	0	-
4,6 ✓	0	1	-	0
4,12 ✓	-	1	0	0
5,7 ✓	0	1	-	1
5,13 ✓	-	1	0	1
6,7 ✓	0	1	1	-
6,14 ✓	-	1	1	0
9,13	1	-	0	1
10,14	1	-	1	0
7,15 ✓	-	1	1	1
13,15 ✓	1	1	-	1
14,15 ✓	1	1	1	-

4,5,6,7	0	1	-	-
4,5,12,13 ✓	-	1	0	-
4,6,12,14 ✓	-	1	-	0
5,7,13,15 ✓	-	1	-	1
6,7,14,15 ✓	-	1	1	-

4,5,6,7,12,13,14,15	-	1	-	-

		4	5	6	7	9	10	12	13	14	15
9, 13	1 - 0 1					✓			✓		
10, 14	1 - 1 0						✓			✓	
4,5,6,7	0 1 - -	✓	✓	✓	✓						
4,5,6,7,12,13,14,15	- 1 - -	✓	✓	✓	✓			✓	✓	✓	✓

$f^1(..) = x_3 \bar{x}_1 x_0 + x_3 x_1 \bar{x}_0 + x_2$

$$\sum (4, 5, 6, 7, 9, 10, 12, 13, 14, 15)$$

x_1x_0 / x_3x_2	00	01	11	10
00	0	0	0	0
01	1	1	1	1
11	1	1	1	1
10	0	1	0	1

$$y = x_2 + x_3 \bar{x}_1 x_0 + x_3 x_1 \bar{x}_0$$

$x_2x_1x_0$ / x_4x_3	000	001	011	010	110	111	101	100
00								
01								
11								
10								