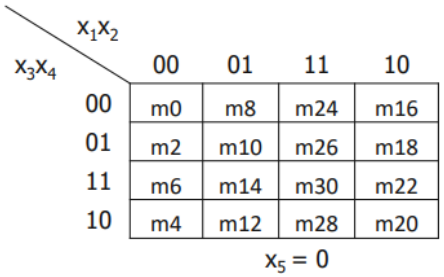
ΣΧΕΔΙΑΣΗ ΨΗΦΙΑΚΩΝ ΣΥΣΤΗΜΑΤΩΝ – ΕΡΓΑΣΙΑ 1

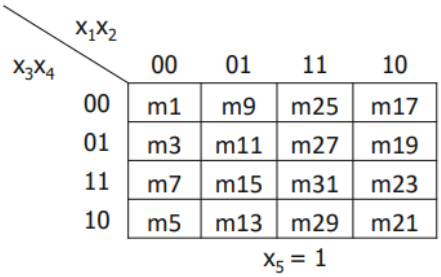
ΠΡΟΒΛΗΜΑ 1

x1	x2	x3	x4	x5	f	g	Minterm
0	0	0	0	0	0	1	m0
0	0	0	0	1	1	1	m1
0	0	0	1	0	0	1	m2
0	0	0	1	1	0	0	m3
0	0	1	0	0	1	1	m4
0	0	1	0	1	1	1	m5
0	0	1	1	0	0	0	m6
0	0	1	1	1	0	0	m7
0	1	0	0	0	0	1	m8
0	1	0	0	1	0	0	m9
0	1	0	1	0	d	d	m10
0	1	0	1	1	1	d	m11
0	1	1	0	0	d	d	m12
0	1	1	0	1	0	0	m13
0	1	1	1	0	d	1	m14
0	1	1	1	1	d	1	m15
1	0	0	0	0	0	1	m16
1	0	0	0	1	0	0	m17
1	0	0	1	0	0	1	m18
1	0	0	1	1	0	0	m19
1	0	1	0	0	d	1	m20
1	0	1	0	1	0	0	m21
1	0	1	1	0	0	0	m22
1	0	1	1	1	0	0	m23
1	1	0	0	0	0	1	m24
1	1	0	0	1	0	0	m25
1	1	0	1	0	0	1	m26
1	1	0	1	1	1	d	m27
1	1	1	0	0	1	1	m28
1	1	1	0	1	0	0	m29
1	1	1	1	0	0	0	m30
1	1	1	1	1	d	1	m31



x_3x_4 \ x_1x_2	00	01	11	10
00	m0	m8	m24	m16
01	m2	m10	m26	m18
11	m6	m14	m30	m22
10	m4	m12	m28	m20

$x_5 = 0$



x_3x_4 \ x_1x_2	00	01	11	10
00	m1	m9	m25	m17
01	m3	m11	m27	m19
11	m7	m15	m31	m23
10	m5	m13	m29	m21

$x_5 = 1$

Γενική μορφή

ΣΥΝΑΡΤΗΣΗ f: ΕΛΑΧΙΣΤΟΠΟΙΗΣΗ POS

x3x4 \ x1x2	**00**	**01**	**11**	**10**
00	0	0	0	0
01	0	d	0	0
11	0	d	0	0
10	1	d	1	d
x3x4 \ x1x2	**00**	**01**	**11**	**10**
00	1	0	0	0
01	0	1	1	0
11	0	d	d	0
10	1	0	0	0

f' = x3'x5' + x2'x4 + x4x5' + x1x2' + x2x4'x5

άρα f = (x3 + x5) (x2 + x4') (x4' + x5) (x1' + x2) (x2' + x4 + x5')

ΣΥΝΑΡΤΗΣΗ g: ΕΛΑΧΙΣΤΟΠΟΙΗΣΗ POS

x3x4 \ x1x2	**00**	**01**	**11**	**10**
00	1	1	1	1
01	1	d	1	1

11	0	1	0	0
10	1	d	1	1
x3x4 x1x2	**00**	**01**	**11**	**10**
00	1	0	0	0
01	0	d	d	0
11	0	1	1	0
10	0	0	0	0

g’ = x2’x4x5 + x2’x3x4 + x2x4’x5 + x1x2’x5 + x1x3x4x5’

άρα g = (x2 + x4' + x5') (x2 + x3' + x4') (x2' + x4 + x5') (x1' + x2 + x5') (x1' + x3' + x4' + x5)