

ASKHSH 1) (Sum of Products)

$$f(x_1, x_2, x_3, x_4, x_5) = \sum m(0, 1, 2, 4, 5, 8, 14, 15, 16, 18, 20, 24, 26, 28, 32) + 0(10, 11, 12, 27)$$

x_1, x_2 x_3, x_4

$x_1'x_2'x_5'$

$x_3'x_5'$

$x_1'x_2'x_4'$

$x_4'x_5'$

$x_5 = 0$

$x_1 \backslash x_2$	00	01	11	10
00	1	1	1	1
01	1	0	1	1
11	0	0	0	0
10	1	0	1	1

x_1, x_2 x_3, x_4

$x_5 = 1$

$x_2x_4x_5$

$x_1 \backslash x_2$	00	01	11	10
00	1	0	0	0
01	0	0	0	0
11	0	1	1	0
10	1	0	0	0

SOP:

$$x_3'x_5' + x_1'x_2'x_4' + x_4'x_5' + x_2x_4x_5 + x_1'x_2x_5'$$

ASKEH 1 (Product of Sums)

$$f(x_1, x_2, x_3, x_4, x_5) = \sum m(0, 1, 2, 4, 5, 8, 14, 15, 16, 18, 20, 24, 26, 28, 32) + \prod (6, 11, 12, 27)$$

x_1, x_2		x_3, x_4			
		00	01	11	10
		0	8	24	16
00	1	1	1	1	1
01	1	0	0	1	1
10	1	0	1	1	1
11	0	1	0	0	1

$x_2 + x_3 + x_4'$ (points to cell 1,1)

$x_5 = 0$ (points to row 10)

x_1, x_2		x_3, x_4			
		00	01	11	10
		0	8	24	16
00	1	0	0	0	0
01	0	0	0	0	0
10	1	0	0	0	0
11	0	0	0	0	0

$x_1' + x_3' + x_4' + x_5$ (points to cell 1,1)

$x_5 = 1$ (points to row 10)

$x_2' + x_4 + x_5'$ (points to cell 1,1)

$x_1' + x_2 + x_5$ (points to cell 1,1)

$x_3 + x_4' + x_5'$ (points to cell 1,1)

POS:

$$(x_2 + x_3' + x_4') (x_1' + x_3' + x_4' + x_5) (x_1' + x_2 + x_5) (x_3 + x_4' + x_5')$$

ΑΣΚΗΣΗ 1 (ΕΥΡΕΣΗ ΚΟΣΤΟΥΣ)

$$F(x_1, x_2, x_3, x_4, x_5) = \sum m(0, 4, 2, 4, 5, 8, 14, 15, 16, 18, 20, 24, 26, 28, 32) + \sum d(10, 11, 12, 27)$$

SOP

2	νόδες	AND	πν	2	εισόδων
3	νόδες	AND	πν	3	εισόδων
1	νόδα	OR	πν	5	εισόδων
$(2 \cdot 2) + (3 \cdot 3) = 13$ εισόδων AND					
$(4 \cdot 5) = 5$ εισόδων OR					
Αθροισμα = $(13 + 5) + (2 + 3 + 1) = 18 + 6 = 24$					

POS

4	νόδες	OR	πν	3	εισόδων
1	νόδα	OR	πν	4	εισόδων
1	νόδα	AND	πν	5	εισόδων
$(4 \cdot 3) + (4 \cdot 1) = 16$ εισόδων OR					
$(5 \cdot 1) = 5$ εισόδων AND					
Αθροισμα = $(16 + 5) + (4 + 1 + 1) = 21 + 6 = 27$					