

$$a) f(a,b,c,d) = \sum m(0,1,8,14,15) + \sum d(7,5,10)$$

cd \ ab	00	01	11	10
00	1	0	0	1
01	1	x	0	0
11	0	0	1	0
10	x	0	1	x

$$\begin{aligned} & a'b'o' + abc + bc'd' \\ & a'b'c' + abc + ab'd' \\ & a'c'd + b'c'd' + abc \end{aligned}$$

$$b) f(a,b,c,d) = \prod m(1,6,9,11,14,15) + d(3,4,5,12)$$

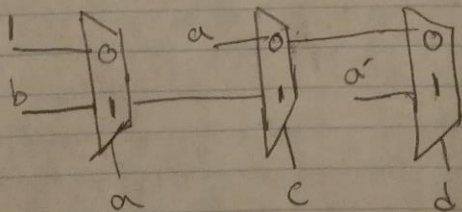
cd \ ab	00	01	11	10
00	1	x	x	1
01	0	x	1	0
11	x	1	0	0
10	1	0	0	1

$$\begin{aligned} & (b+d')(b'+d)(a'+b'+c') \\ & (b+d')(b'+d)(a'+c'+d) \end{aligned}$$

$$f(a,b,c,d) = \sum m(1,2,5,7,8,12,14) + \sum d(3,6)$$

cd \ ab	00	01	11	10
00	0	0	1	1
01	1	1	0	0
11	x	1	0	0
10	1	x	1	0

cd \ ab	00	01	11	10
00	0	0	1	1
01	1	1	0	0
11	1	1	0	0
10	1	1	0	0



$$da' + d'(c(ab + a') + c'a)$$