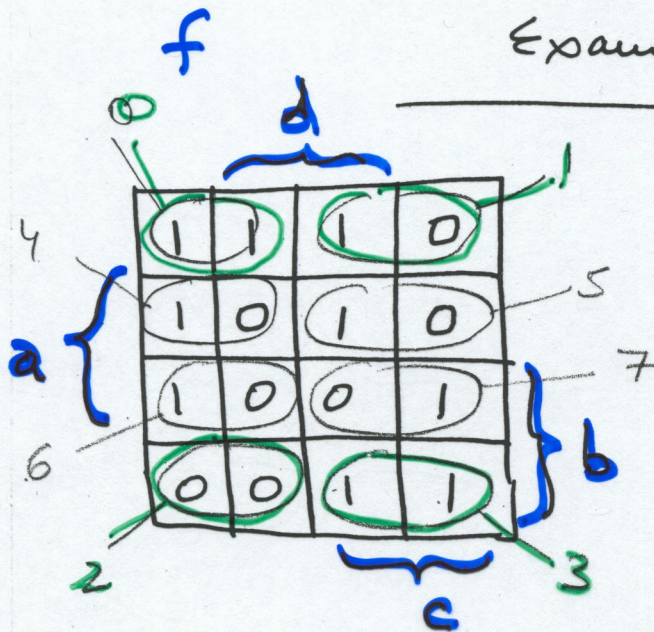
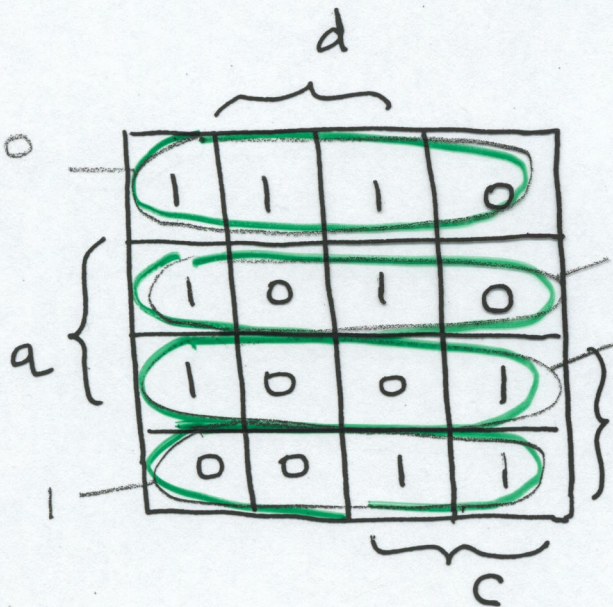
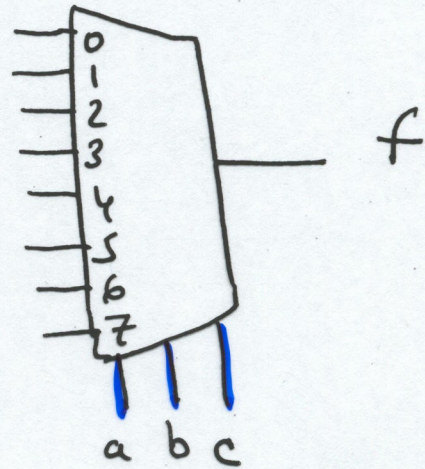


MUX Implementation

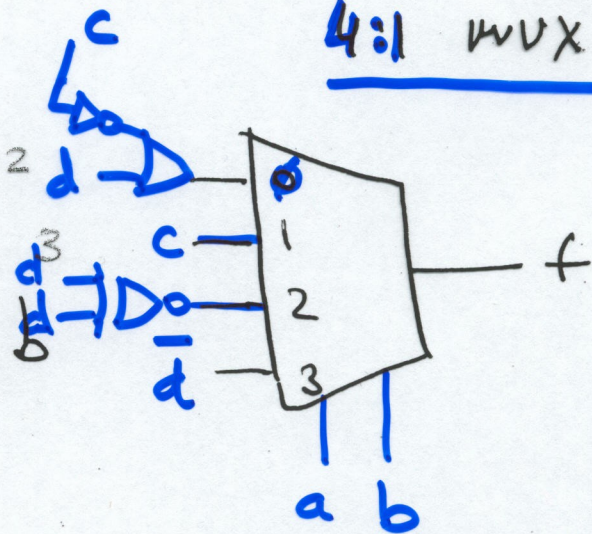
Example :



8:1 MUX

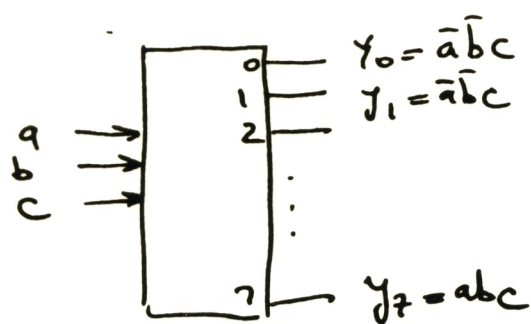


4:1 MUX



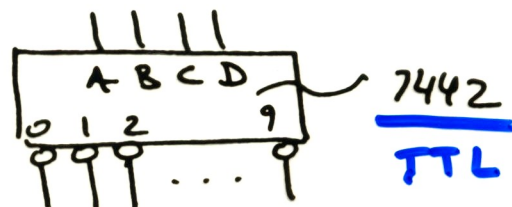
c	d	0	1	2	3
0	0	1	0	1	1
0	1	1	0	0	0
1	0	0	1	0	0
1	1	1	1	0	0

$\bar{c} + d$ c XNOR



abc	y_0	y_1	y_2	y_7
000	1	0	0	...
001	0	1	0	...
010	0	0	1	...
011	0	0	0	...
100	...	...	...	...
...	...	...	...	...
111	...	...	...	...

Realization
of multiple
output networks
using decoder :

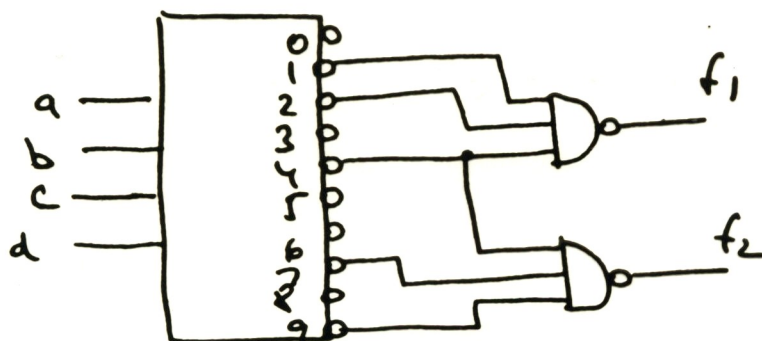


decoder generates 2^n minterms (maxterms)

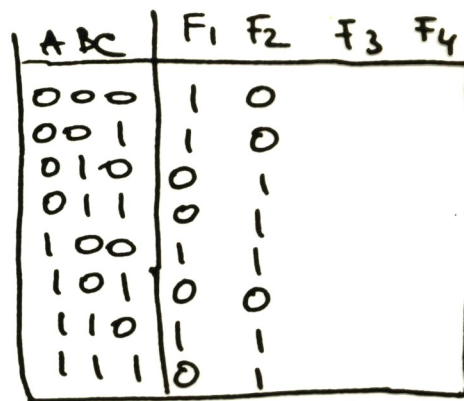
Realize : $f_1(a, b, c, d) = m_1 + m_2 + m_4$

$f_2 = m_4 + m_7 + m_9$

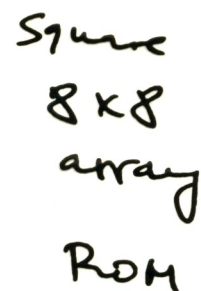
$f_1 = \overline{m_1} \cdot \overline{m_2} \cdot \overline{m_4}$ $f_2 = \overline{m_4} \cdot \overline{m_7} \cdot \overline{m_9}$



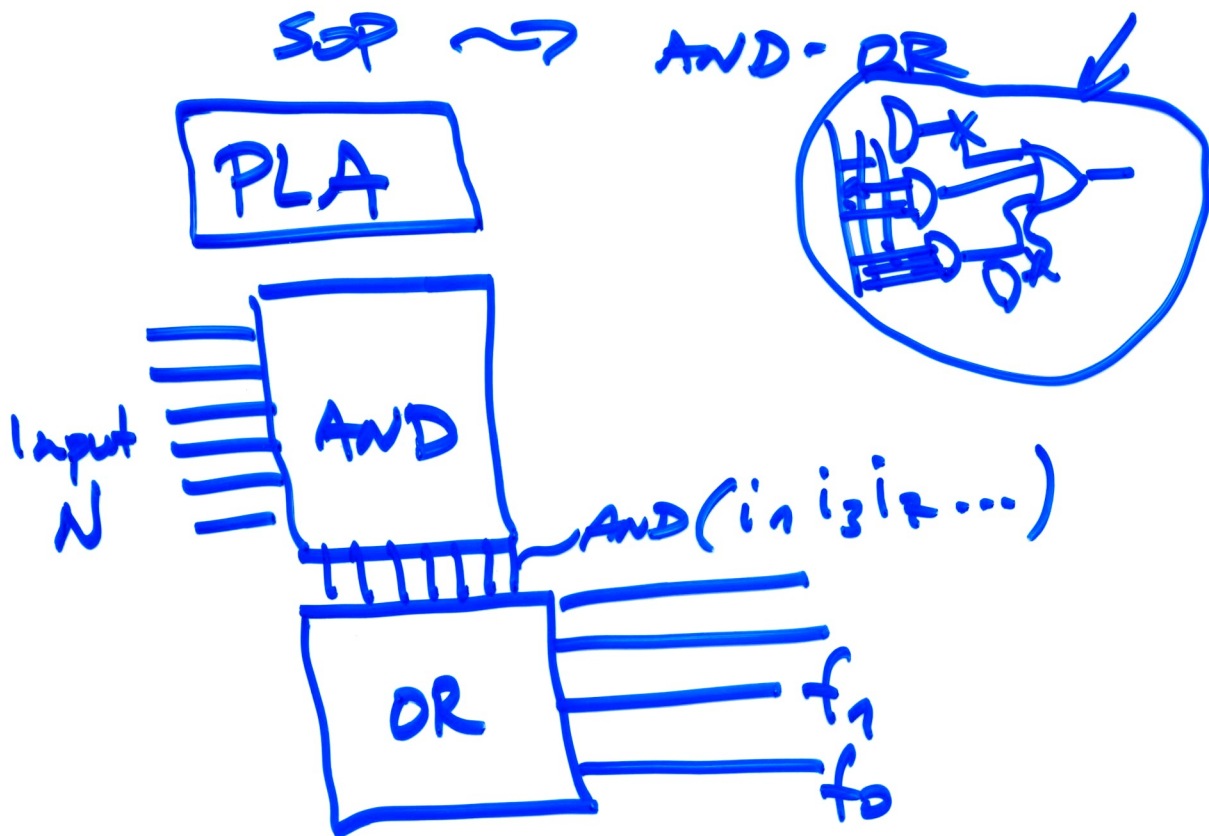
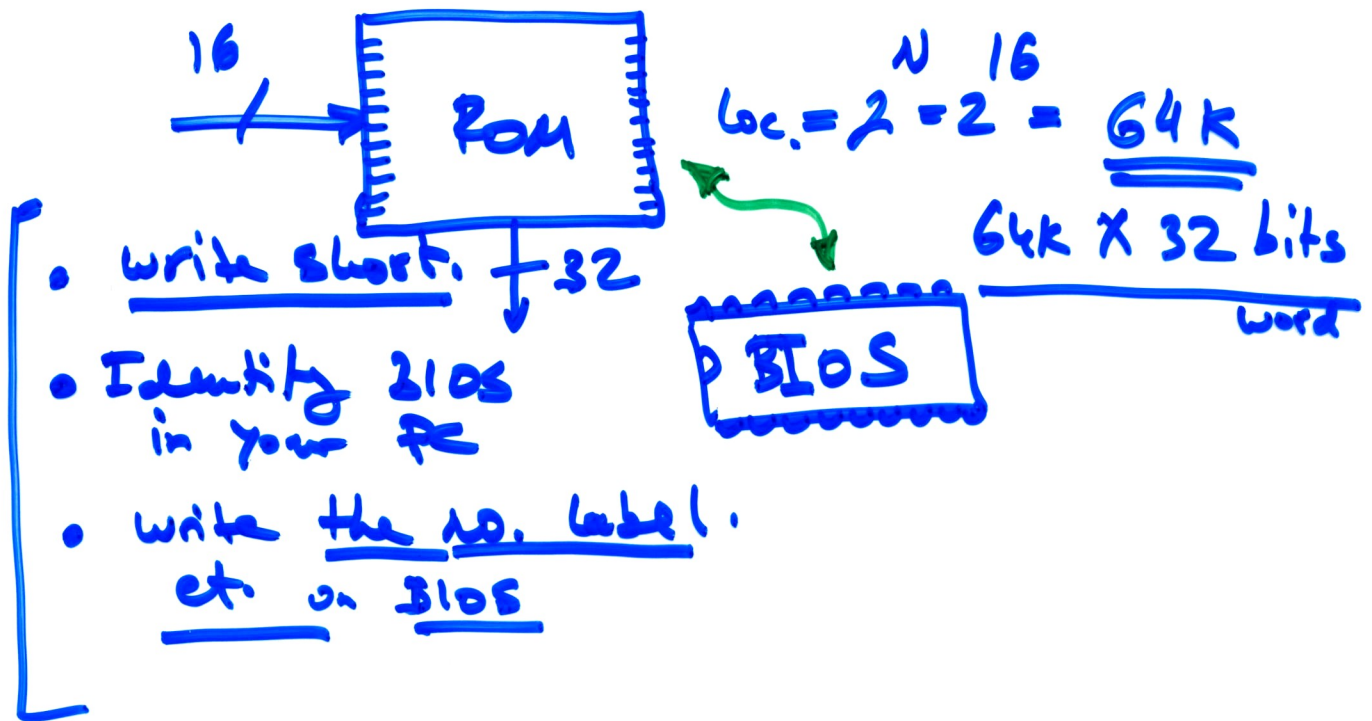
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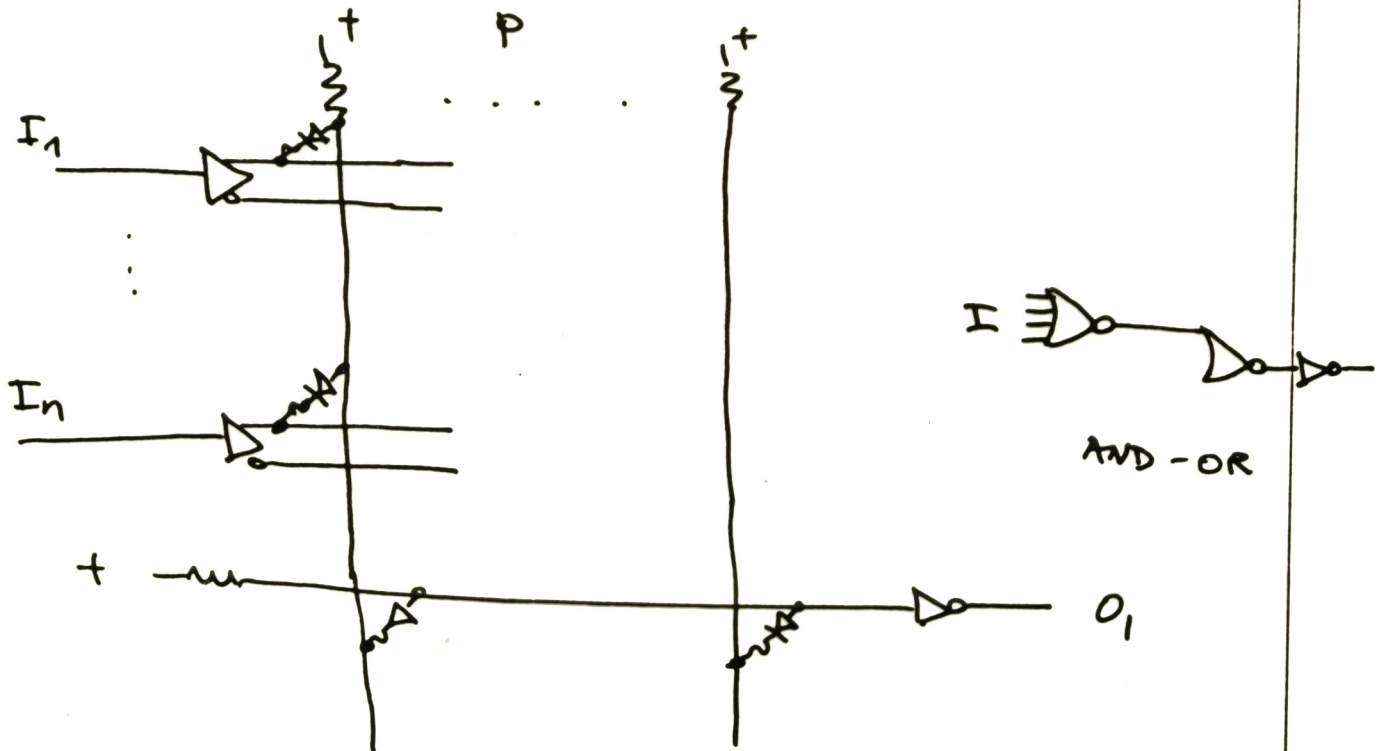
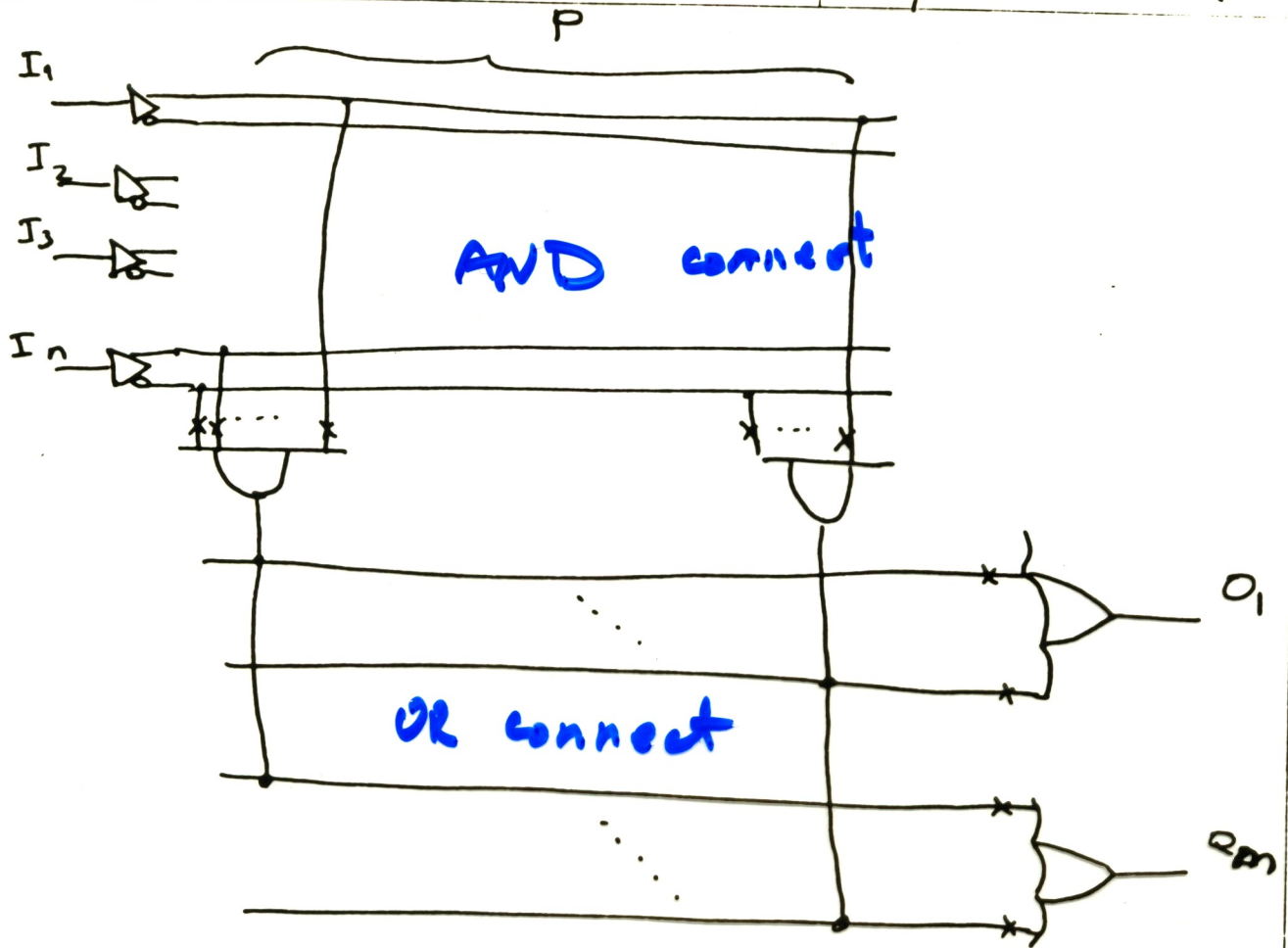


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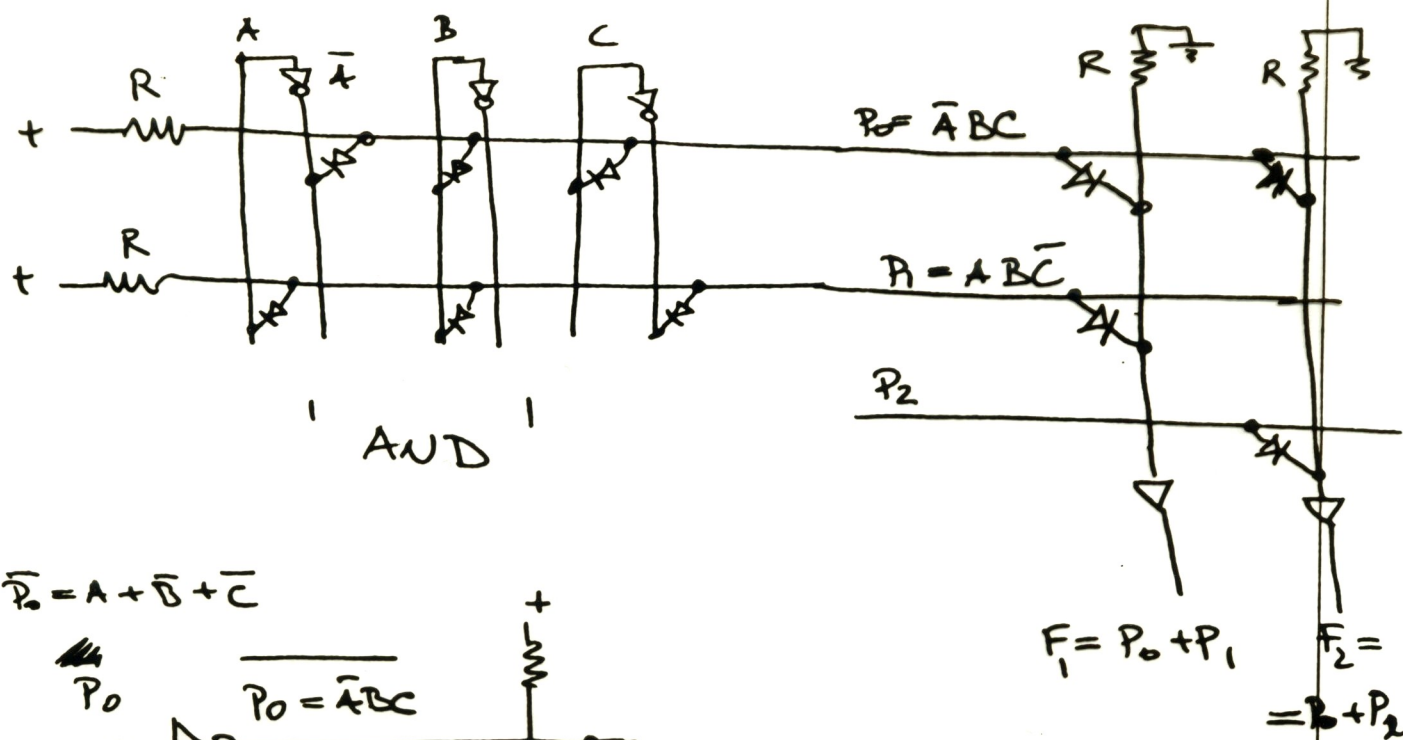

$$N = 4 \quad M = 4$$


mask program
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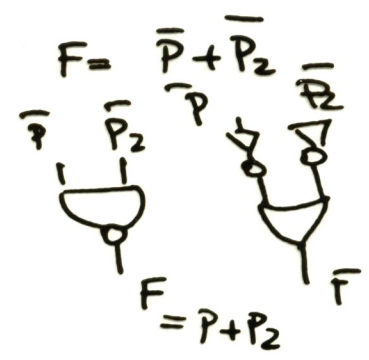
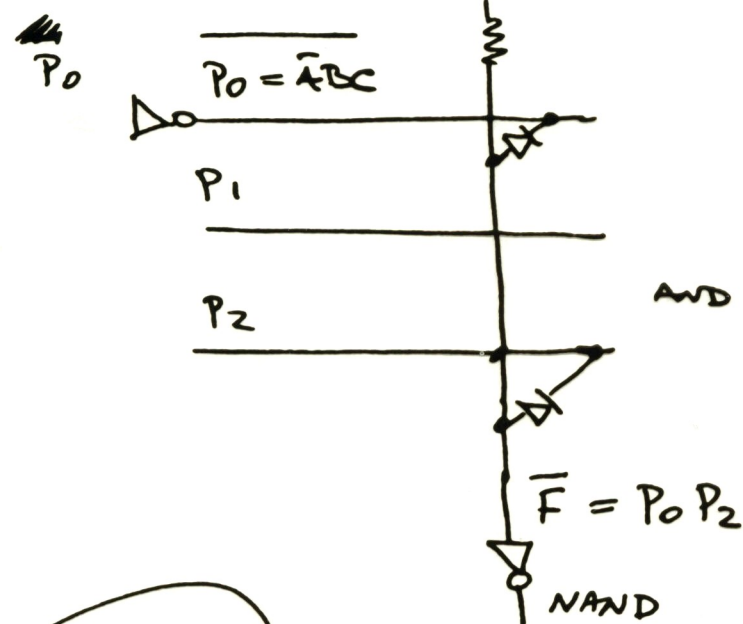




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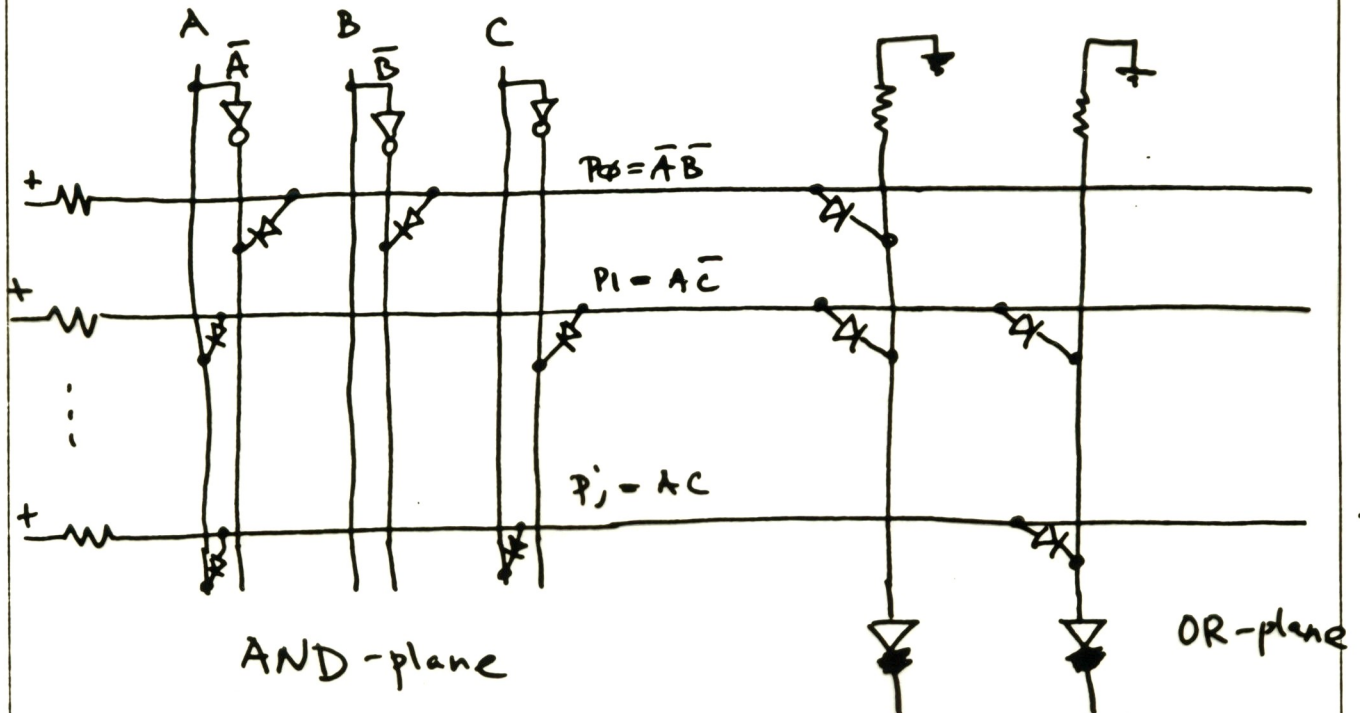
$\bar{P}_0 = A + \bar{B} + \bar{C}$



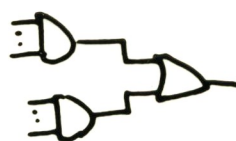
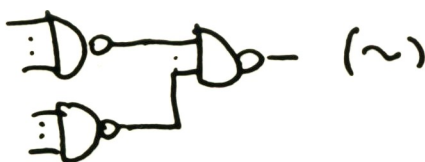
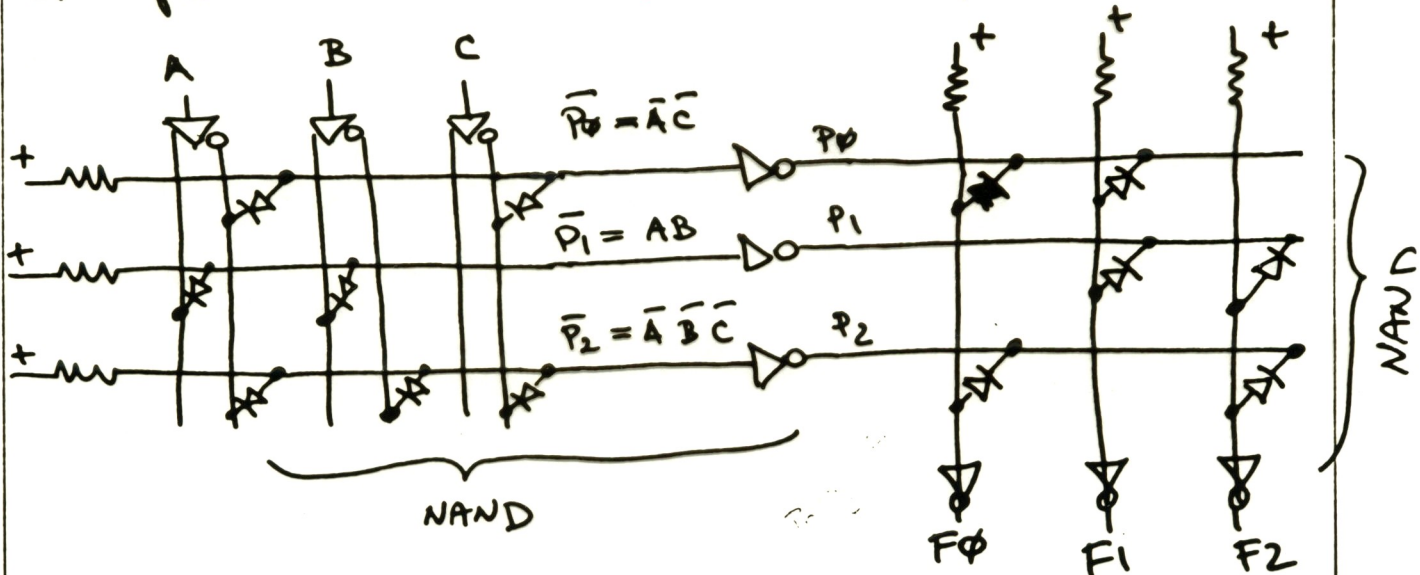
Prod. Ans	INPUTS	PROD. TERMS	OUTPUTS		
	A B C		F ₀	F ₁	F₂
AB	0 0 -		1	0	
AC	1 - 0		1	1	
...	...		0	0	
...	...		...	...	
AC	1 - 1		0	1	

$$F_0 = \bar{A}\bar{B} + A\bar{C}$$
$$F_1 = A\bar{C} + AC$$

Example #1 :



Example #2 :

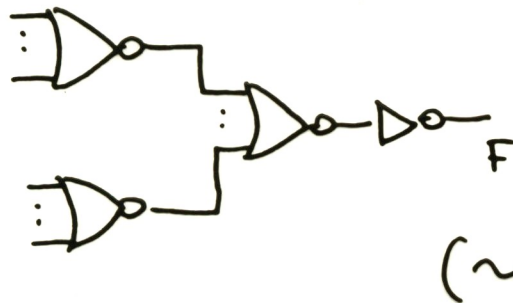
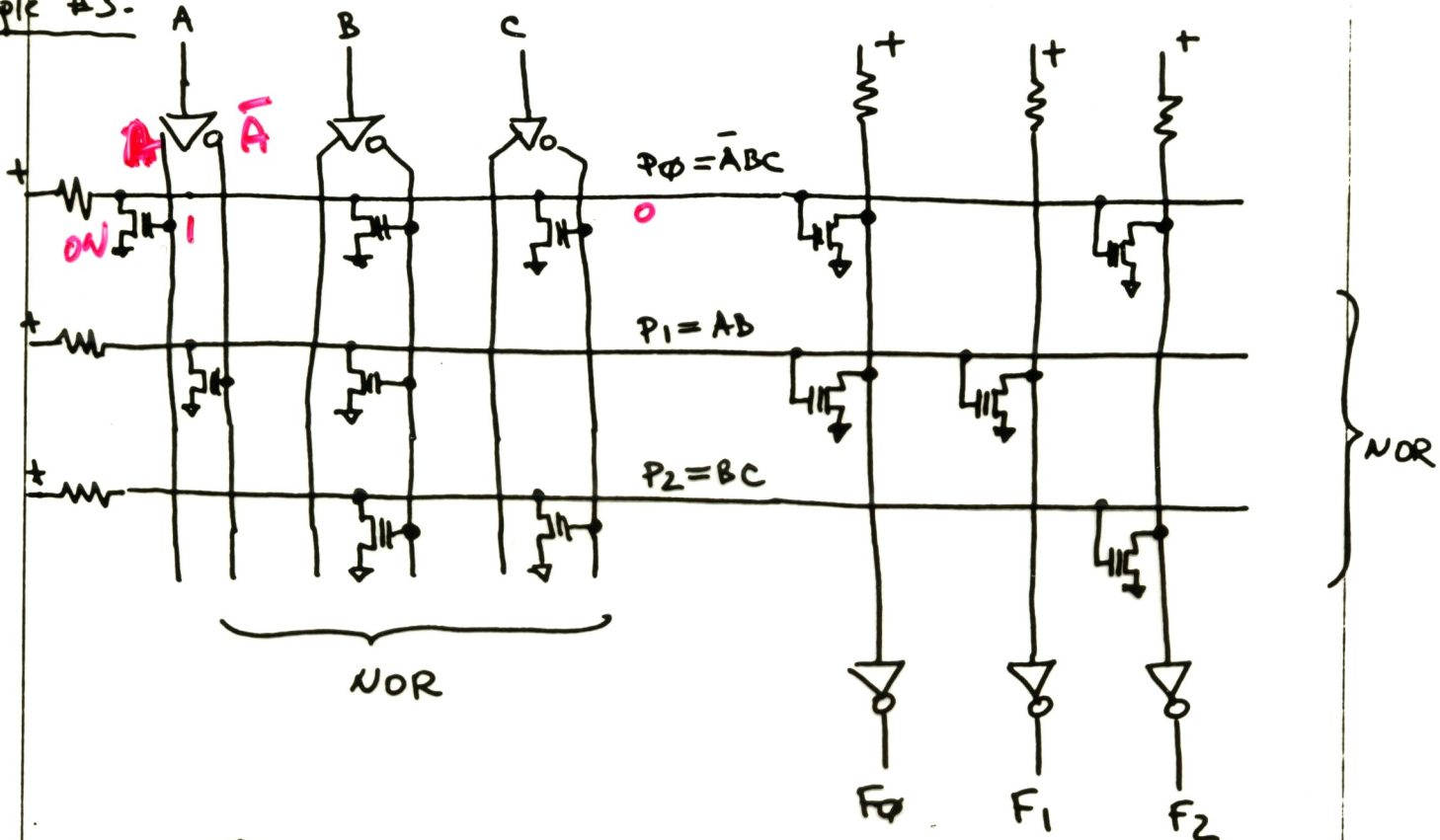


$$F_0 = \bar{P}_0 + \bar{P}_2 = \bar{A}\bar{C} + \bar{A}\bar{B}\bar{C}$$

$$F_1 = \bar{P}_0 + \bar{P}_1 = \bar{A}\bar{C} + AB$$

$$F_2 = \bar{P}_1 + \bar{P}_2 = AB + \bar{A}\bar{B}\bar{C}$$

Example #3:

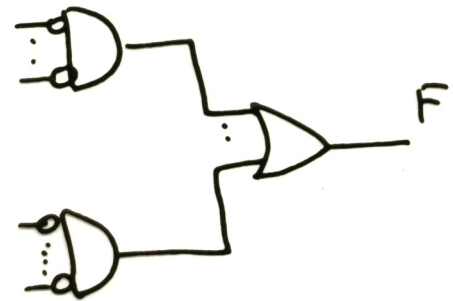


$$F_0 = P_0 + P_1 \quad \text{where} \quad P_0 = (A + \bar{B} + \bar{C})$$

$$F_0 = \bar{A}BC + AB$$

$$F_1 = P_1 = AB$$

$$F_2 = P_0 + P_2 = \bar{A}BC + BC$$



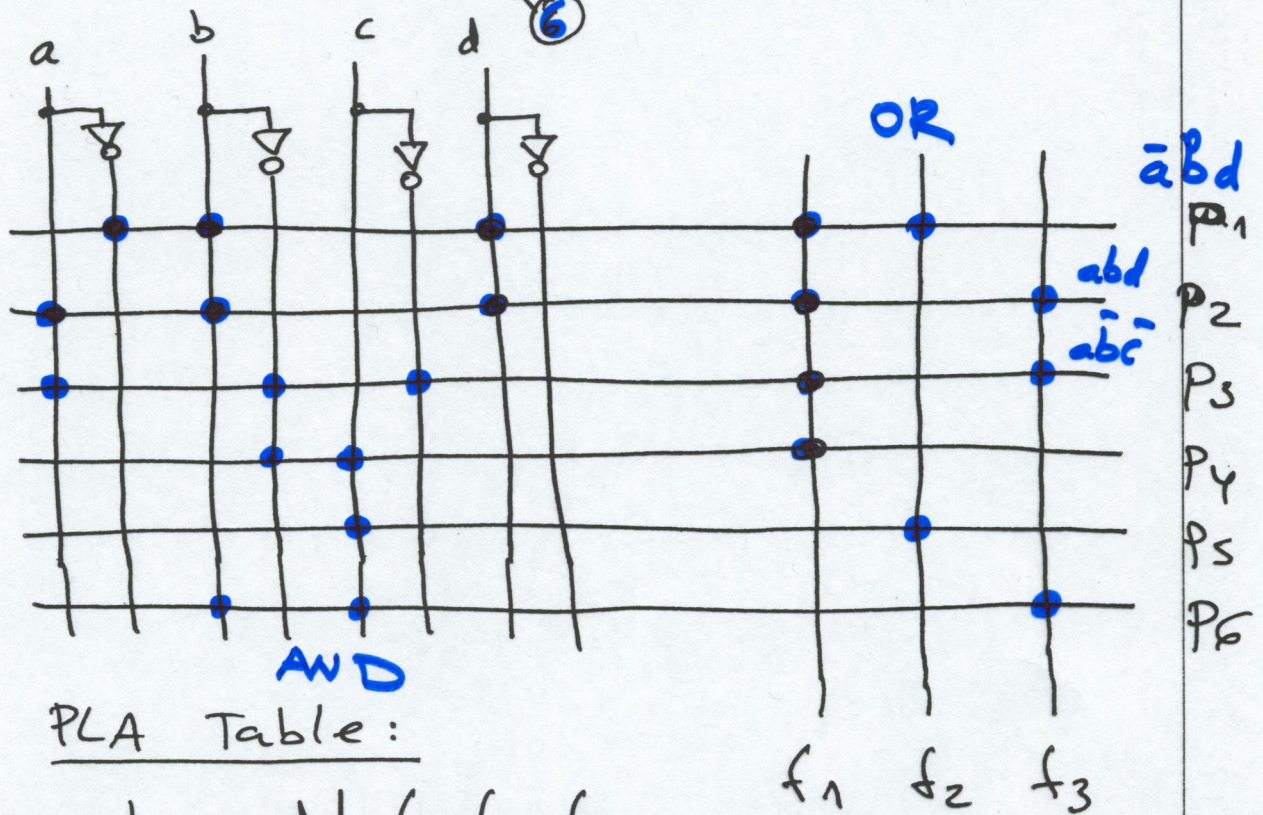
PROBLEM No.1

REALIZE:

$$f_1 = \bar{a}bd + abd + a\bar{b}\bar{c} + \bar{b}c$$

$$f_2 = c + \bar{a}bd$$

$$f_3 = bc + a\bar{b}\bar{c} + abd$$



PLA Table:

a	b	c	d	f ₁	f ₂	f ₃
0	1	-	1	1	1	0
1	1	-	1	1	0	1
1	0	0	-	1	0	1
-	0	1	-	1	0	0
-	-	1	-	0	1	0
-	1	1	-	0	0	1

AND

OR

National Brand

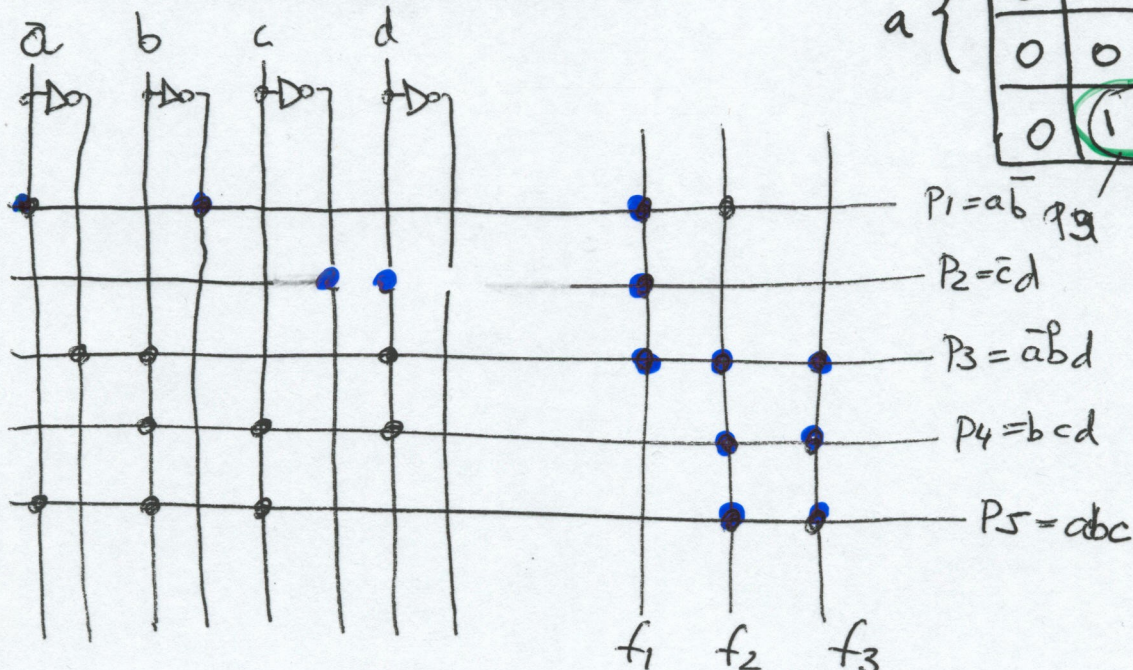


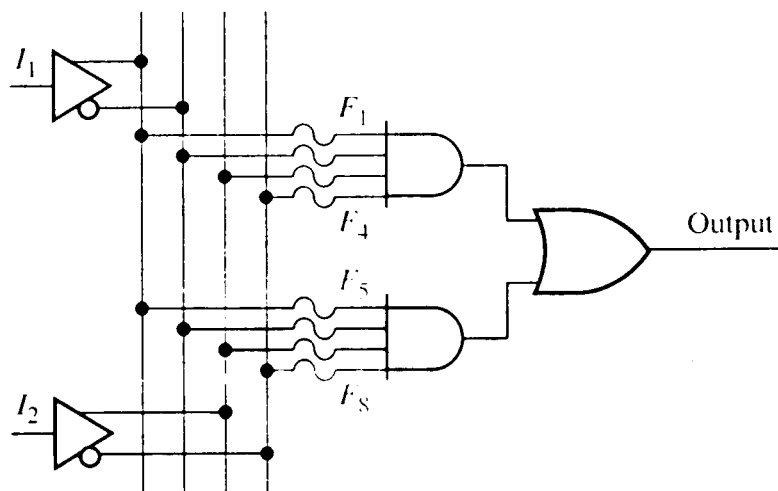
T-Table

Diagram illustrating a 2D array (grid) with dimensions a (rows) and b (columns). The grid contains 0s and 1s. A green path is highlighted, starting at P_1 (row 1, column 1) and ending at P_2 (row 1, column 4). The path follows the 1s in the grid. A point P_3 is marked at row 3, column 2. A blue label f_1 is present to the right of the grid.

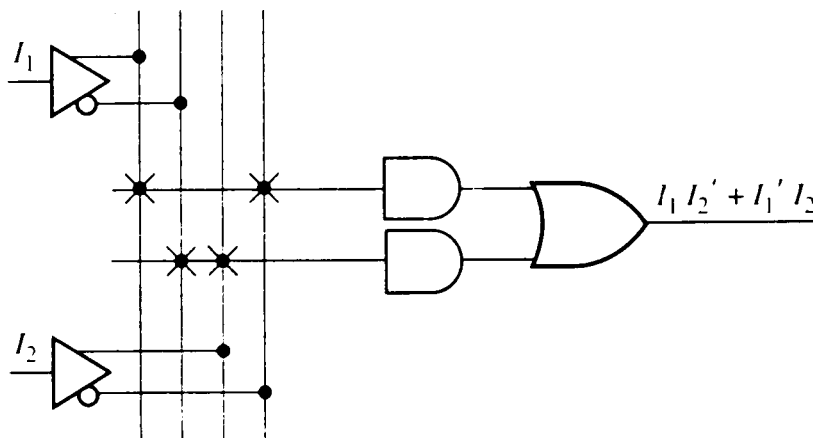
0	1	0	0
1	1	1	1
0	1	0	0
0	1	1	0

0	0	0	0
0	0	0	0
0	0	1	1
0	1	1	0





(a) Unprogrammed



(b) Programmed

Figure 9-30
PAL Segment

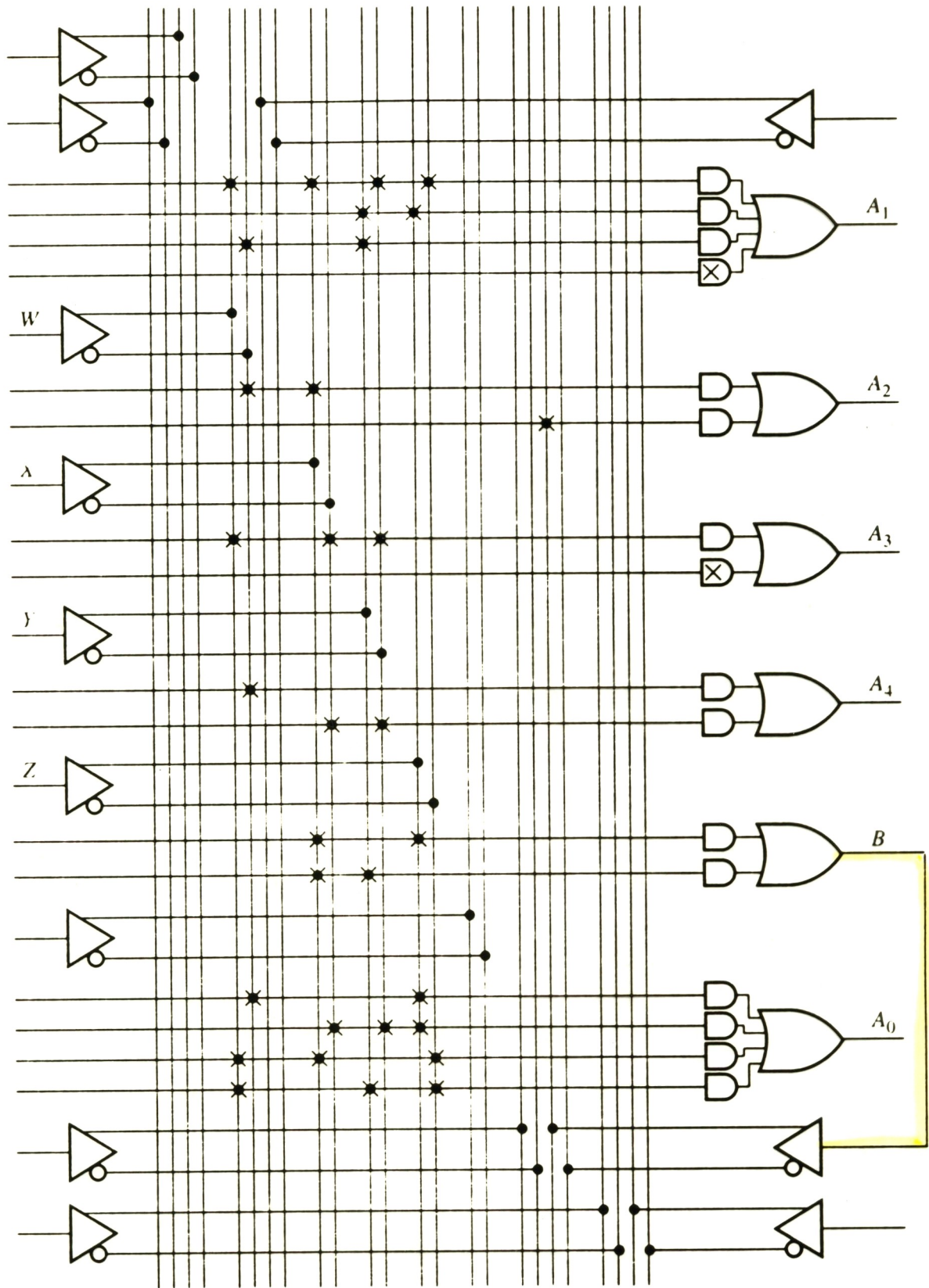


Figure 9-32
Logic Diagram for PAL12H6 (Courtesy of
Monolithic Memories)

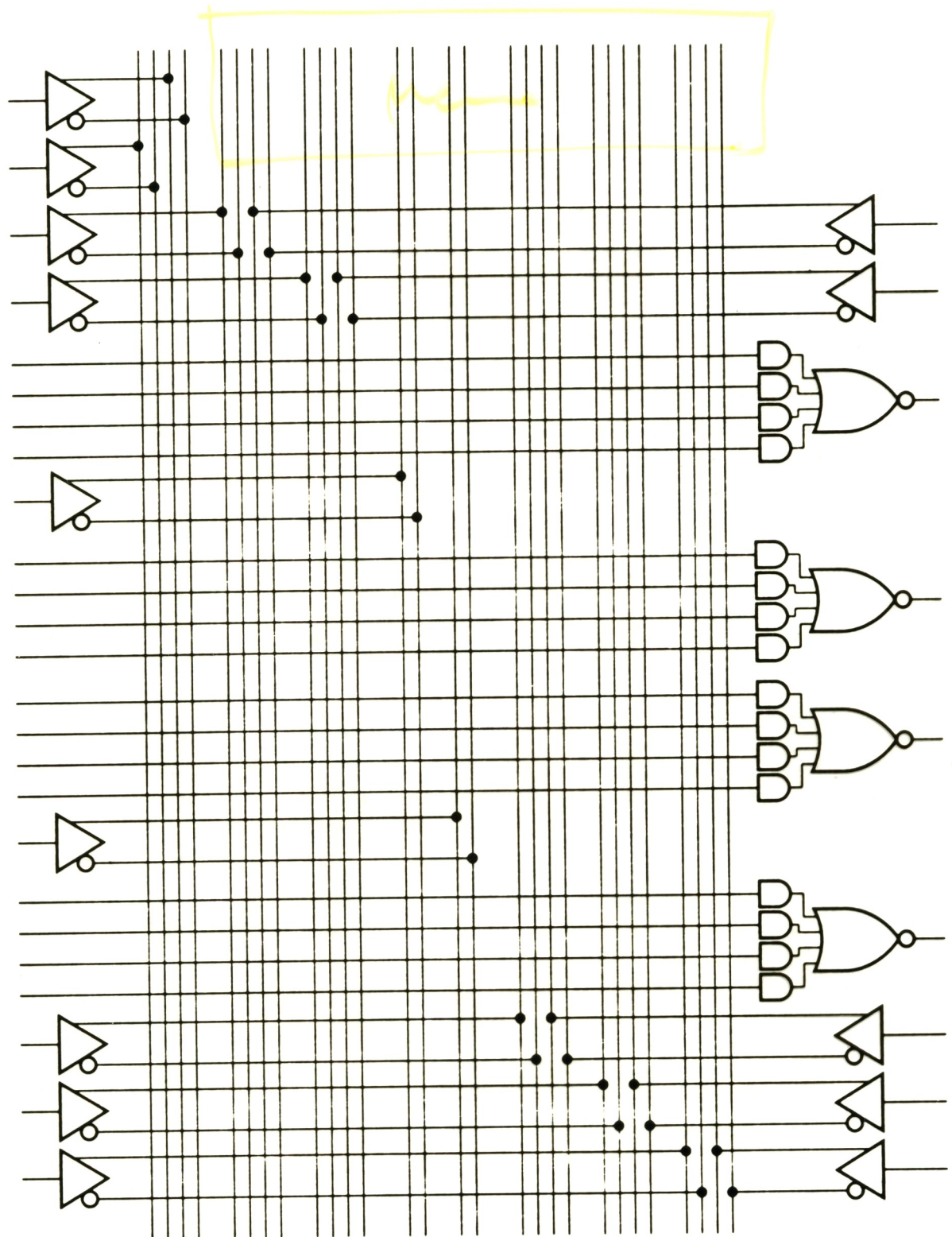


Figure 9-31
Logic Diagram for PAL14L4 (Courtesy of
Monolithic Memories)

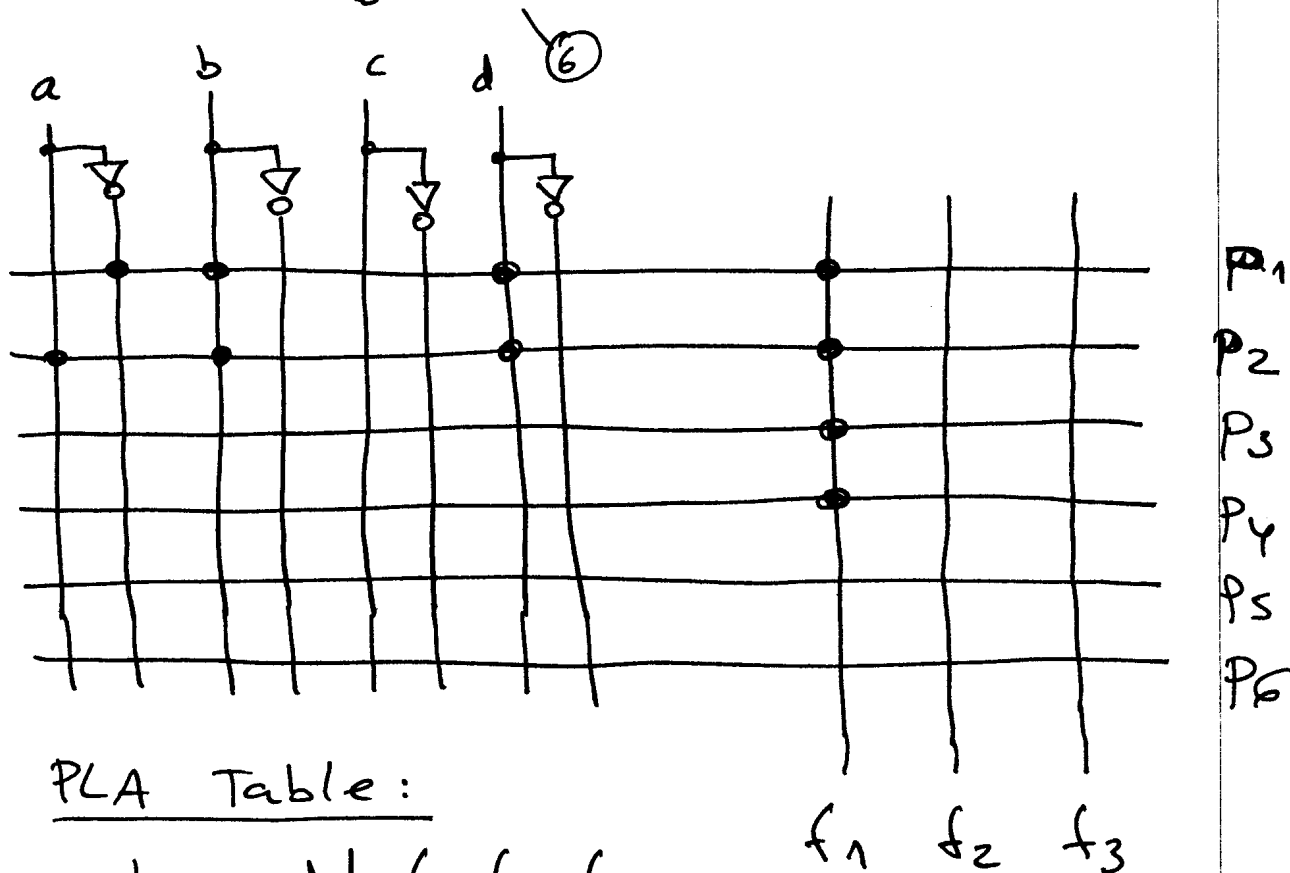
PROBLEM No.1

REALIZE:

$$f_1 = \bar{a}bd + abd + a\bar{b}\bar{c} + \bar{b}c$$

$$f_2 = c + \bar{a}bd$$

$$f_3 = bc + a\bar{b}\bar{c} + abd$$



PROBLEM #2

V.O klobd zija

Find minimal PLA realization of f_1, f_2, f_3 given with the true table:

a	b	c	d	f_1	f_2	f_3
0	0	0	0	0	0	0
0	0	0	1	1	0	0
0	0	1	0	0	0	0
0	0	1	1	0	0	0
0	1	0	0	0	0	0
0	1	0	1	1	1	0
0	1	1	0	0	0	0
0	1	1	1	1	1	1
1	0	0	0	1	1	1
1	0	0	1	1	1	0
1	0	1	0	1	1	0
1	0	1	1	1	1	0
1	1	0	0	0	0	0
1	1	0	1	1	0	0
1	1	1	0	0	1	1
1	1	1	1	0	1	1

