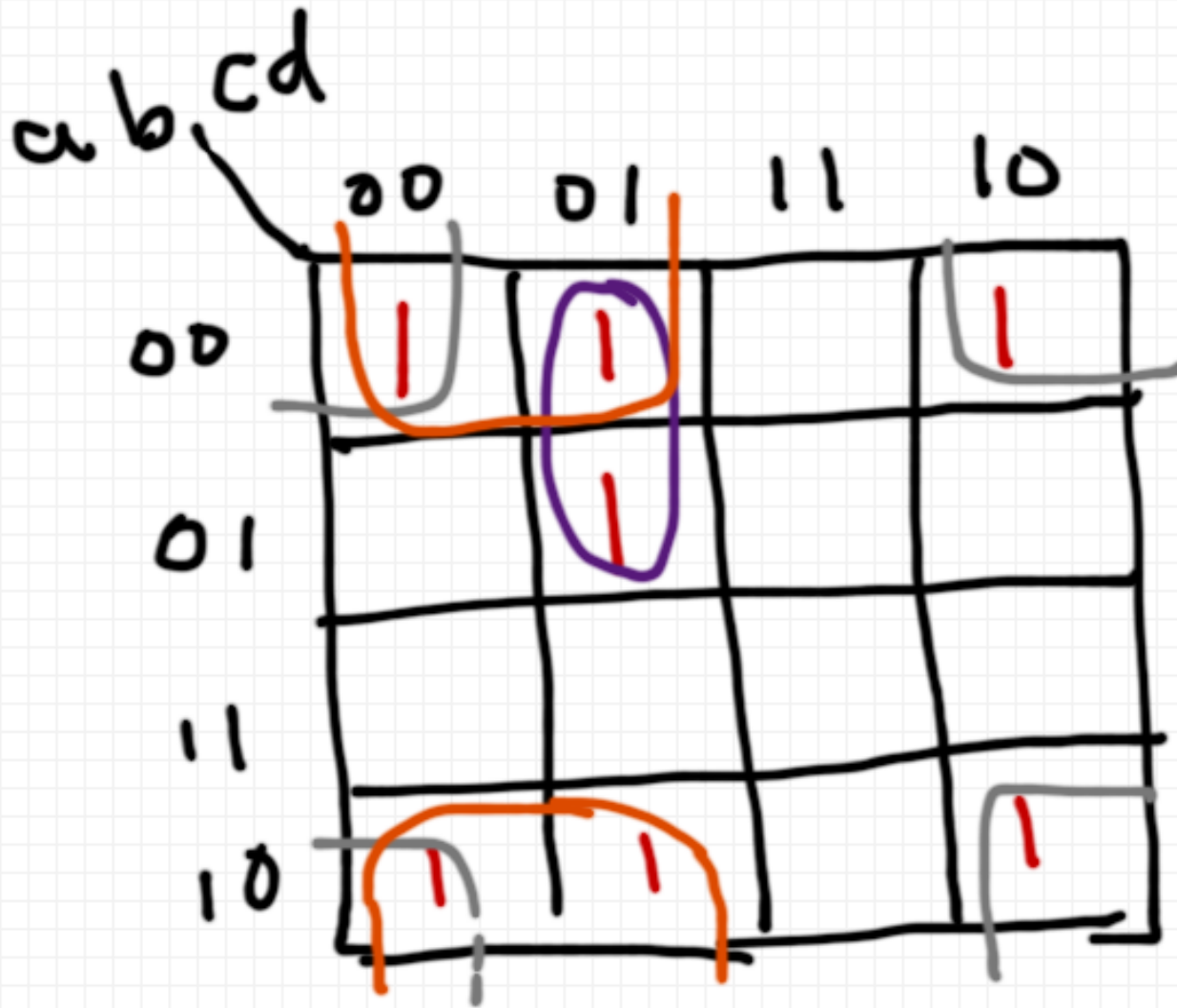


$$f(a,b,c,d) = \sum(0,1,2,5,8,9,10)$$

1 como 1

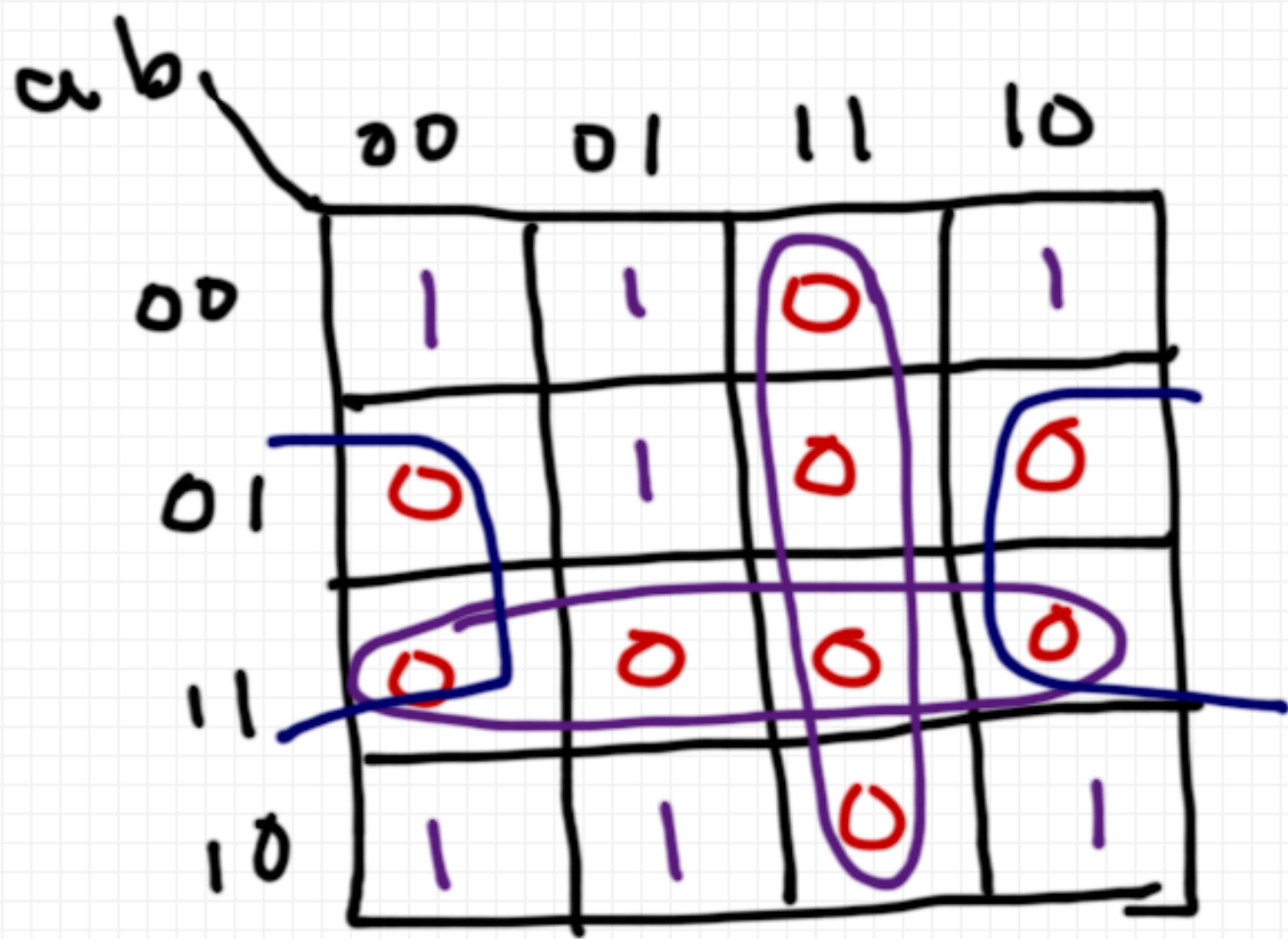


$$f = b'd' + b'c' + a'c'd$$

Ⓐ

$$f(a,b,c,d) = \sum(0,1,2,5,8,9,10)$$

0 como 1



$$(ab + cd + bd')' = f$$

(b)

$$f(a,b,c,d) = \sum(0,1,2,5,8,9,10)$$

0 como
0

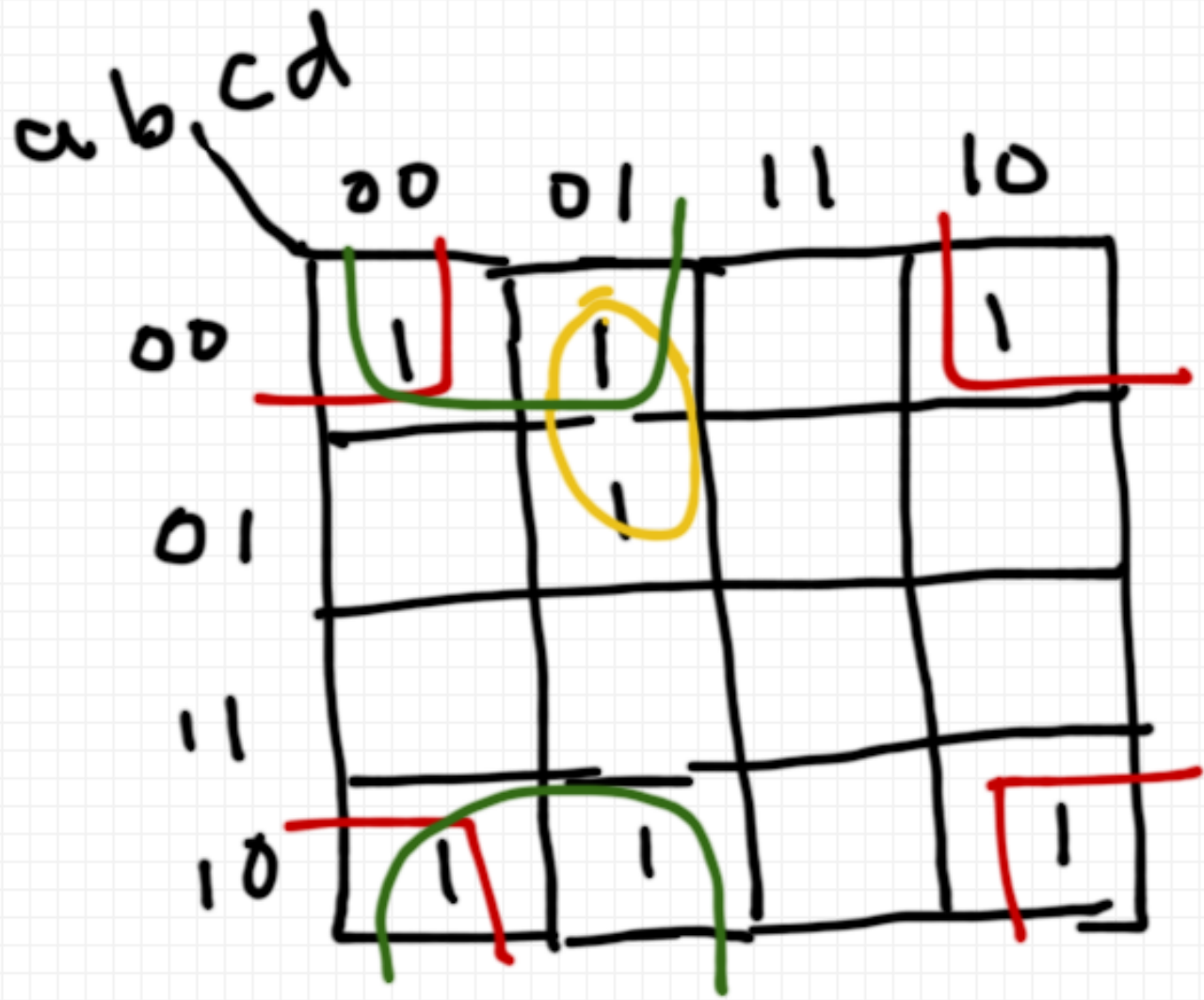
		cd			
		00	01	11	10
ab	00	1	1	0	1
	01	0	1	0	0
	11	0	0	0	0
	10	1	1	0	1

$$(d' + c')(a' + b')(b' + d)$$

©

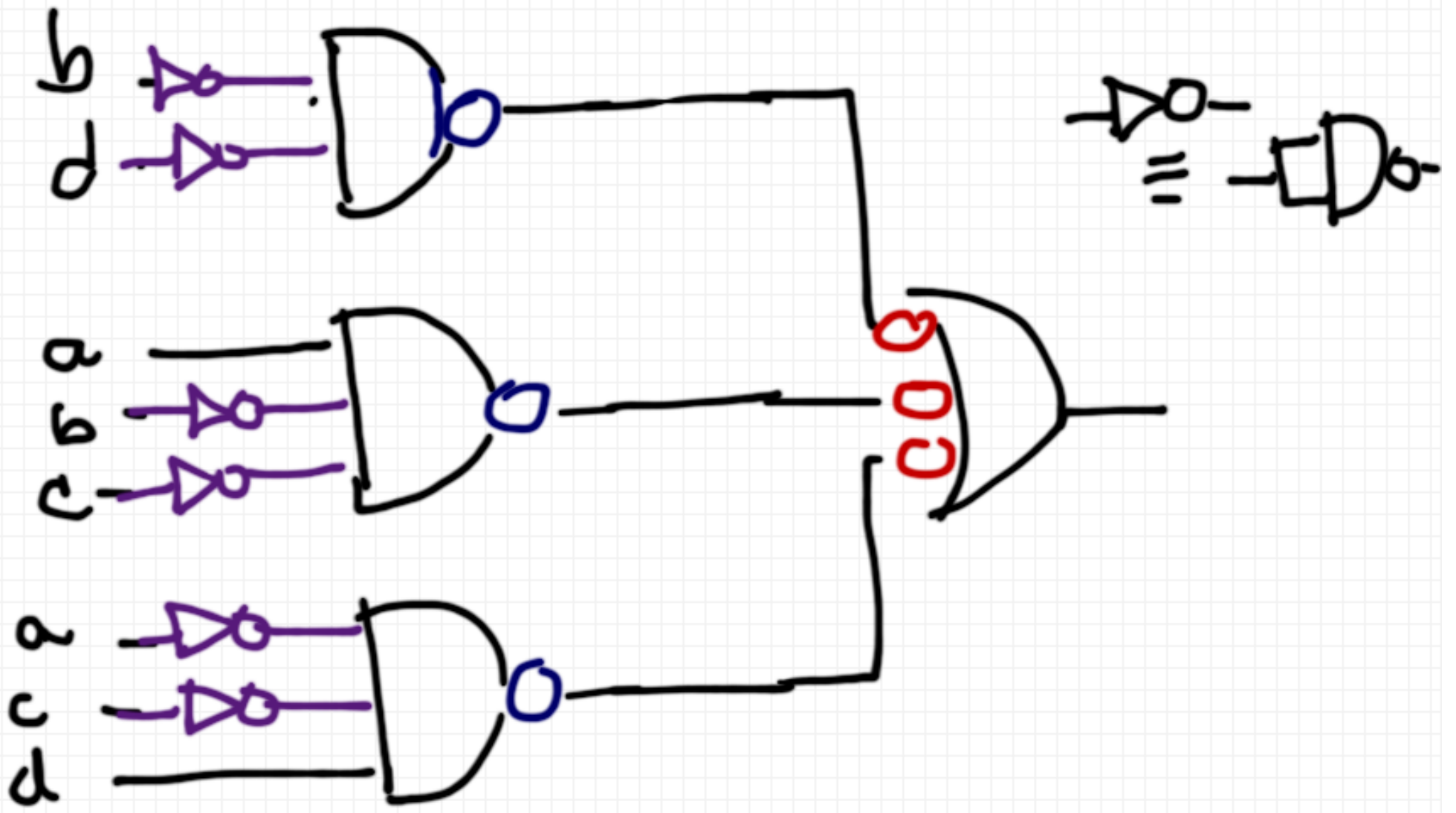
$$f(a,b,c,d) = \sum(0,1,2,5,8,9,10)$$

is como
~~o~~



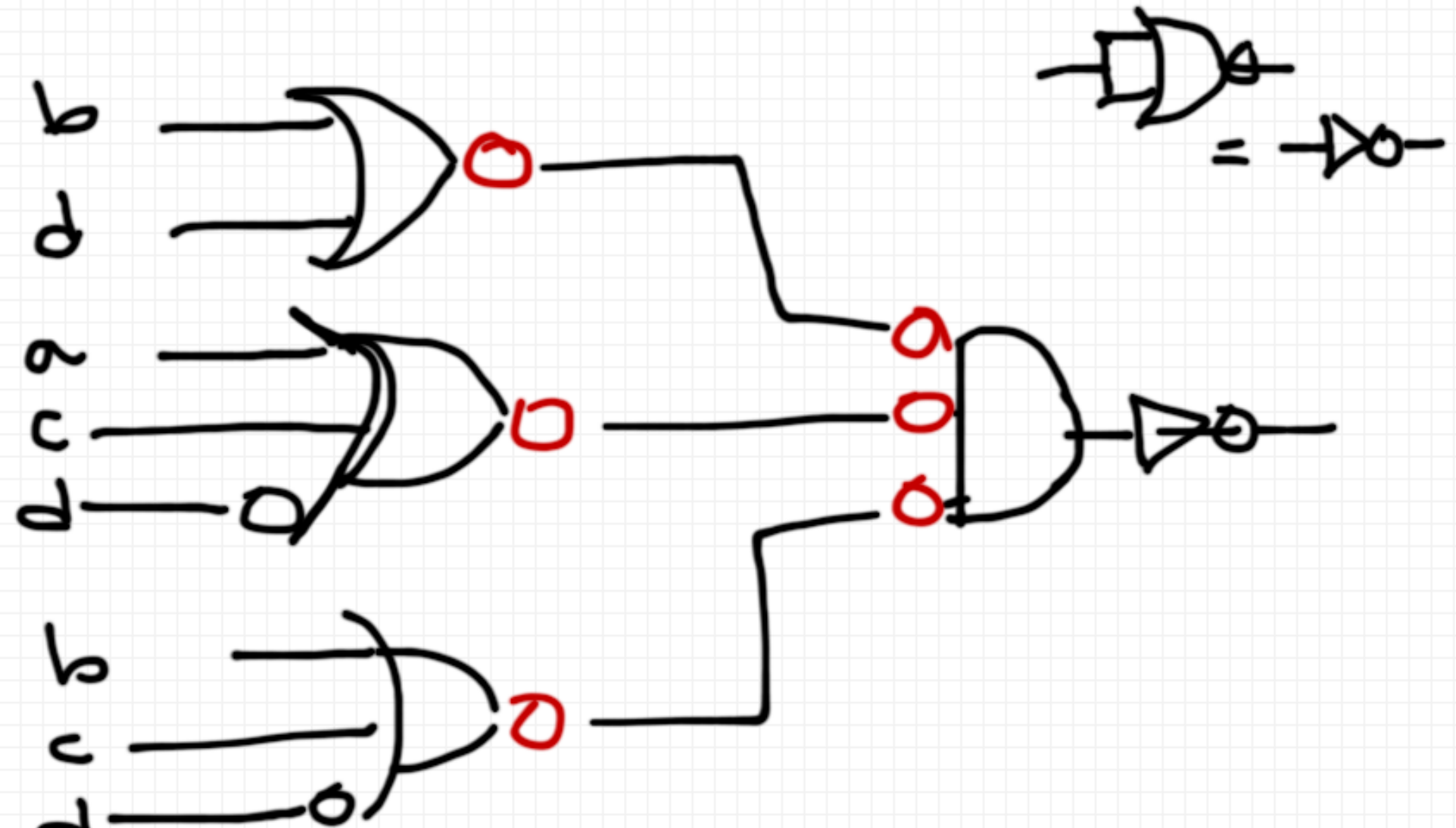
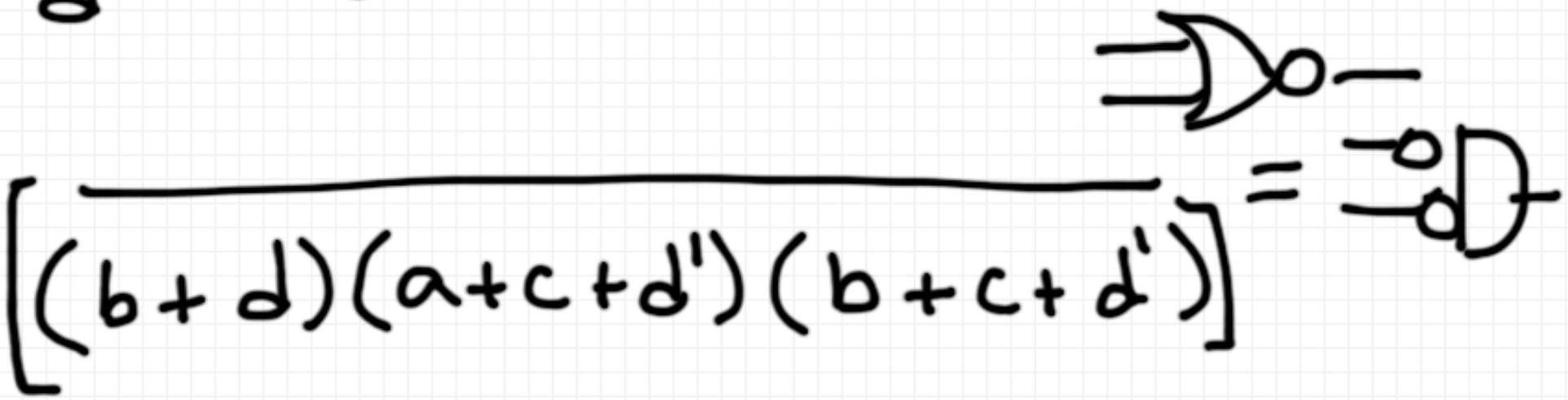
$$[(b+d)(a+c+d')(b+c)]'$$

Ⓞ



$$b'd' + ab'c' + a'c'd$$

de Morgan



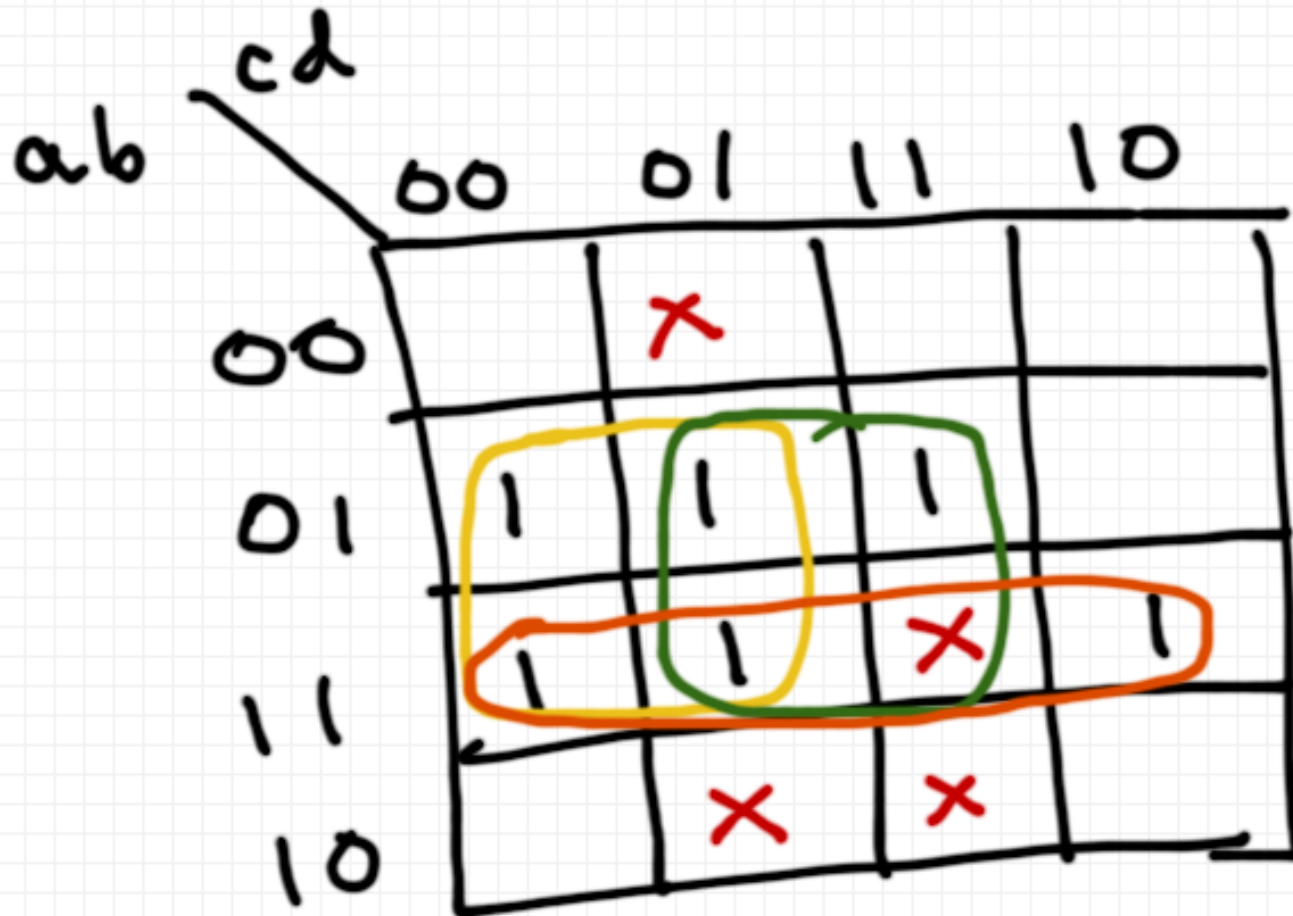
don't care conditions

- can be \emptyset or 1
- represent with X
- can be combined with \emptyset or 1
- do not need to be grouped

3.15C

$$F(a,b,c,d) = \sum (4, 5, 7, 12, 13, 14)$$

$$d(a,b,c,d) = \sum (1, 9, 11, 15)$$

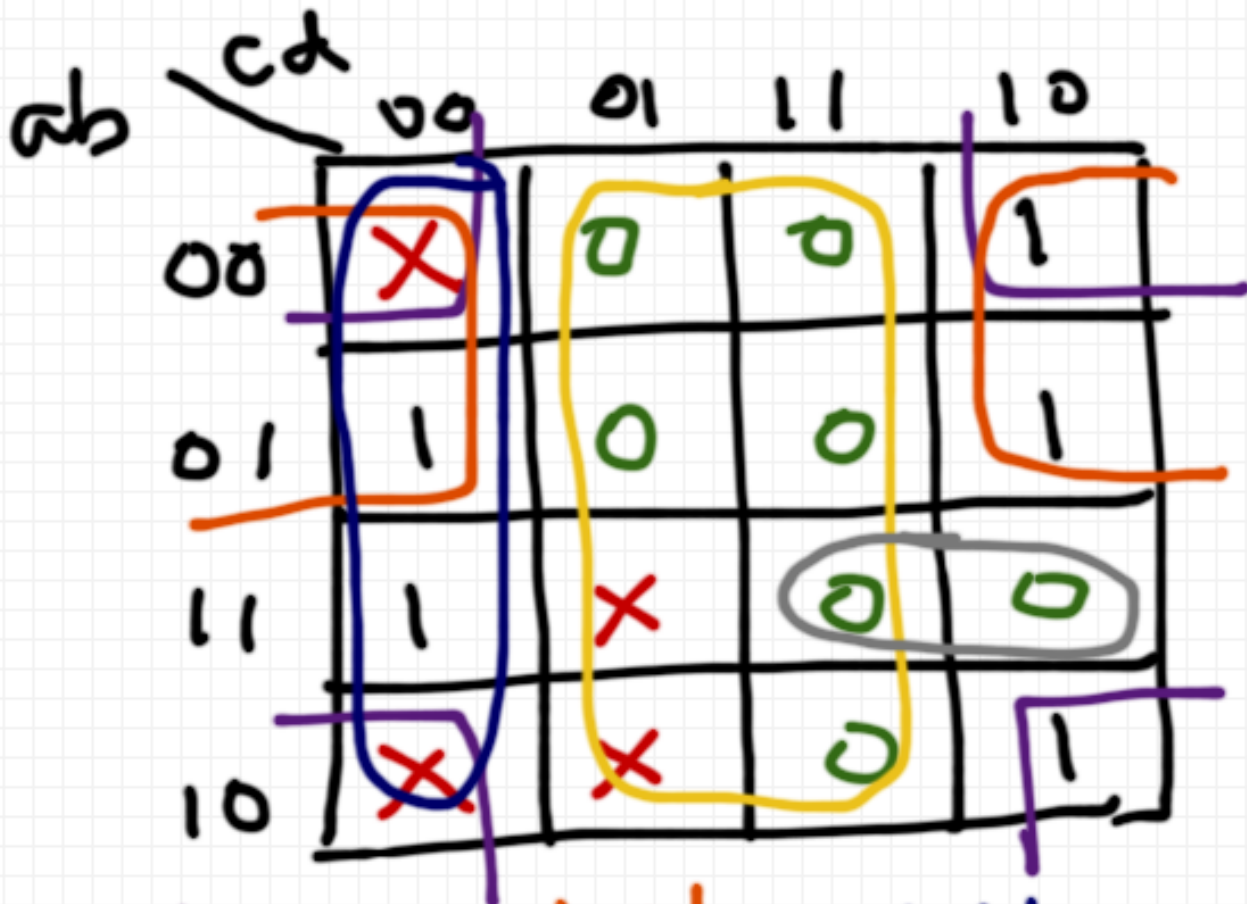


$$F = bc' + bd + ab$$

p 3.23 Using NOR only

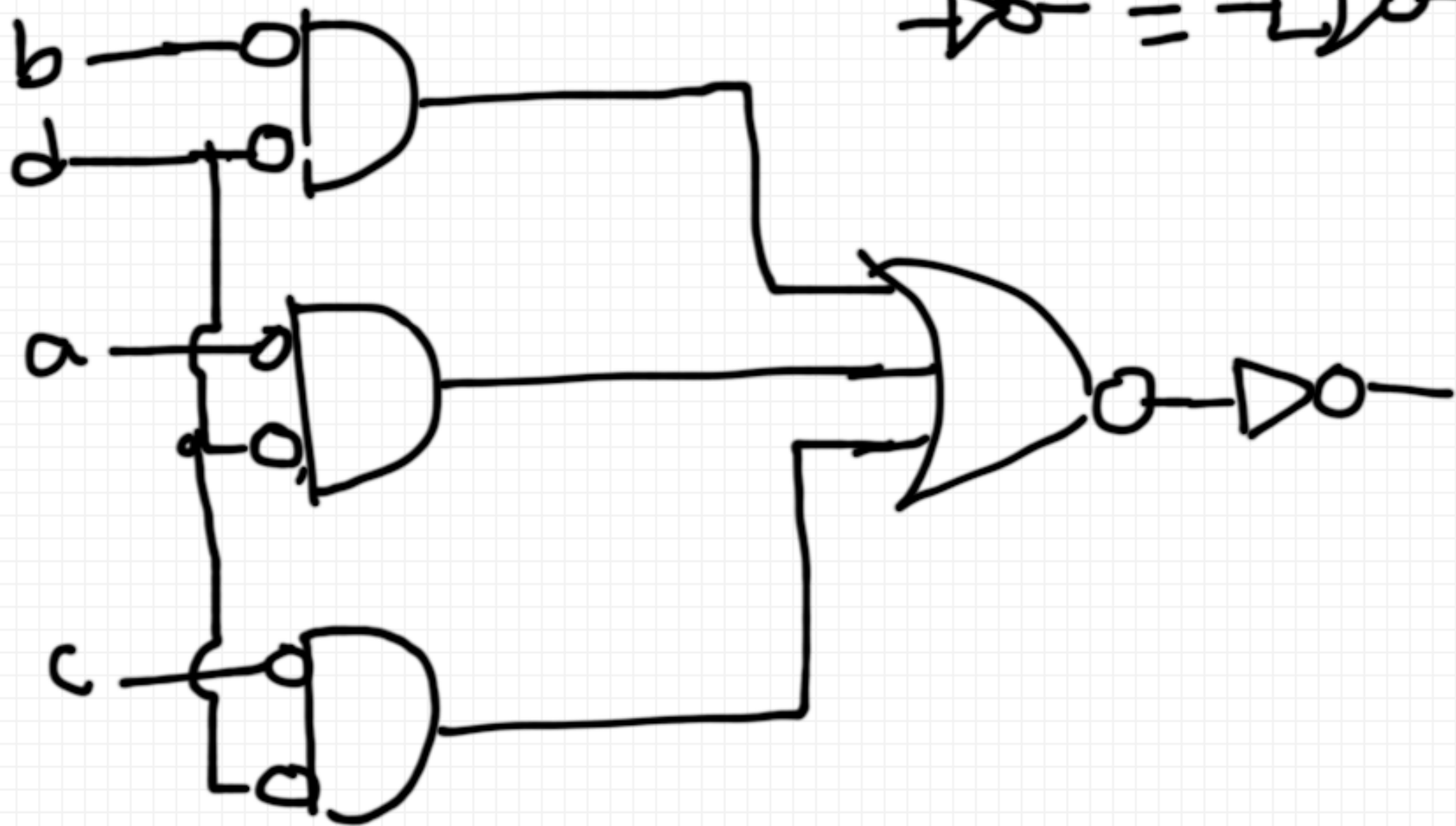
$$F(a, b, c, d) = \sum (2, 4, 6, 10, 12)$$

$$d(a, b, c, d) = \sum (0, 8, 9, 13)$$



$$F = b'd' + a'd' + c'd'$$

$$= (d')(a' + b' + c')$$



$$(x + y)' = x' y'$$

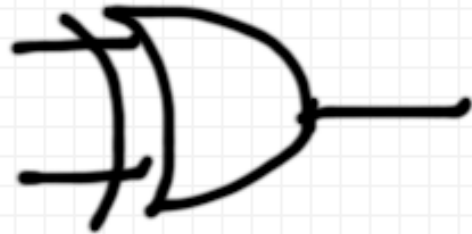
XOR

$A \oplus B \leftarrow \text{XOR de } A, B$

$A \oplus B \oplus C$

XOR \rightarrow output = 1 if
#1 inputs is odd

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0



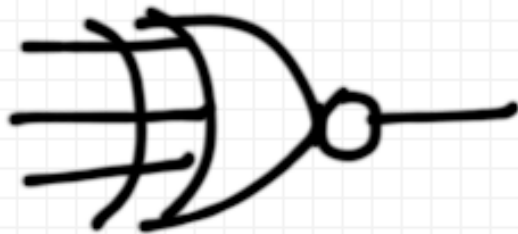
A	B	C	$Y = A \oplus B \oplus C$
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

no simplification
 ↪

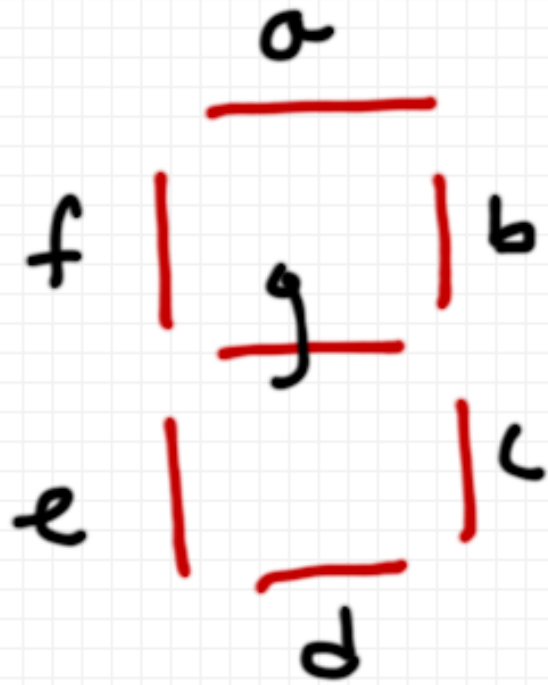
	BC			
A	00	01	11	10
0		1		1
1	1		1	

XNOR = NOT (XOR)

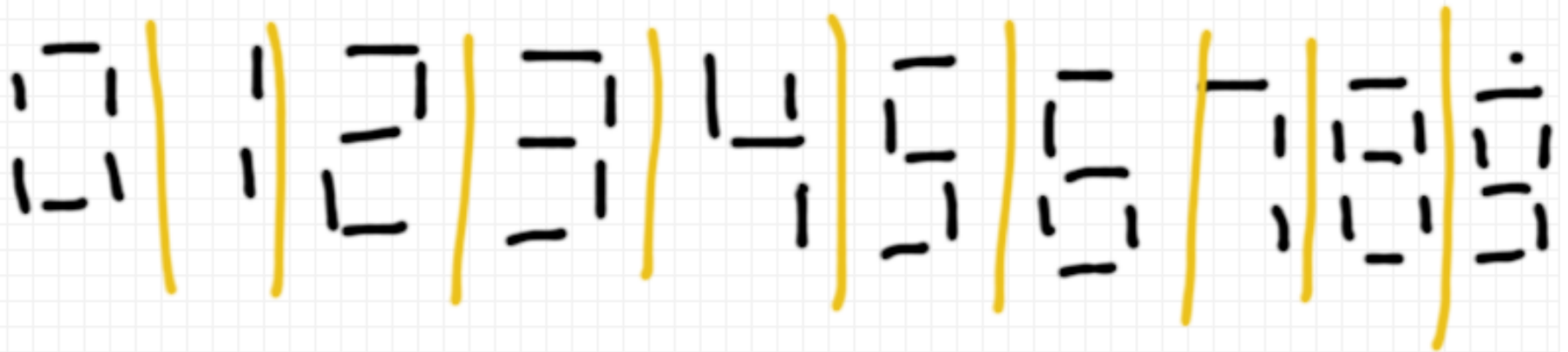
$$\overline{A \oplus B \oplus C}$$



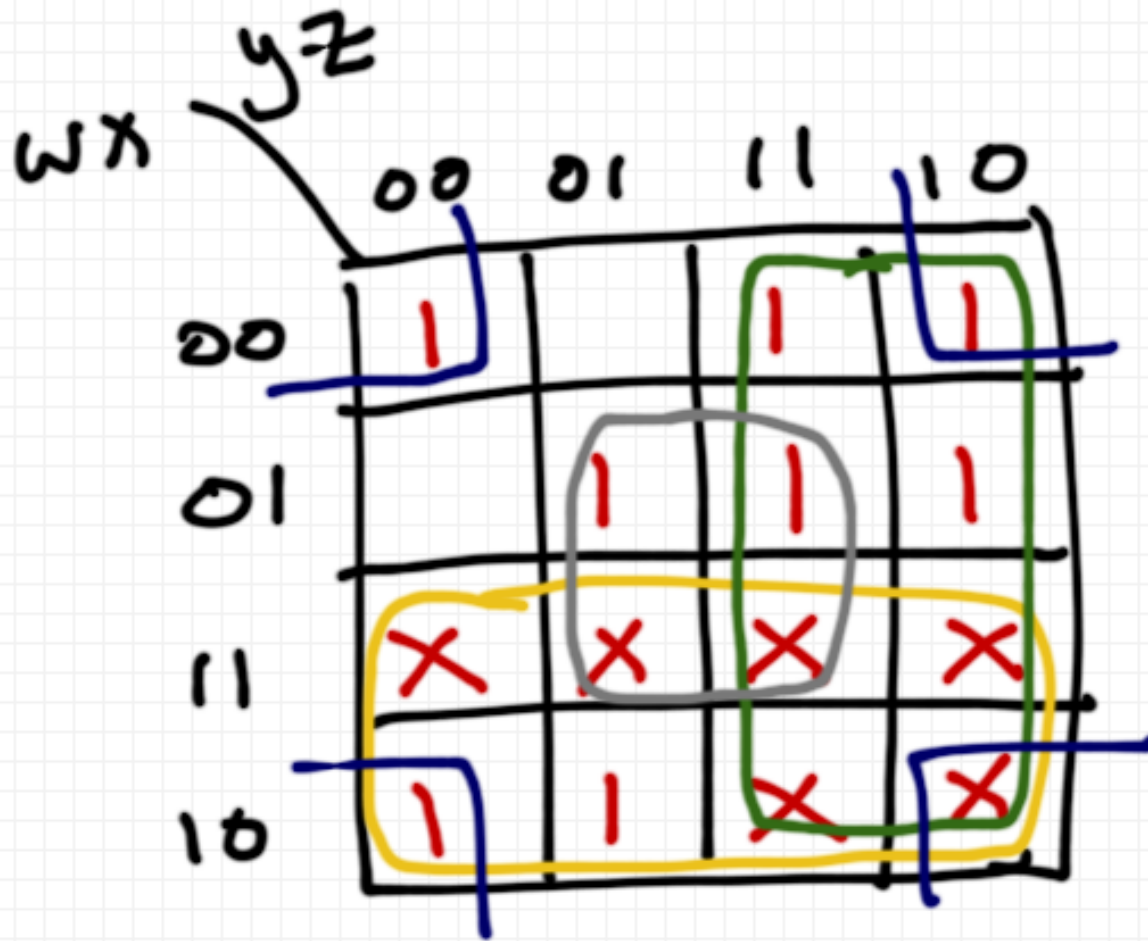
7-segment display



bcd
wxyz



9



$$w + y + x'z' + xz$$