

Exercice 1

b	a	X
0	0	1
0	1	1
1	0	1
1	1	0

X	a	
	b	
	0	1
	1	0

$$X = \bar{a} + \bar{b} = \overline{ab}$$



c	b	a	Y
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	1

Y	b		a
	c		
	0	1	1
	1	0	0

$$Y = bc + \bar{b}\bar{c} = \bar{b} \oplus c$$



d	c	b	a	Z
0	0	0	0	0
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	0
0	1	0	1	1
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	0
1	0	1	0	0
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

Z	b		a
	d	c	
	0	1	1
	1	0	1
	1	1	0
	1	1	1

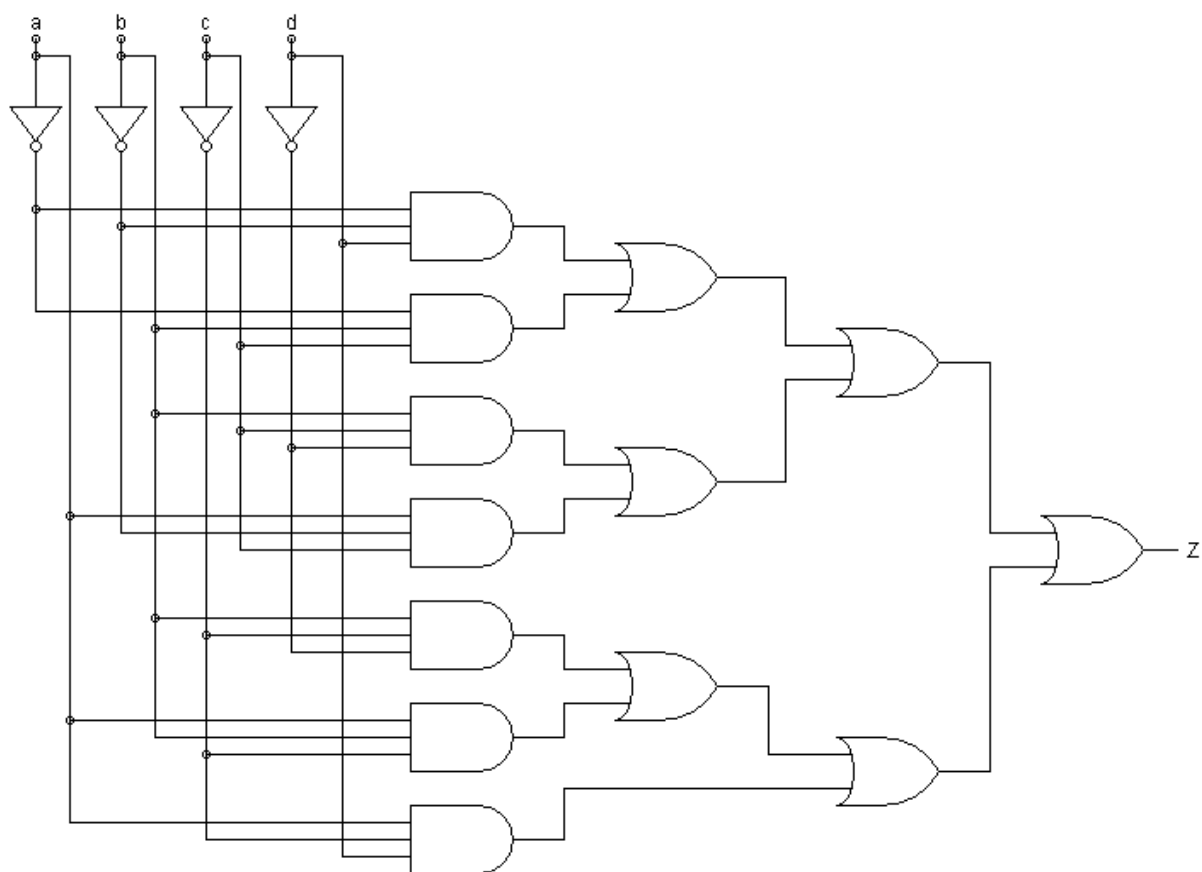
ou

Z	b		a
	d	c	
	0	1	1
	1	0	1
	1	1	0
	0	1	1

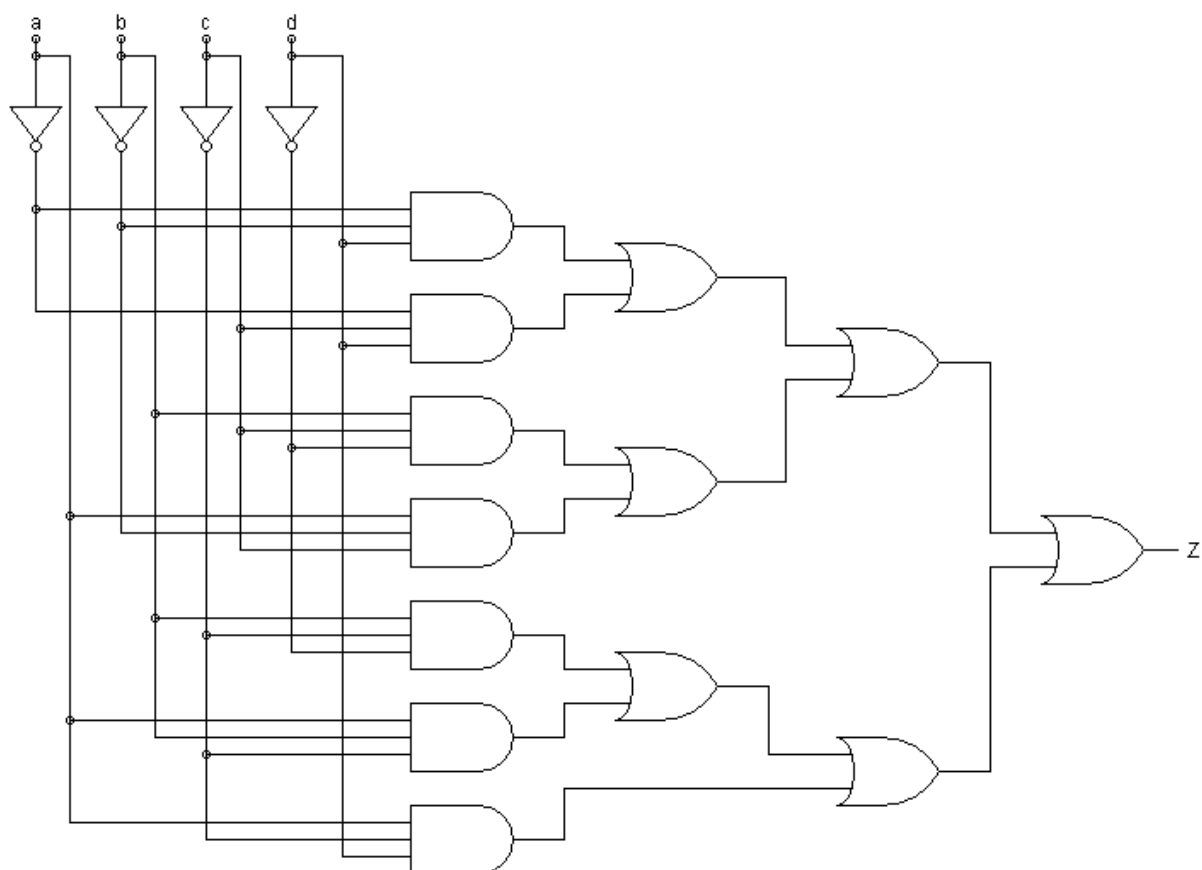
$$Z = \bar{a}\bar{b}d + \bar{a}bc + b\bar{c}\bar{d} + a\bar{b}c + b\bar{c}\bar{d} + ab\bar{c} + a\bar{c}\bar{d}$$

ou

$$Z = \bar{a}\bar{b}d + \bar{a}cd + b\bar{c}\bar{d} + a\bar{b}c + b\bar{c}\bar{d} + ab\bar{c} + a\bar{c}\bar{d}$$



ou



Exercice 2

$$F1 = a.b.\bar{c} + \bar{a}.\bar{b}.c + a.\bar{b}.\bar{c} + a.\bar{b}.c$$

F1	b		a	
	0	0	1	1
c	1	0	0	1

$$F1 = a\bar{c} + \bar{b}c$$

$$F2 = a.b.c + \bar{a}.b.c + \bar{a}.\bar{b}.c + a.b.\bar{c}$$

F2	b		a	
	0	0	1	0
c	1	1	1	0

$$F2 = ab + \bar{a}c$$

$$F3 = \bar{a}.\bar{b}.c.\bar{d} + \bar{a}.b.\bar{c}.d + a.\bar{b}.c.\bar{d} + \bar{a}.\bar{b}.\bar{c}.\bar{d} + a.b.\bar{c}.d + \bar{a}.b.c.d + a.\bar{b}.\bar{c}.\bar{d}$$

F3	b		a	
	1	0	0	1
d	0	1	1	0
	0	1	0	0
c	1	0	0	1

$$F3 = \bar{a}bd + b\bar{c}d + \bar{b}\bar{d}$$

$$F4 = \bar{a}\bar{b}\bar{c}\bar{d} + \bar{a}\bar{b}\bar{c}d + \bar{a}\bar{b}c\bar{d} + \bar{a}\bar{b}cd + a\bar{b}\bar{c}\bar{d} + a\bar{b}c\bar{d} + a\bar{b}cd + a\bar{b}c\bar{d} + a\bar{b}cd$$

F4		<u>b</u> <u>a</u>	
d		1	0
		0	0
		1	1
		0	1
c		1	0
		0	1
		1	1
		0	1

$$F4 = \bar{a}\bar{b} + ad + \bar{a}bc$$

$$F5 = \bar{a}\bar{b}\bar{c}\bar{d} + \bar{a}\bar{b}c\bar{d} + a\bar{b}\bar{c}\bar{d} + a\bar{b}c\bar{d} + \bar{a}\bar{b}\bar{c}d + \bar{a}\bar{b}cd$$

F5		<u>b</u> <u>a</u>	
d		1	0
		1	1
		0	0
		0	0
c		0	0
		0	0
		1	1
		1	1

$$F5 = \bar{b}\bar{d} + a\bar{d}$$

$$F6 = \bar{a}bcd + ab\bar{d} + \bar{a}bc + bcd + b\bar{c}d + \bar{a}bc$$

F6		<u>b</u> <u>a</u>	
d		0	0
		1	1
		0	0
		0	1
c		0	1
		0	0
		1	1
		1	1

$$F6 = a\bar{d} + \bar{a}\bar{b}c + \bar{a}bc$$

$$F7 = \bar{b}cd + abc + \bar{b}c + ac\bar{d}$$

F7		<u>b</u> <u>a</u>	
d		0	0
		0	0
		0	0
		0	0
c		1	0
		1	1
		1	1
		1	1

$$F7 = ac + \bar{b}c$$