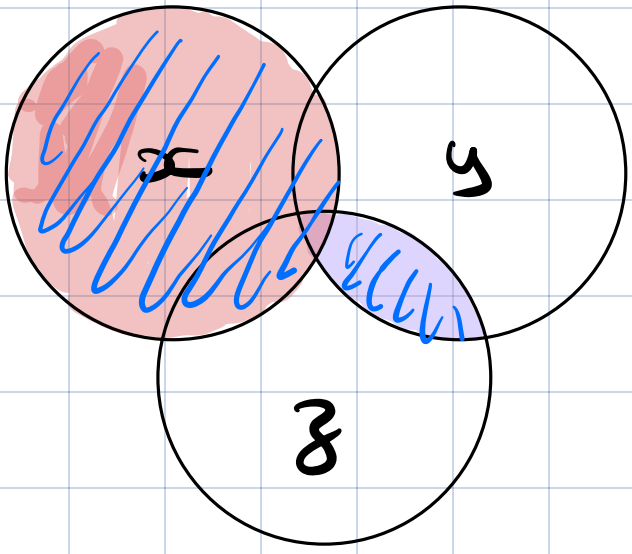
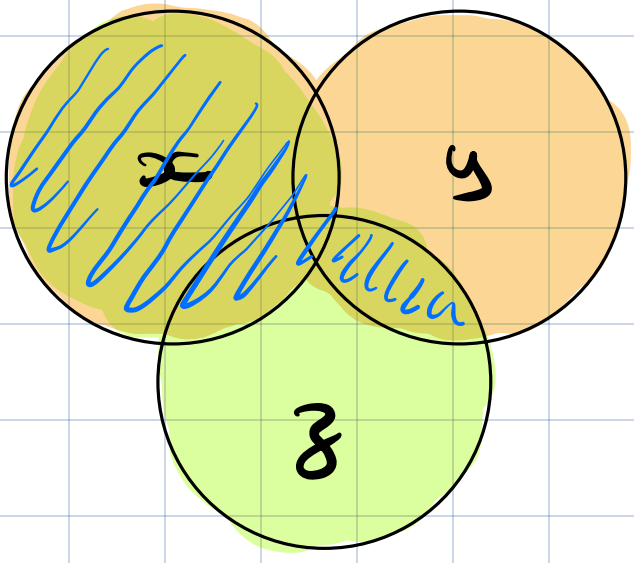
Exercise 5

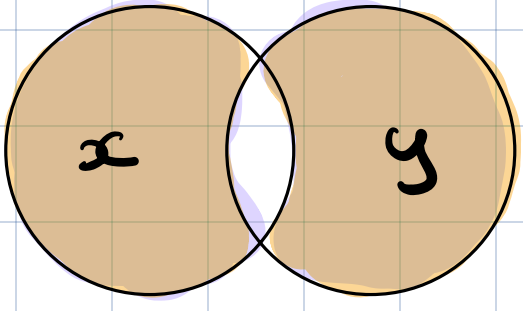
(a)



✓

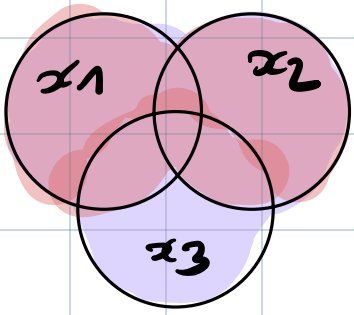


(b)



✓

(c)



Exercise 9

(a) $\bar{a}\bar{b}\bar{c} + a\bar{b}\bar{c} + \bar{a}bc + abc + a\bar{b}\bar{c} + a\bar{b}c$

NOT EQUALS

$\bar{a}\bar{b}\bar{c} + \bar{a}bc + a\bar{b}c + abc + a\bar{b}\bar{c} + \bar{a}\bar{b}c$

(b) $\bar{a}bc + \bar{a}\bar{b}c + ab\bar{c} + \bar{c}b\bar{c} + \bar{a}bc + a\bar{b}c + a\bar{b}c$

EQUALS

$a\bar{b}c + \bar{a}\bar{b}c + a\bar{b}\bar{c} + ab\bar{c} + ab\bar{c} + \bar{a}b\bar{c} + \bar{a}bc$

(c)

$$ab\bar{c} + a\bar{b}\bar{c} + abc + \bar{a}bc + abc + a\bar{b}\bar{c} + \bar{a}\bar{b}\bar{c}$$

EQUALS

$$ab + a\bar{c} + \bar{b}\bar{c} + cb$$

(d)

a

$L \mid abc$

c

$L \mid c\bar{a}$

$\bar{a}bc$

$a \mid ab\bar{c}$

$\bar{a}b$

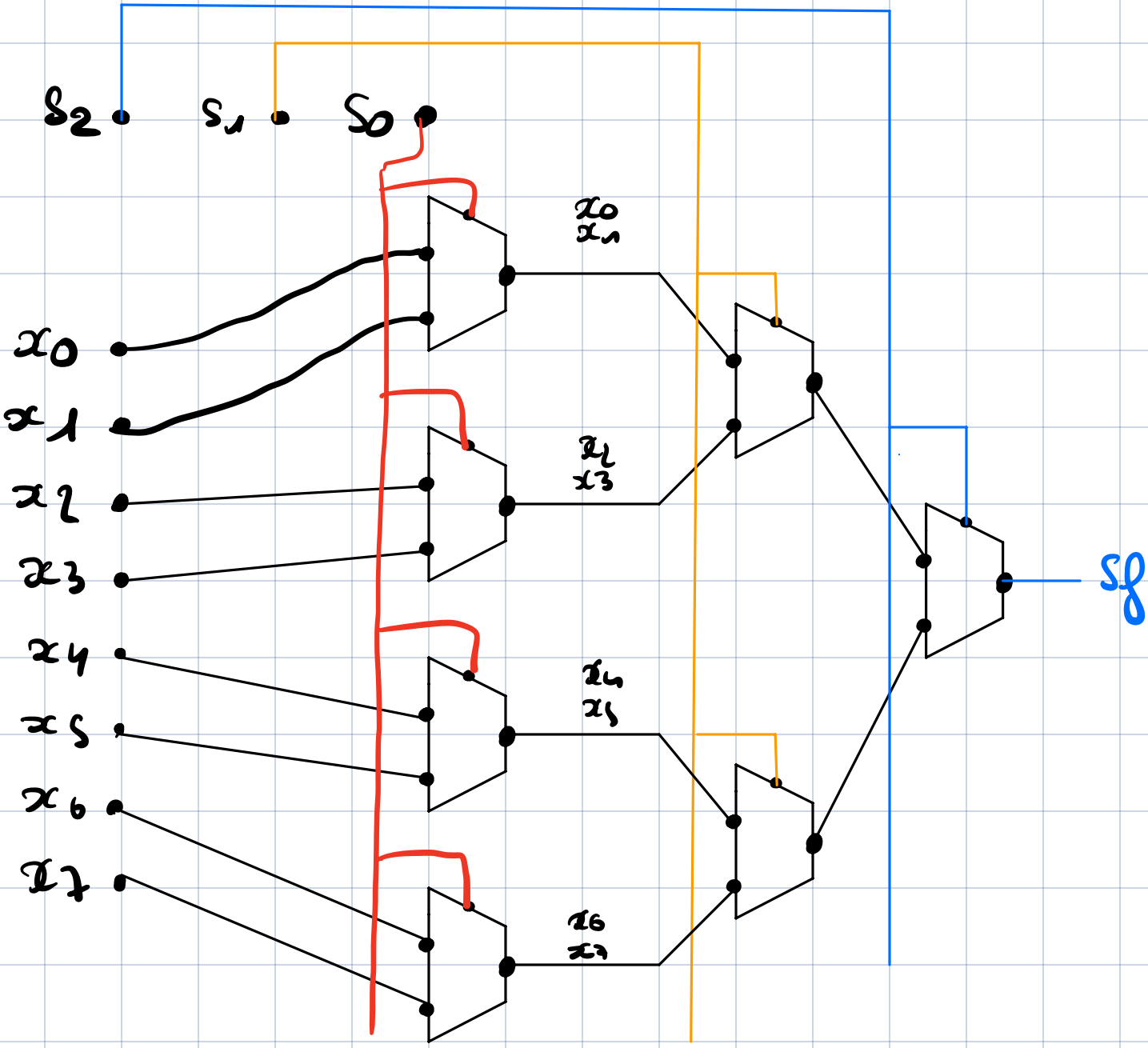
$\bar{a}bc$

$\bar{a}b\bar{c}$ not equals

Exercise 15

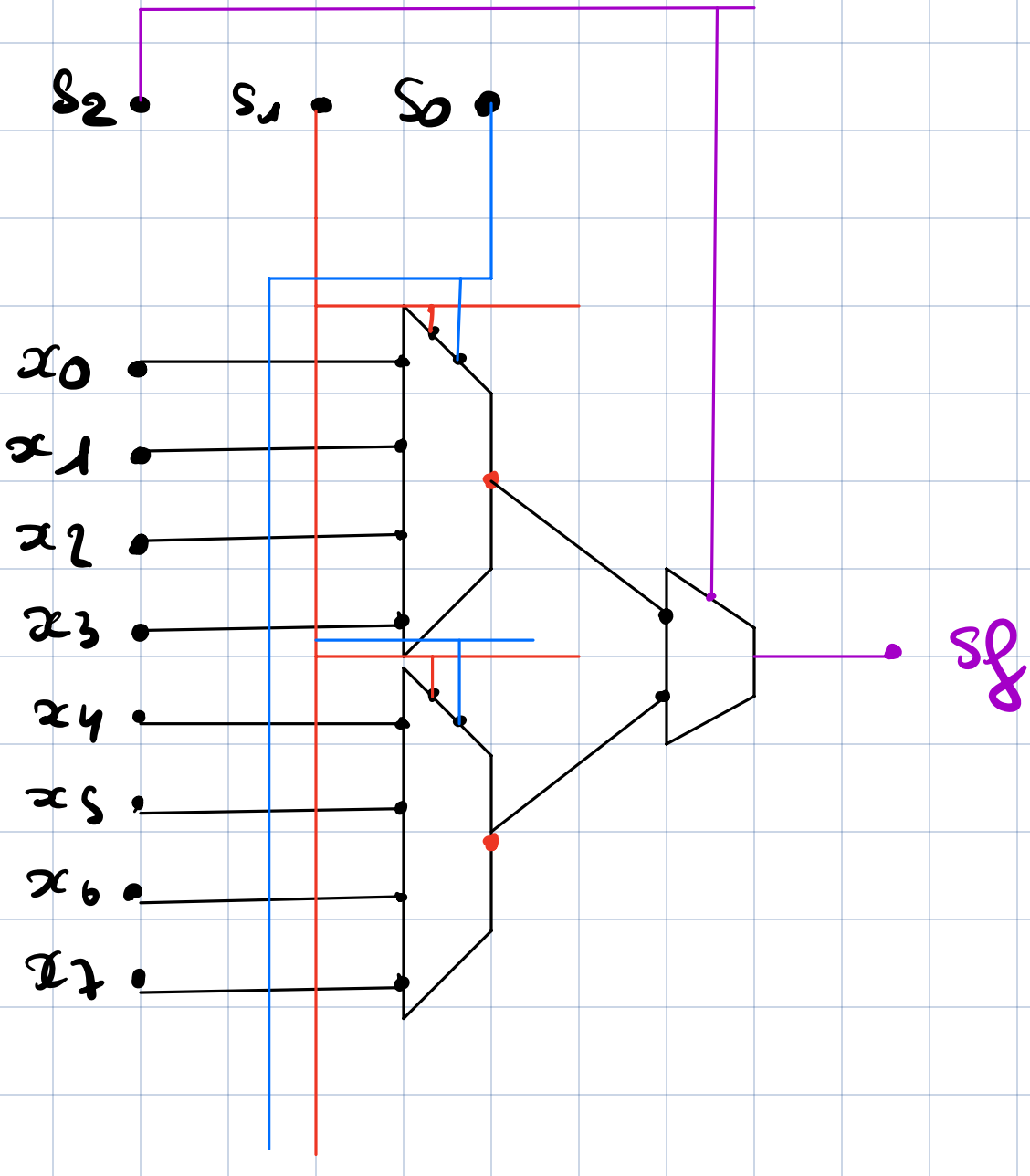
000	0
001	1
010	2
011	3
100	4
101	5
110	6
111	7

(a)



b)

000	0
001	1
010	2
011	3
100	4
101	5
110	6
111	7



Exercise 12

(i)

w	x	y	z	a	b	c	d	e	f	g
0	0	0	0	1	1	1	1	1	1	0
0	0	0	1	0	1	1	0	0	0	0
0	0	1	0	1	1	0	1	1	0	1
0	0	1	1	1	1	1	1	0	0	1
0	1	0	0	0	1	1	0	0	1	1
0	1	0	1	1	0	1	1	0	1	1
0	1	1	0	1	0	1	1	1	1	1
0	1	1	1	1	1	1	0	0	0	0
1	0	0	0	1	1	1	1	1	1	1
1	0	0	1	1	1	1	1	0	1	1

(ii)

$$a = \bar{w}\bar{x}\bar{y}\bar{z} + \bar{w}\bar{x}yz + \bar{w}\bar{x}yz + \bar{w}x\bar{y}z + \bar{w}xy\bar{z} + \bar{w}xyz + w\bar{x}\bar{y}z + w\bar{x}yz$$

$$= \bar{w}\bar{x}\bar{z} + \bar{w}xz + w\bar{x}\bar{y} + \bar{w}\bar{x}yz + wxyz$$

$$= \bar{w}\bar{x} + \bar{w}xz + w\bar{x}\bar{y} + wxyz$$

b $$= \bar{w}\bar{x}\bar{y}\bar{z} + \bar{w}\bar{x}\bar{y}z + \bar{w}\bar{x}yz + \bar{w}\bar{x}yz + \bar{w}xy\bar{z} + \bar{w}xyz + w\bar{x}\bar{y}z + w\bar{x}\bar{y}z$$

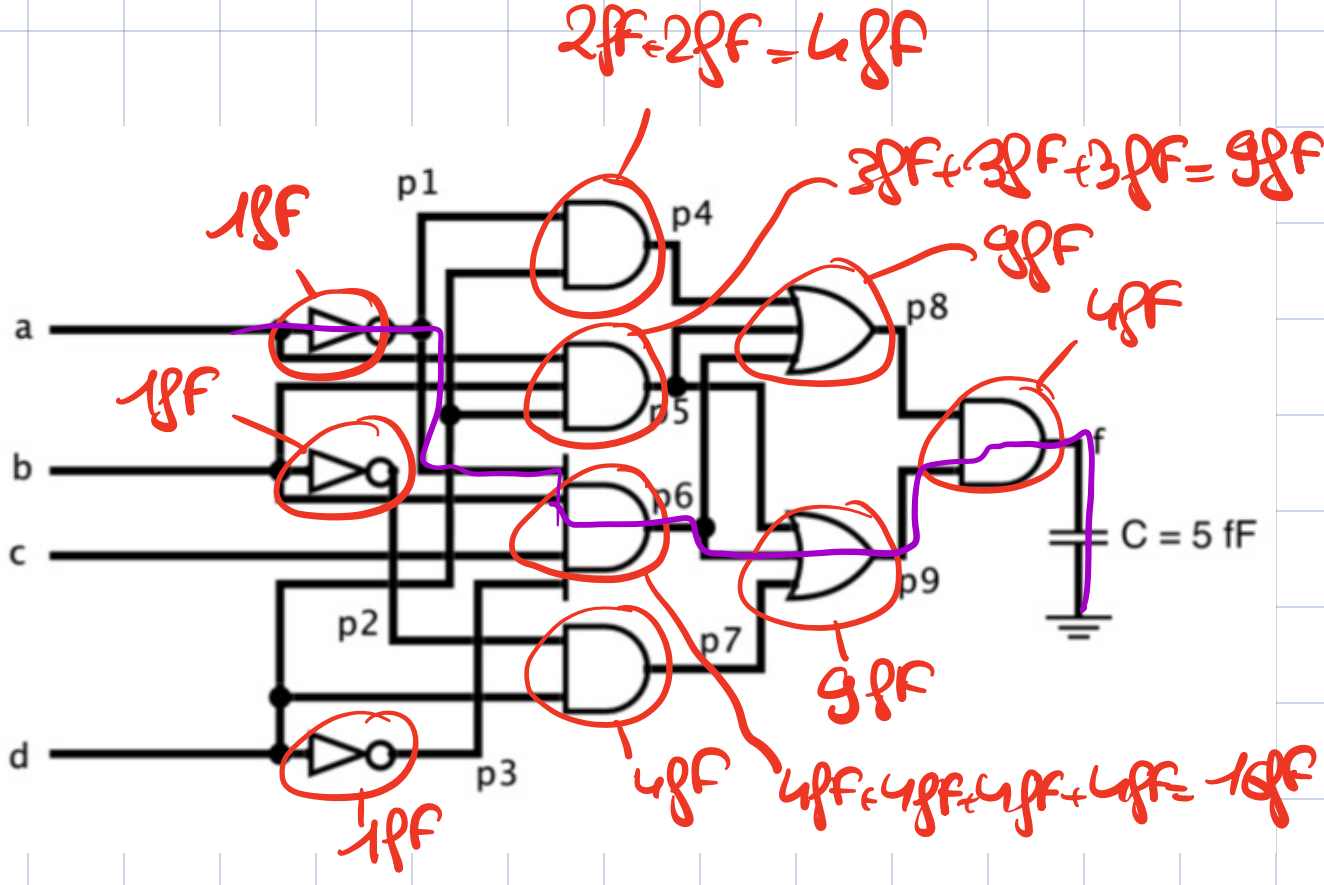
$$= \bar{w}\bar{x} + w\bar{x}\bar{y} + \bar{w}xy\bar{z} + \bar{w}xyz$$

$$= \bar{w}\bar{x} + w\bar{x}\bar{y} + \bar{w}\bar{y}z + \bar{w}yz$$

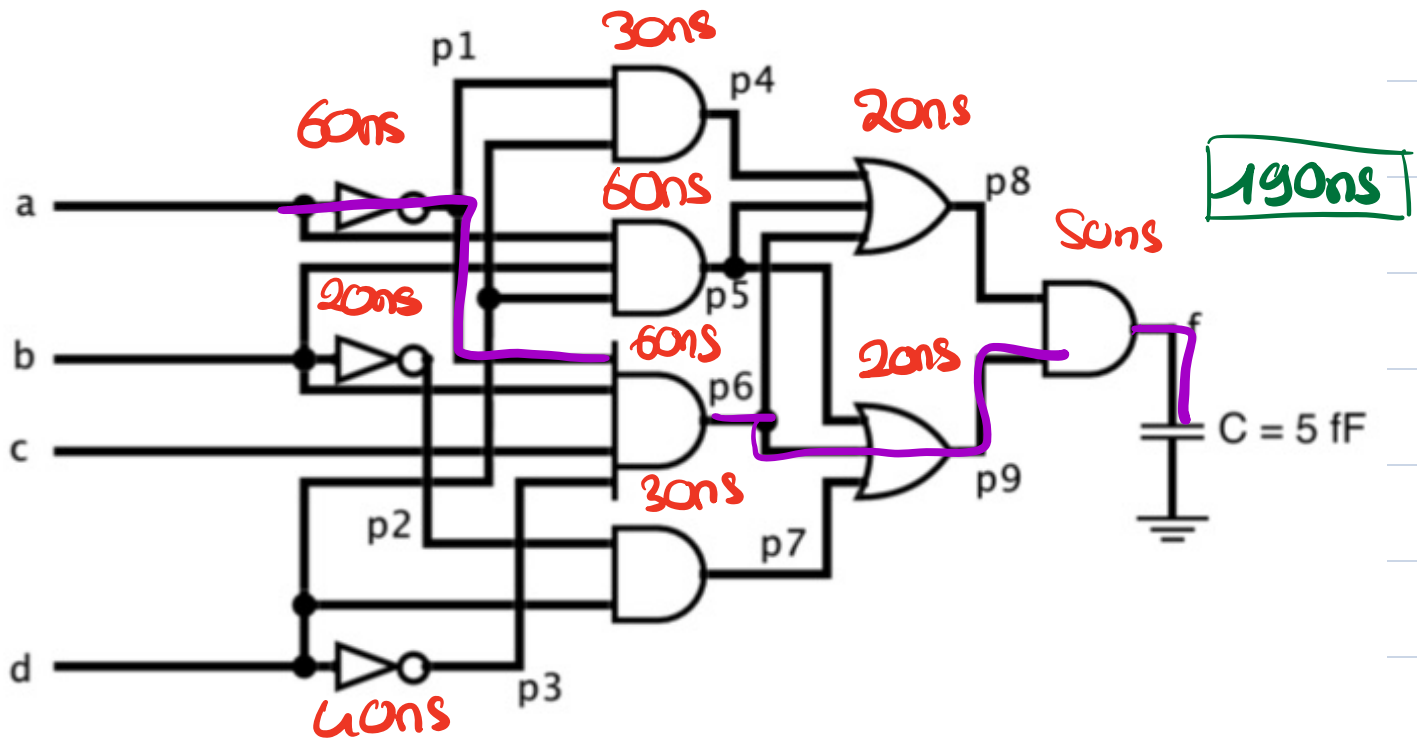
$$= \bar{w}\bar{x} + \bar{x}\bar{y} + \bar{w}\bar{y}z + \bar{w}yz$$

Exercice 17

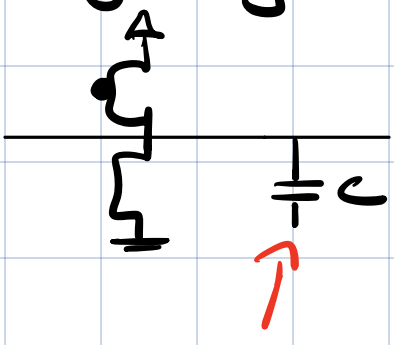
(a)



pour compter (+) simplement, on peut compter uniquement les inputs

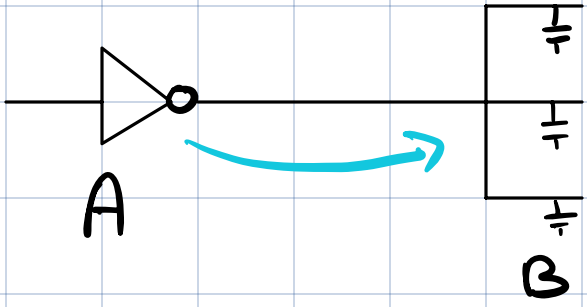


Simple logic gate:



$C_{in_2} = C_{load_1}$

Complex logic gate:



time it takes for the signal to from A to B depends on how many cap. you need to charge