

2      10

8

0-7

16

xx

$0 \times 10$

$10_{16}$

$0 \times 00$

$0 \times ff$

↓

$1 \times 16^1 + 0 \times 16^0$

$10_{10}$

⇒

$A_{16}$

8	21	84	1
10	11	11	01

$15_{10}$

⇒

$F_{16}$

$0 \times b \quad d$

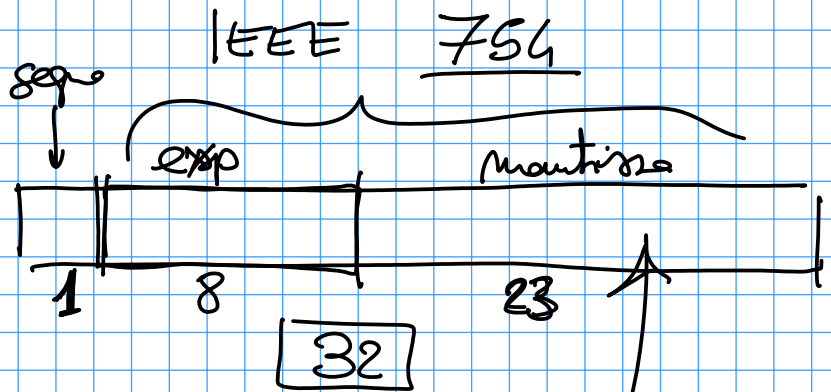
# Virgole mobile

$$+ 1.2 \cdot 10^0$$

$$\equiv \frac{1}{10^0}$$

$$1.2 E 2$$

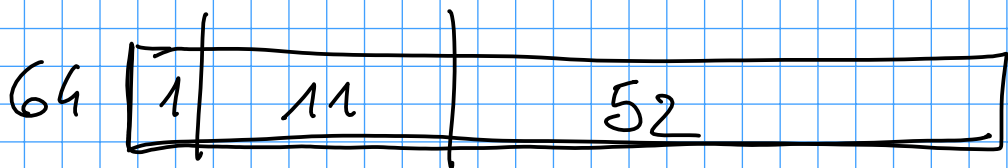
$$120$$



$$1. \underline{01110000}$$

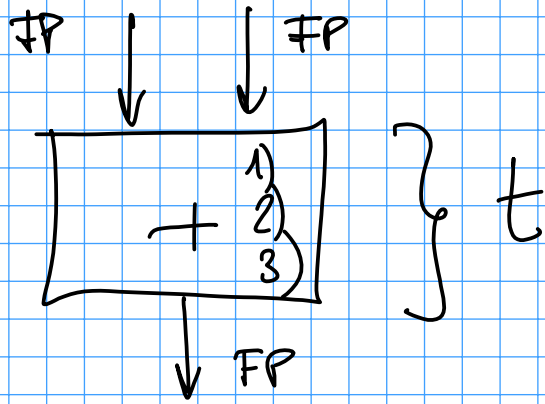
$$0.000123 \quad \quad \quad 123000$$

8 bit [0, 255]  
- 127

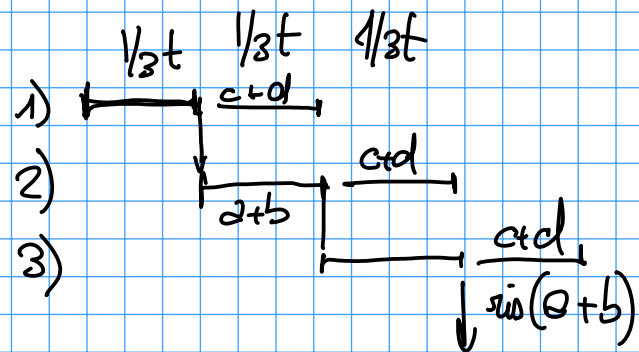
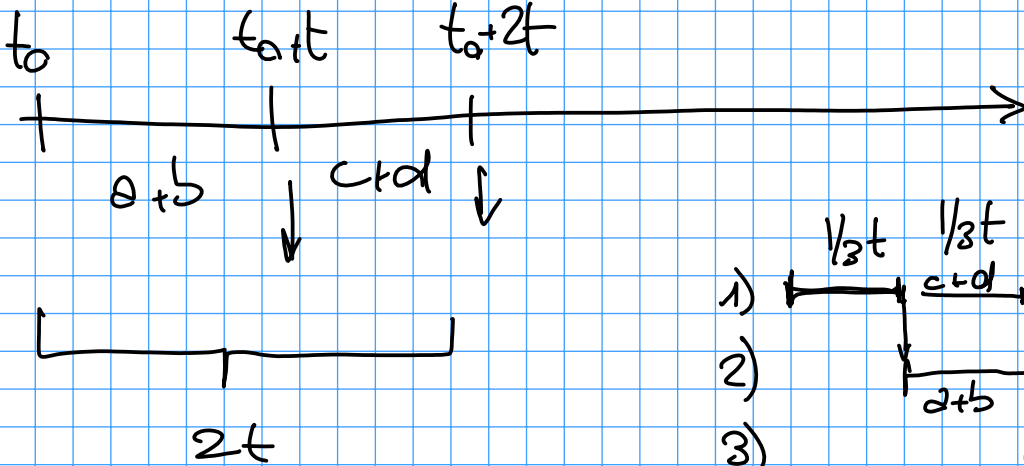
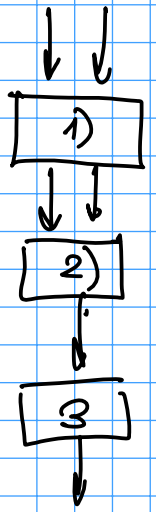


$$\begin{array}{r} 1.23 + 0.01 \\ \hline 1.24 \end{array} \quad \quad \quad \begin{array}{r} + 1.23 E 0 \\ + 1.00 E -2 \\ \hline \end{array}$$

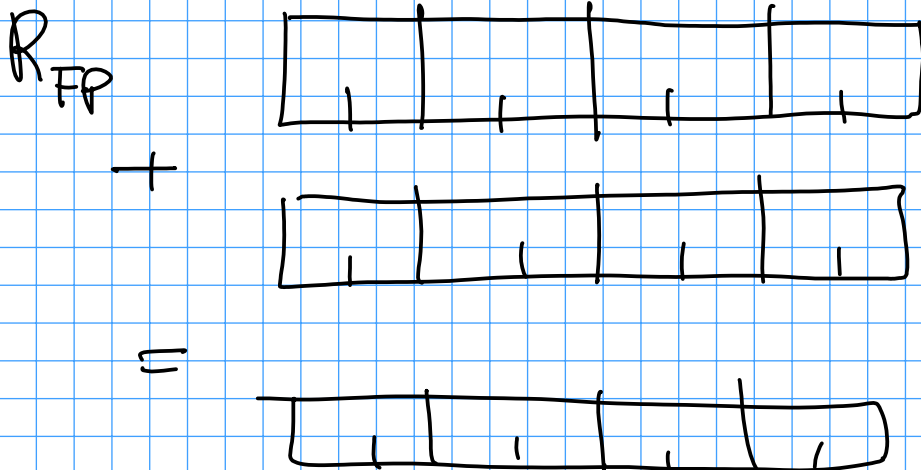
- 1) allineare mantisse
- 2) somma
- 3) normalizzare lo scatto



- 1)  $\frac{1}{3}t$
- 2)  $\frac{1}{3}t$
- 3)  $\frac{1}{3}t$



Elementari VETTORIALI  
64

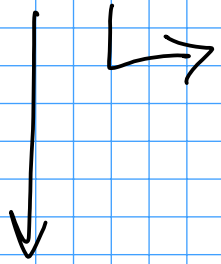


SSE

AVX

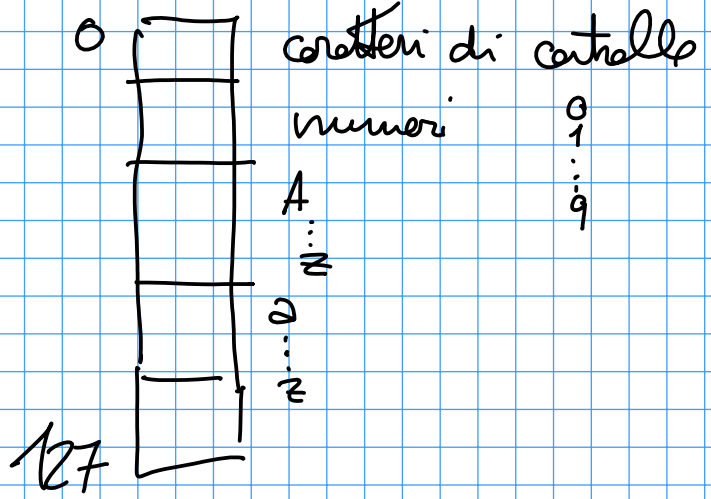
$$\begin{array}{r}
 512 \text{ bit } 2^9 \\
 64 \uparrow \\
 8 \times \uparrow \\
 \hline
 2^3
 \end{array}$$

ASCII



7 bit

8 bit



16 x quella esteso

char

(int)

$$\text{val} = (\text{int}) c - 'a'$$



40px2cn

~~40~~ px 2 cn

# PORTE LOGICHE

AND

OR

NOT

$X_1$	$X_2$	$Z$
0	0	0
0	1	0
1	0	0
1	1	1

TABELLA di VERITÀ

OR

$X_1$	$X_2$	$Z$
0	0	0
0	1	1
1	0	1
1	1	1

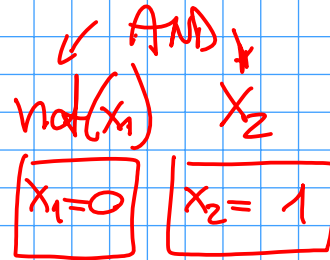
NOT

$x_1$	$Z$
0	1
1	0

$X_1 X_2$	$\text{not}(X_1)$	$X_2$	AND
00	1	0	0
01	1	1	1
10	0	0	0
11	0	1	0

$X_1$	$X_2$	$Z$
0	0	0
0	1	1
1	0	1
1	1	0

è 1 quando



è 1 quando

$X_1=1$      $X_2=0$

$X_1 \text{ AND } (\text{not}(X_2))$

OR (dati semmai AND quanti sono gli 1 nelle z)

vediamo degli AND:

se l'ingresso  $X_i$  vale 0  $\rightarrow \text{not}(X_i)$   
 " " " " 1  $\rightarrow X_i$

XOR

$X_1$	$X_2$	$Z$
0	0	0
0	1	1
1	0	1
1	1	0

NAND

$X_1$	$X_2$	$Z$
0	0	1
0	1	1
1	0	1
1	1	0

(TTL CMOS)

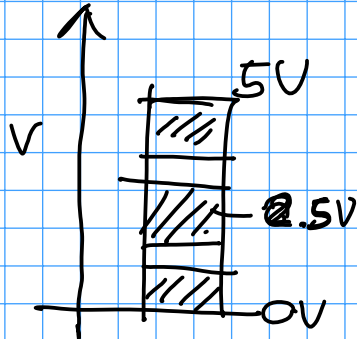
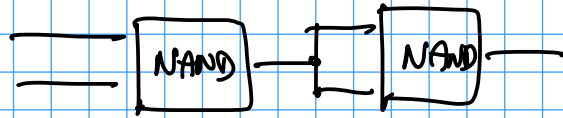
0V  
5V

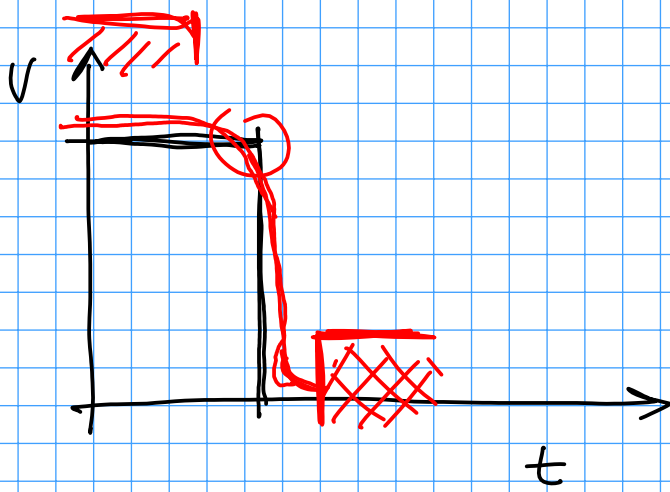
0  
1

NOT



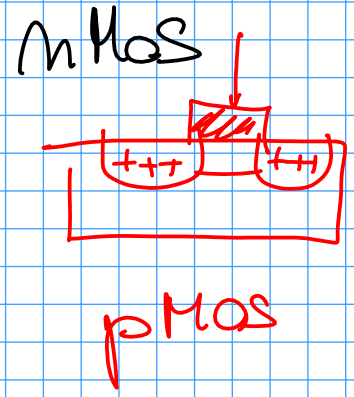
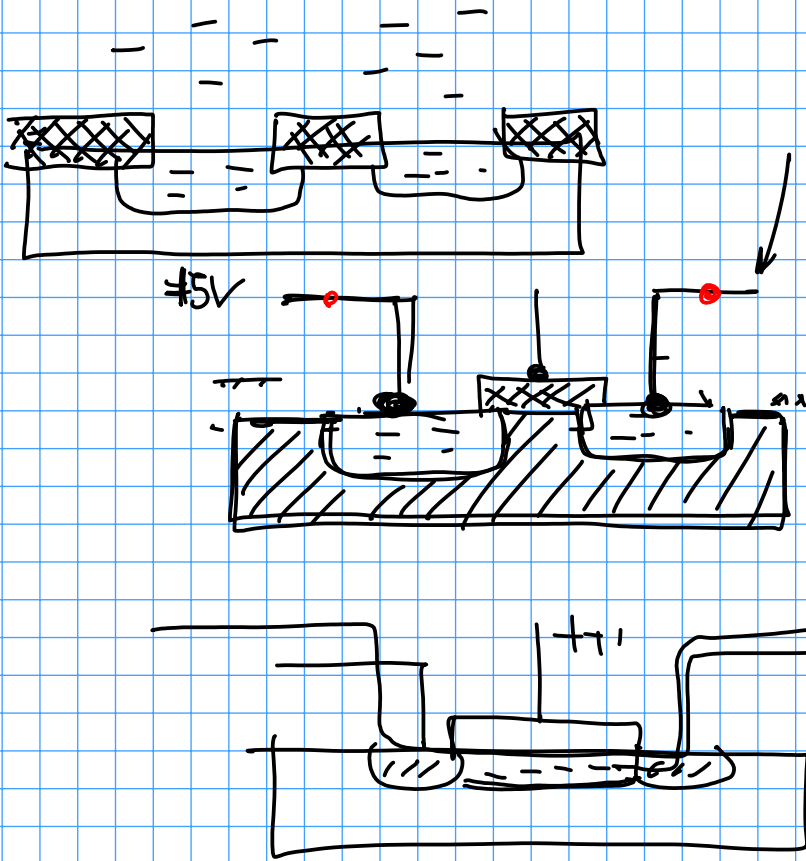
AND



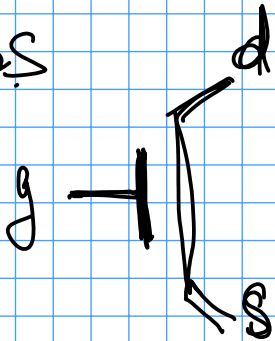


Semiconduttori

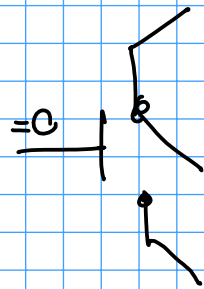
CMOS



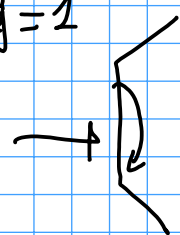
NMOS



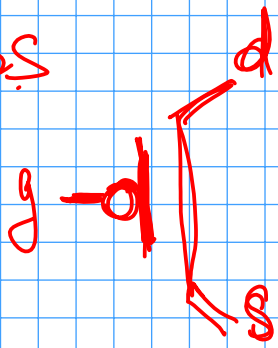
$g=0$



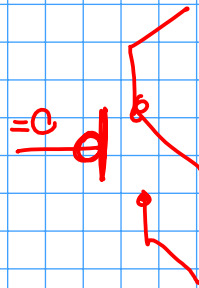
$g=1$



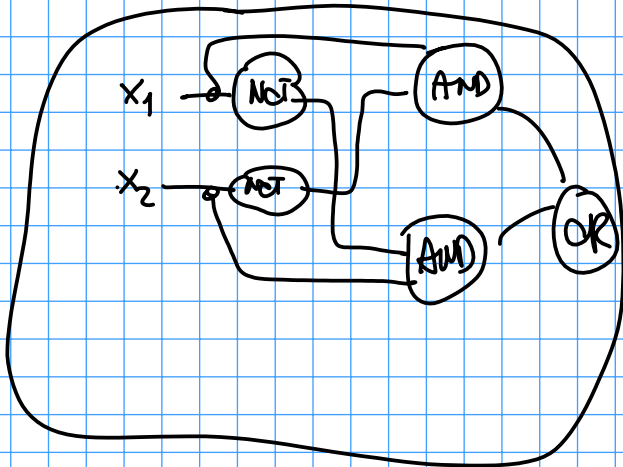
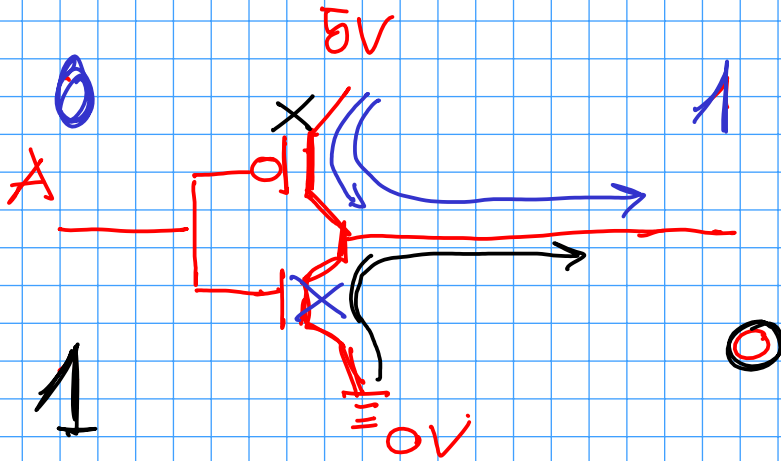
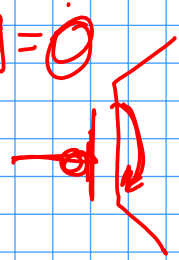
pMOS



$g=1$



$g=0$



$$\frac{1}{2} C V^2 f$$

↑  
GHz



