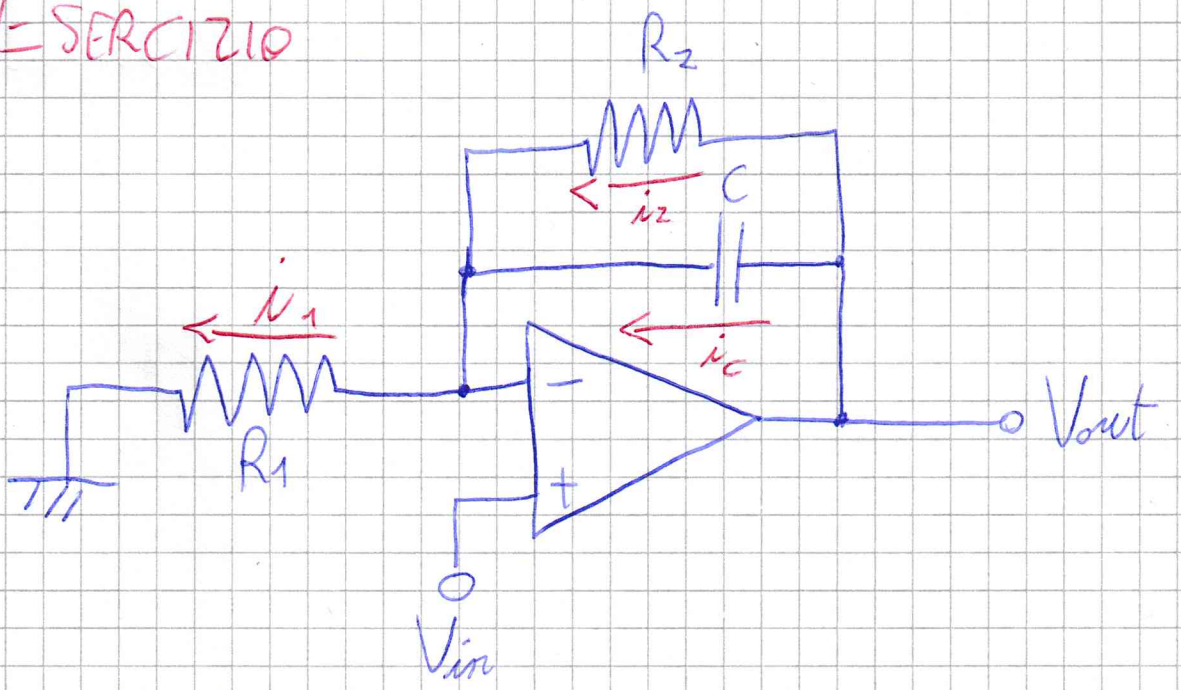
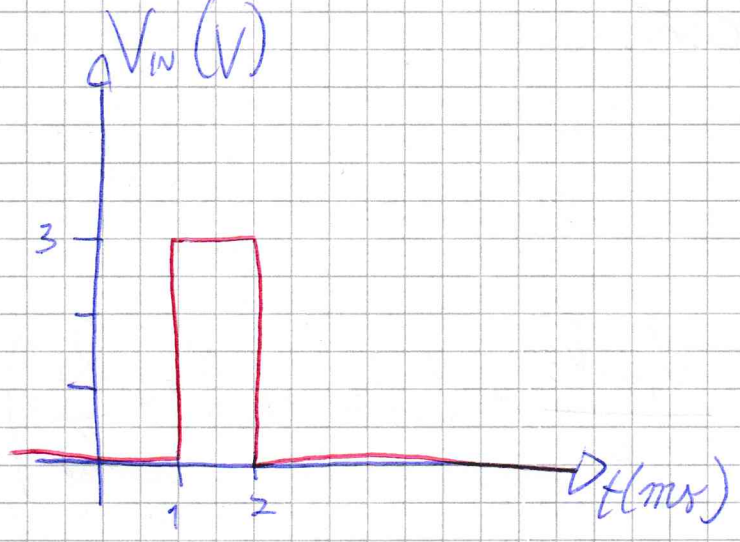
ESERCIZIO



$L^+ = |L^-| = 10V$

~~$R_1 = R_2$~~ $R_1 = 6K\Omega$ $R_2 = 4K\Omega$ $C = 50nF$



$$\begin{cases} V^- = V_{IN} \\ V^- = i_1 R_1 = V_{IN} \\ V_{out} - V^- = i_2 R_2 \\ V_{out} - V^- = V_C \\ i_1 = i_2 + i_C \end{cases}$$

$$V_C = i_2 R_2$$

$$\rightarrow V_{out} = i_2 R_2 + V^- =$$

$$V_{out} = V_C + V_{IN}$$

$t = 1^-$

$V_{IN} = 0V$

$V_C = 0V$

$V_{out} = 0V$

$t = 2^+$

$V_{IN} = 0V \qquad V_C = 0V \qquad V_{out} = 0V$

$t = 1^+ \qquad C$ in c.c.

$i_1 = i_2$

$i_1 = \frac{V_{IN}}{R_1}$

$V_{out} = i_2 R_2 + V_{IN} = \frac{V_{IN} R_2}{R_1} + V_{IN} = V_{IN}\left(1 + \frac{R_2}{R_1}\right) =$

$= 3\left(1 + \frac{4}{6}\right) = 3\left(\frac{3+2}{3}\right) = 5V$

$\tau = CR_2 = 50 \cdot 10^{-9} \cdot 4 \cdot 10^3 = 200 \cdot 10^{-6} = 0{,}2 ms$


V_{out} (V)
5
4
3
2
1
1
2
3
4
t (ms)