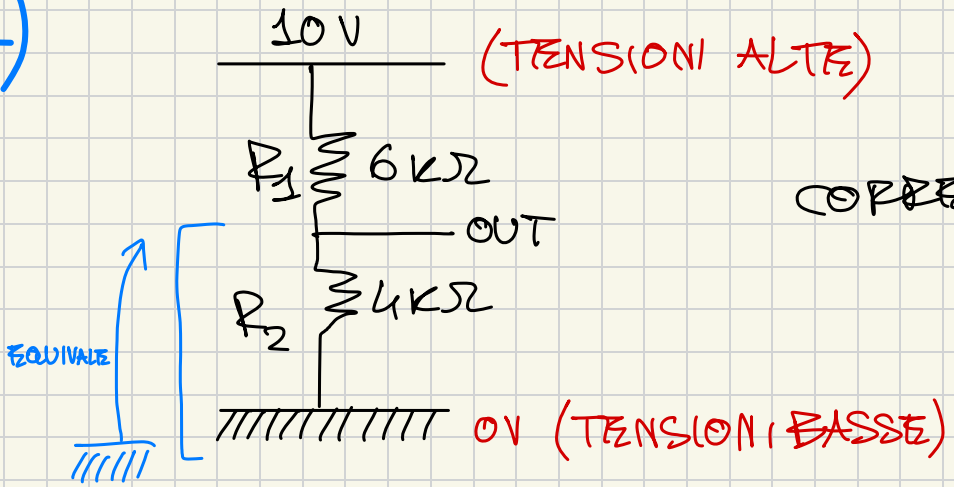
FONDAMENTI DI ELETTRONICA: ESERCITAZIONE

15/09/2020

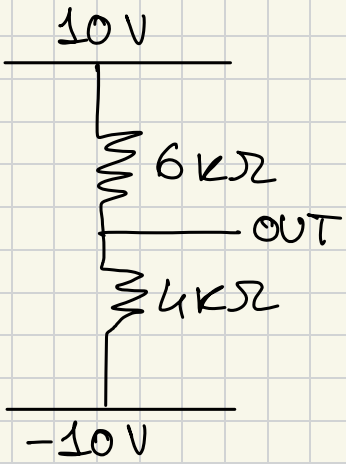
(IVAN RECH)

1)



CORRENTE: SIMILITUDINE ACQUA

$$V_{R_2} = V_{OUT} = \underbrace{\Delta V}_{10\,V} \frac{R_2}{R_1+R_2} = 4\,V$$



$$V_{R_2} = V_{OUT} = \underbrace{\Delta V}_{20\,V} \frac{R_2}{R_1+R_2} = 8\,V$$

("CADUTA TOTALE")

MA MEL'HANNO CHIESTO RISPETTO A MASSA!

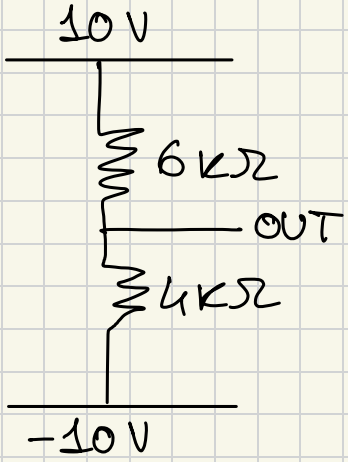
QUINDI: $-10+8=-2\,V$

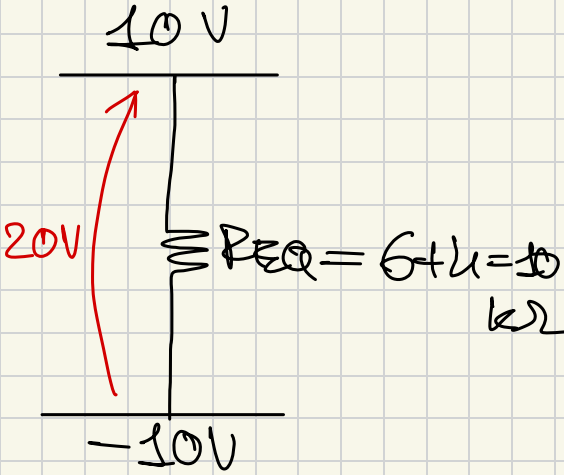
VERIFICHIAMOLO:

$$V_{R_1} = \Delta V \frac{R_1}{R_1+R_2} = 12\,V \Rightarrow 10-12=-2\,V$$

LEGGE DI OHM:

$$V = RI \Rightarrow I = \frac{V}{R}$$

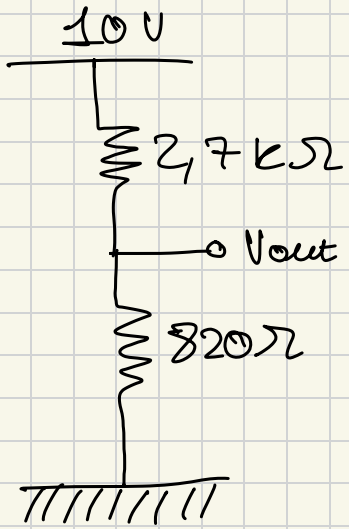




$\Rightarrow I = 2\,mA \Rightarrow V_{R_2} = I \cdot R_2 = 8\,V$

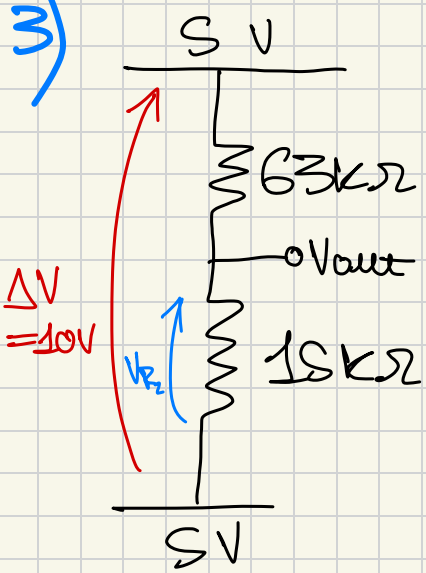
(PARTENDO DA TERRA, RITROVIAMO $-2\,V$)

2)



COME PRIMA: $V_{out} = 2,32\,V$

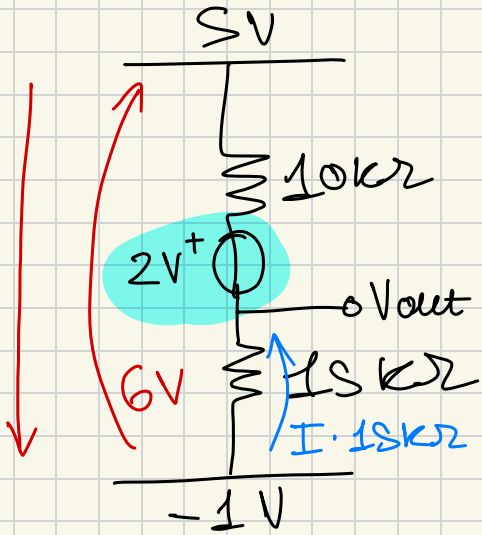
3)



$$V_{R_2} = \Delta V \cdot \frac{R_2}{R_1 + R_2} = 10\,V \cdot \frac{1\,k\Omega}{1\,k\Omega + 63\,k\Omega}$$

$$V_{out} = -5\,V + V_{R_2} = -3,08\,V$$

4)



APPLICHIAMO IL RAGIONAMENTO DI PRIMA:

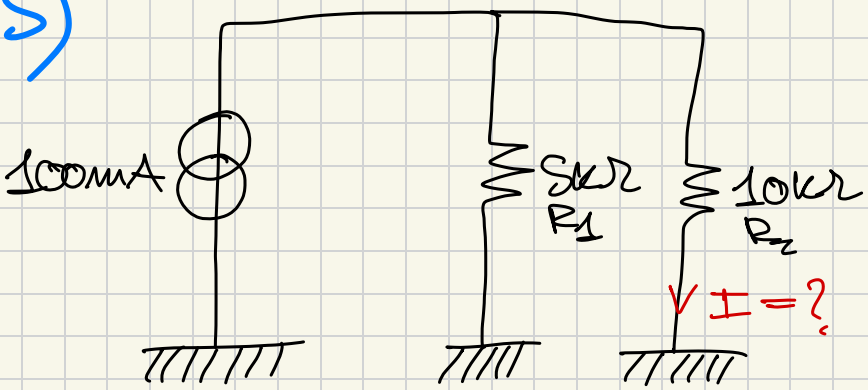
$V = RI$

HO 4 V CHE CADONO SULLE RESISTENZE $(6 - 2) = 4\,V$

$$I = \frac{4\,V}{R_1 + R_2}$$

$$V_{out} = -1\,V + V_{R_2} = -1\,V + I \cdot R_2$$

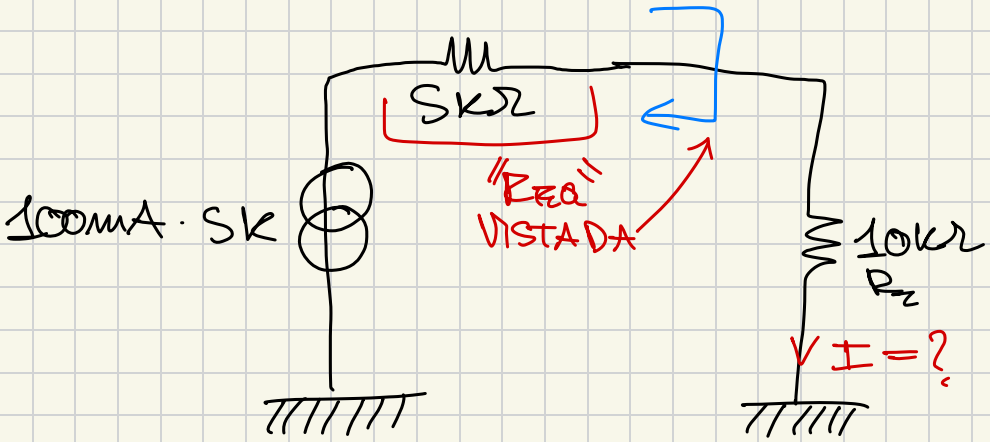
5)



PARTITORE DI CORRENTE:

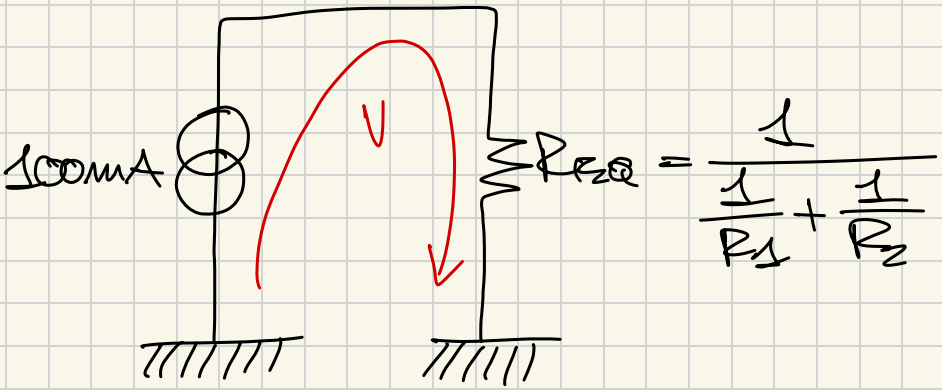
$$I_2 = I_{TOT}\,\frac{R_1}{R_1+R_2}$$

VEDIAMO EQ. THEVENIN–NORTON:



COME PRIMA, $I_2 = I_{TOT}\,\frac{R_1}{R_1+R_2}$

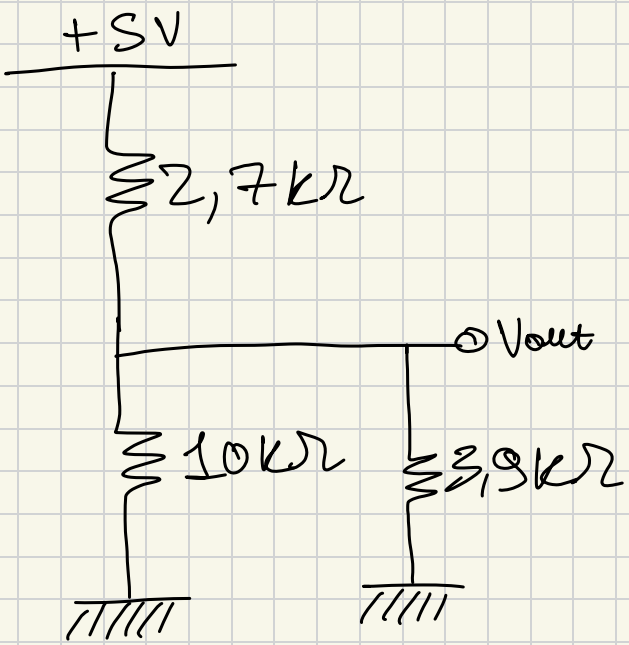
OPPURE



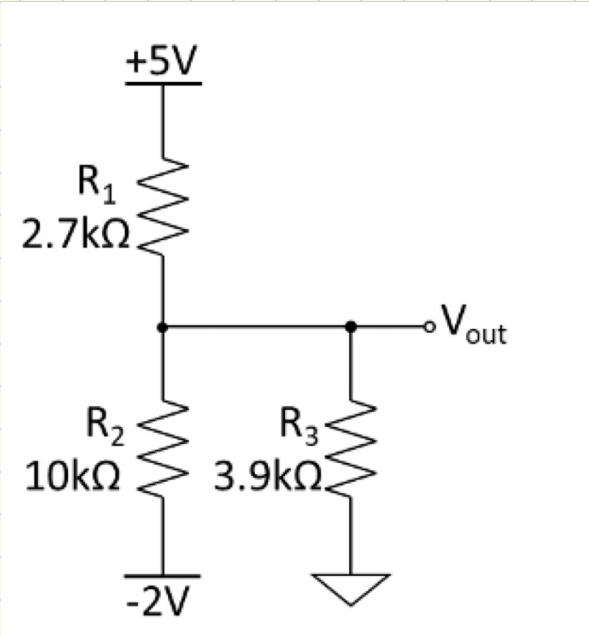
$$R_{EQ} = \frac{1}{\frac{1}{R_1}+\frac{1}{R_2}}$$

HO LA V (CHE È ANCHE QUELLA CHE CADE SU R_1 E R_2)

PER CASA:



E INVECE?



VA USATO IL PRINC. DI SOVRAPP. DEGLI EFFETTI