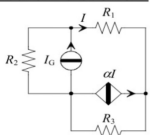


Esercizio svolto 1



Dati:
 $R_1 = 4\Omega$ $R_2 = 3\Omega$ $R_3 = 1\Omega$ $I_g = 4A$ $\alpha = 2$

Determinare la corrente I e le potenze rispettivamente erogate dal generatore I_g e dal generatore αI .

DATI

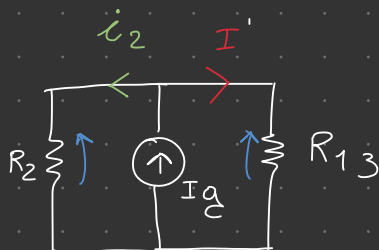
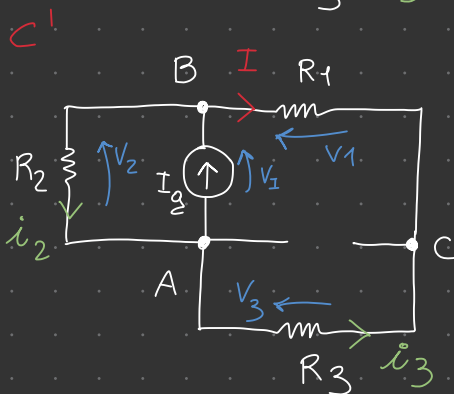
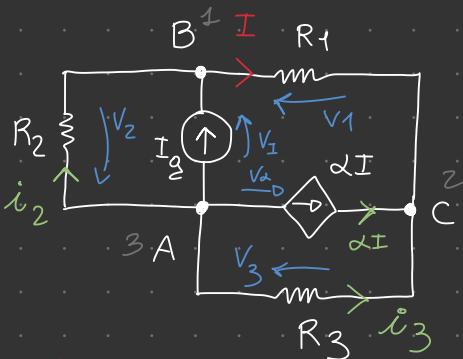
$$R_1 = 4\Omega \quad A$$

$$R_2 = 3\Omega \quad B$$

$$R_3 = 1\Omega \quad C$$

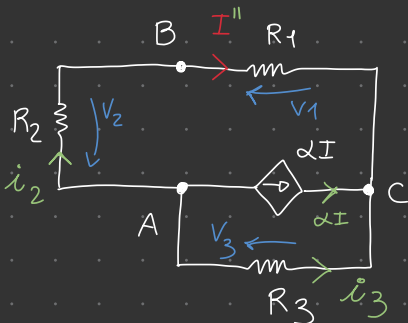
$$I_g = 4A \quad X$$

$$\alpha = 2$$



$$R_{13} = R_1 + R_3$$

$$\rightarrow I' = I_g \cdot \frac{R_2}{R_2 + R_{13}} = 1.5A \quad I'$$



$$I'' = -\alpha I \cdot \frac{R_3}{R_3 + R_1 + R_2} = -\frac{1}{4} I \quad I''$$

$$\Rightarrow I = I' + I'' = \frac{3}{2} - \frac{1}{4} I$$

$$\rightarrow \text{Eq di 1° grado} \rightarrow I + \frac{1}{4} I = \frac{3}{2} \Rightarrow \frac{5}{4} I = \frac{3}{2} \Rightarrow I = \frac{3}{2} \cdot \frac{4}{5} = \frac{6}{5} = 1.2A$$

$$\rightarrow I = \frac{3}{10} I$$

$$\Rightarrow 2I = 2 \cdot \frac{3}{10} = \frac{3}{5} 2I$$

Per Trovare le potenze mi servono V_2 e V_I

$$-V_I + V_1 + V_2 = 0 \quad \Rightarrow \quad V_I = R_1 I + V_2$$

LKC

$$A: \begin{cases} i_2 + \underline{I_2} + \underline{2I} + i_3 = 0 \end{cases}$$

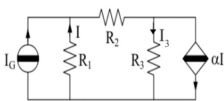
$$B: \begin{cases} \underline{I} - i_2 - \underline{I_2} = 0 \Rightarrow i_2 = I - I_2 = -3.7A \end{cases} \quad i_2$$

$$C: \begin{cases} \underline{-I} - \underline{2I} - i_3 = 0 \Rightarrow I_3 = -I - 2I = -4.3A \end{cases} \quad i_3$$

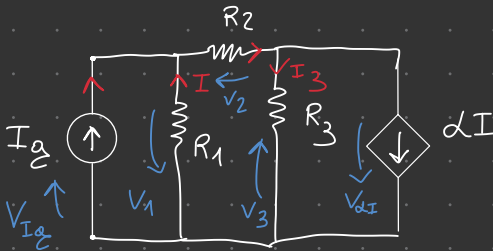
Verifica

$$-3.7 + 4 + \frac{3}{5} - 4.3 =$$

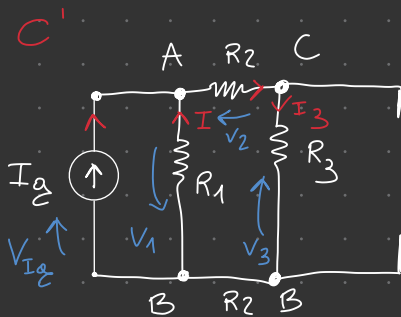
Esercizio svolto 2



Dati:
 $R_1 = 5\Omega$ $R_2 = 1\Omega$ $R_3 = 2\Omega$ $I_G = 2A$ $\alpha = 3$
 A B C X
 Determinare la corrente I e le potenze generate da I_G e αI .

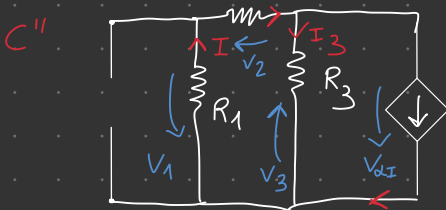


$Q_1: I$
 $Q_2: I_G, \alpha I$ Pow?



$$I' = -I_G \cdot \frac{R_{23}}{R_{23} + R_1} = -\frac{3}{4}A$$

$$R_{AB} = R_1 \parallel R_2 + R_3 = 1.275\Omega$$



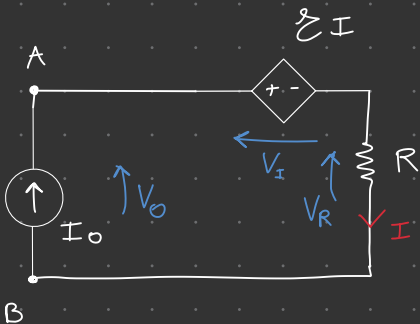
$$I'' = \alpha I \cdot \frac{R_3}{R_3 + R_{12}} = \frac{2I}{4} = \frac{3}{4}I$$

$$R_{BC} = R_3 \parallel R_2 + R_1 = 1.5\Omega$$

$$\Rightarrow I = I' + I'' = -\frac{3}{4} + \frac{3}{4}I = 0 \quad \frac{3}{4}I - I = \frac{3}{4} = 0$$

$$-\frac{1}{4}I = \frac{3}{4} = 0 \quad I = -3A \quad \text{ANS 1}$$

$$\Rightarrow \alpha I = -9A$$



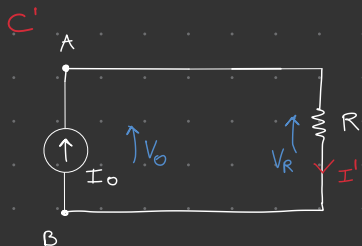
DATI
Noti: I_0, R, E

Metodo LKT

$$I = I_0$$

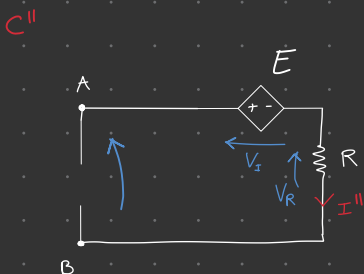
$$-V_0 + V_I + V_R = 0 \Rightarrow V_0 = E I + R \cdot I = I_0 (E + R) \quad \text{Ans}$$

Metodo Sovrapposizione



$$I = I_0$$

$$V_0 = I_0 \cdot R \quad V_{AB}'$$



Considero il gen Dip come INCONNITA

$$I'' = 0$$

$$V_{AB}'' = E$$

$$\Rightarrow I = I' + I'' = I_0 + 0 = I_0 \quad I$$

$$\text{ma } E = E I = E I_0 \quad V_{AB}''$$

$$\Rightarrow V_{AB} = V_{AB}' + V_{AB}'' = I_0 R + E I_0 = I_0 (E + R) \quad \text{Ans}$$

