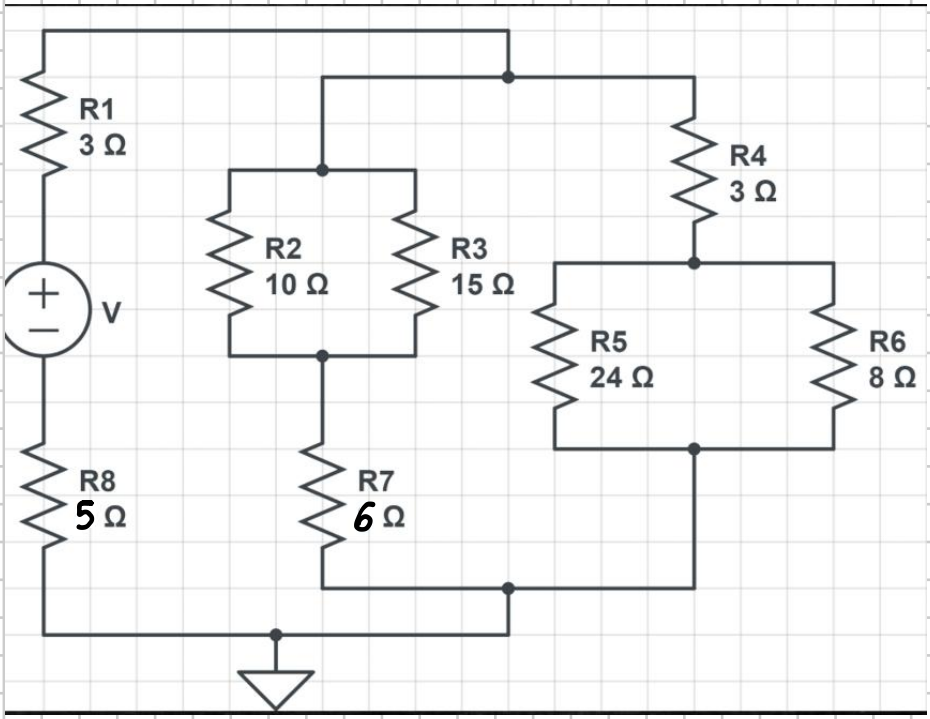
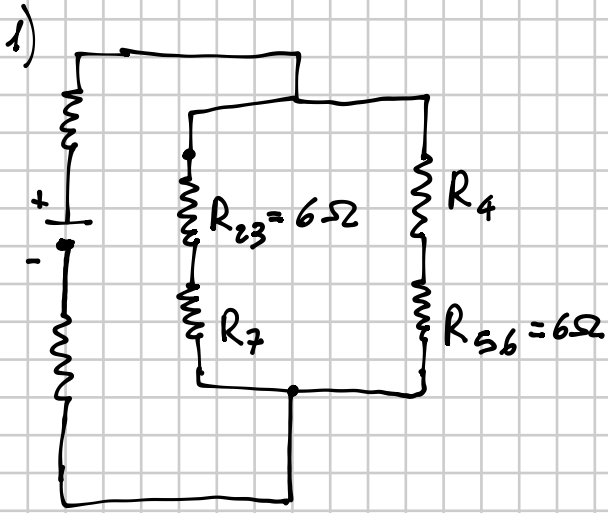


CALCOLARE LA RESISTENZA EQUIVALENTE DEL CIRCUITO

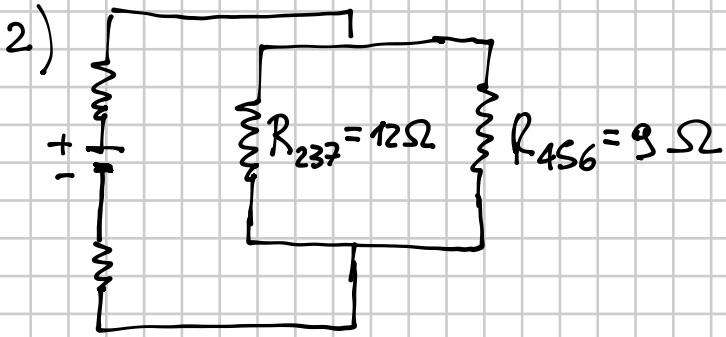
1)



$$R_{23} = \frac{10 \cdot 15}{10+15}\,\Omega = \frac{150}{25}\,\Omega = 6\,\Omega$$

$$R_{56} = \frac{24 \cdot 8}{24+8}\,\Omega = \frac{\overset{6}{\cancel{24}} \cdot 8}{\underset{1}{\cancel{32}_4}} = 6\,\Omega$$

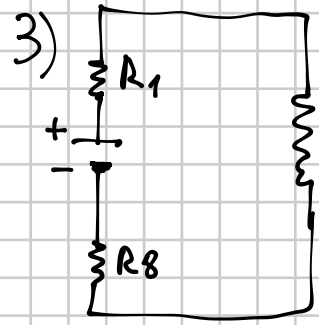
2)



$$R_{237} = 6\,\Omega + 6\,\Omega = 12\,\Omega$$

$$R_{456} = 6\,\Omega + 3\,\Omega = 9\,\Omega$$

3)

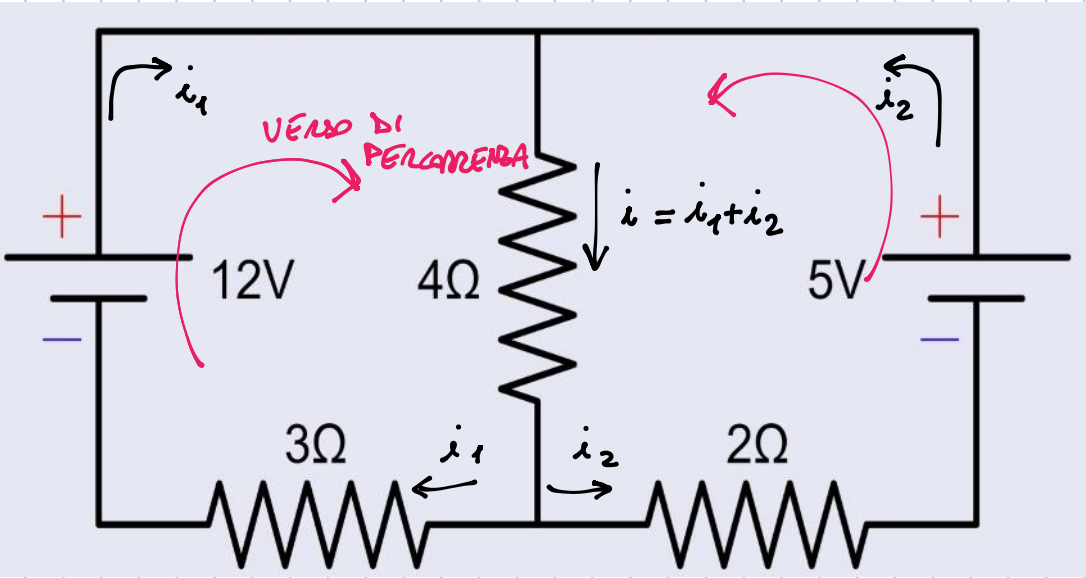


$$R = \frac{12 \cdot 9}{12+9}\,\Omega = \frac{12 \cdot \overset{3}{\cancel{9}}}{\underset{7}{\cancel{21}}}\,\Omega = \frac{36}{7}\,\Omega$$

$$R_{eq} = R_1 + R + R_8 = 3\,\Omega + \frac{36}{7}\,\Omega + 5\,\Omega =$$

$$= 8\,\Omega + \frac{35}{7}\,\Omega + \frac{1}{7}\,\Omega = 13\,\Omega + \frac{1}{7}\,\Omega =$$

$$= 13{,}142\ldots\,\Omega \simeq 13\,\Omega$$



CALCOLARE LE CORRENTI i, i_1, i_2

$$\begin{cases} i = i_1 + i_2 \\ 12V - (4\Omega)i - (3\Omega)i_1 = 0 \\ 5V - (4\Omega)i - (2\Omega)i_2 = 0 \end{cases}$$

$$\begin{cases} i = i_1 + i_2 \\ 12 - 4i - 3i_1 = 0 \\ 5 - 4i - 2i_2 = 0 \end{cases}$$

$$\begin{cases} i = i_1 + i_2 \\ 12 - 4(i_1 + i_2) - 3i_1 = 0 \\ 5 - 4(i_1 + i_2) - 2i_2 = 0 \end{cases}$$

$$\begin{cases} // \\ 12 - 4i_1 - 4i_2 - 3i_1 = 0 \\ 5 - 4i_1 - 4i_2 - 2i_2 = 0 \end{cases}$$

$$\begin{cases} // \\ -7i_1 - 4i_2 = -12 \\ -4i_1 - 6i_2 = -5 \end{cases}$$

$$\begin{cases} // \\ 7i_1 + 4i_2 = 12 \\ 4i_1 + 6i_2 = 5 \end{cases}$$

$$\begin{cases} // \\ i_2 = \dfrac{12 - 7i_1}{4} \\ 4i_1 + \dfrac{3}{\cancel{6}} \cdot \dfrac{12 - 7i_1}{\cancel{4}_2} = 5 \end{cases}$$

$$\Downarrow$$

$$8i_1 + 36 - 21i_1 = 10$$

$$-13i_1 = -26$$

$$i_1 = 2\,A$$

$$\begin{cases} i = i_1 + i_2 = 1{,}5\,A \\ i_1 = 2\,A \\ i_2 = \dfrac{12 - 14}{4} = -0{,}5\,A \end{cases}$$

↖ siccome i_2 è negativo, significa che il verso di i_2 è opposto a quello ipotizzato all'inizio