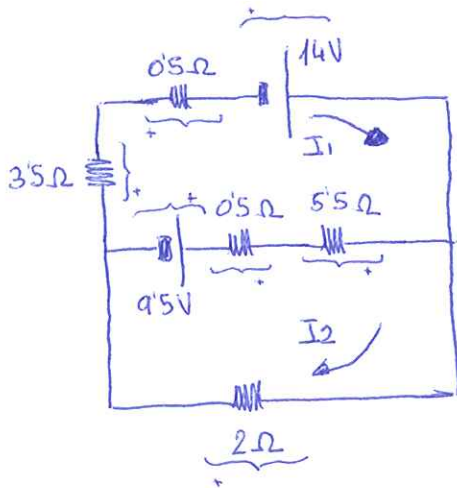


Ejercicio 1



Malla 1

$$3.5I_1 + 0.5I_1 - 14 + (I_1 - I_2) \cdot 5.5 + (I_1 - I_2) \cdot 0.5 + 9.5 = 0$$

$$10I_1 - 6I_2 = 4.5$$

Malla 2

$$9.5 + (I_1 - I_2) \cdot 0.5 + (I_1 - I_2) \cdot 5.5 - 2I_2 = 0$$

$$6I_1 - 8I_2 = -9.5$$

$$80I_1 - 48I_2 = 36$$

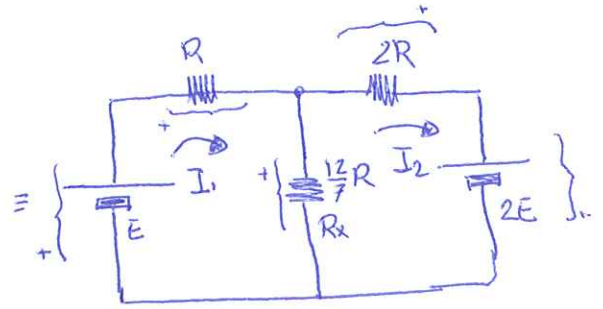
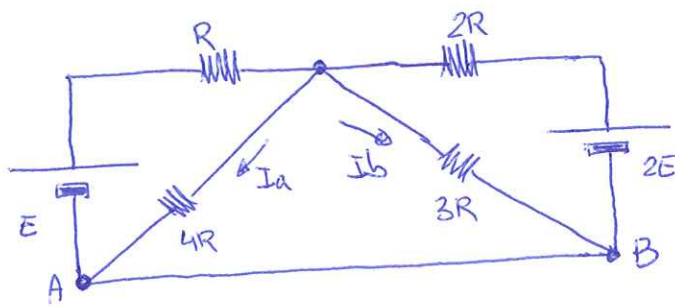
$$-36I_1 + 48I_2 = 57$$

$$\frac{44 \cdot I_1}{44} = \frac{93}{44} \quad I_1 = \frac{93}{44} = 2.114 \text{ A}$$

$$I_2 = \frac{-4.5 + 10I_1}{6} = \frac{-4.5 + 21.14}{6} = 2.778 \text{ A}$$

$$I_1 - I_2 = 2.114 \text{ A} - 2.778 \text{ A} = -0.664 \text{ A}$$

Ejercicio 2



Malla 1

$$RI_1 + \frac{12}{7}R \cdot (I_1 - I_2) = E$$

$$19RI_1 - 12RI_2 = 7E$$

Malla 2

$$\frac{12}{7}R(I_1 - I_2) - 2RI_2 = 2E$$

$$12RI_1 - 26RI_2 = 14E$$

$$228RI_1 - 144RI_2 = 84E$$

$$-228RI_1 + 494RI_2 = -266E$$

$$350RI_2 = -182E \Rightarrow I_2 = -\frac{182 \cdot E}{350R} = -0.13A$$

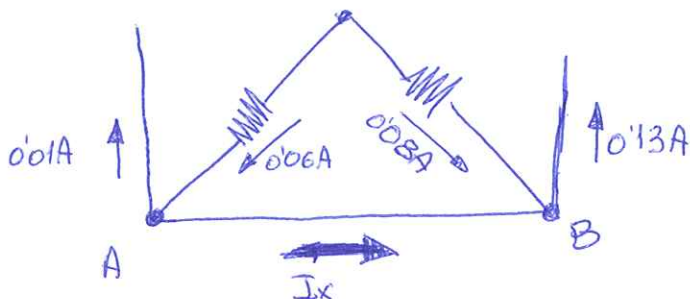
$$I_1 = \frac{14E + 26R \cdot I_2}{12R} = 0.01A$$

Se calcula la tensión en R_x

$$V_{R_x} = \frac{12}{7}R \cdot (I_1 - I_2) = 240V$$

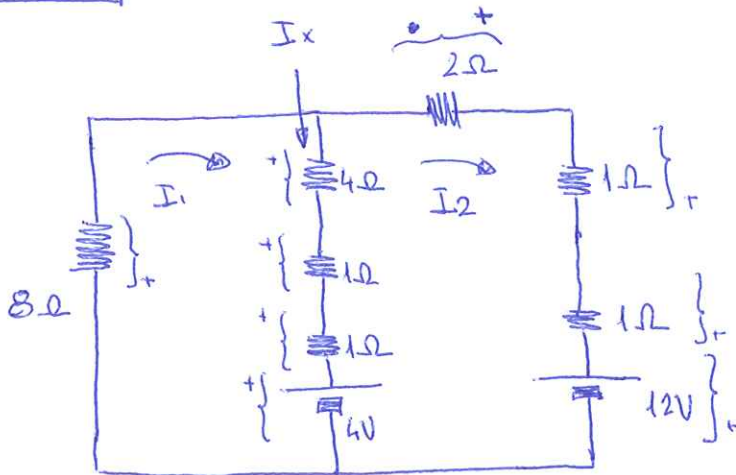
$$I_a = \frac{V_{R_x}}{4R} = \frac{240V}{4000} = 0.06A$$

$$I_b = \frac{V_{R_x}}{3R} = \frac{240V}{3000} = 0.08A$$



$$I_x = 0.06 - 0.01 = 0.05A$$

Ejercicio 3



Malla 1

$$8I_1 + 6(I_1 - I_2) + 4 = 0$$

$$14I_1 - 6I_2 = -4$$

$$7I_1 - 3I_2 = -2$$

Malla 2

$$6(I_1 - I_2) - 4I_2 - 12 + 4 = 0$$

$$6I_1 - 10I_2 = 8$$

$$3I_1 - 5I_2 = 4$$

$$35I_1 - 15I_2 = -10$$

$$-9I_1 + 15I_2 = -12$$

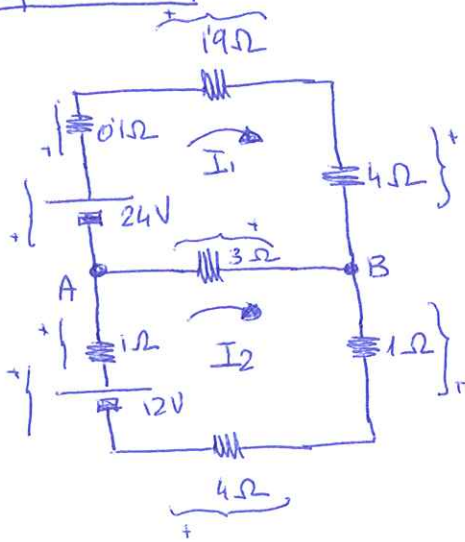
$$\hline 26I_1 = -22$$

$$\Rightarrow I_1 = -\frac{22}{26} = -0.84A$$

$$I_2 = \frac{2 + 7I_1}{3} = -1.30A$$

$$I_x = I_1 - I_2 = -0.84A + 1.30A = 0.46A$$

Ejercicio 5



Malla 1

$$-24 + 6I_1 + 3(I_1 - I_2) = 0$$

$$9I_1 - 3I_2 = 24$$

$$3I_1 - I_2 = 8$$

Malla 2

$$-6I_2 + 3(I_1 - I_2) = -12$$

$$3I_1 - 9I_2 = -12$$

$$I_1 - 3I_2 = -4$$

$$-9I_1 + 3I_2 = -24$$

$$I_1 - 3I_2 = -4$$

$$\begin{array}{r} -9I_1 + 3I_2 = -24 \\ I_1 - 3I_2 = -4 \\ \hline -8I_1 = -28 \end{array} \Rightarrow I_1 = \frac{28}{8} = 3.5A$$

$$I_2 = \frac{3I_1 - 8}{3} = 2.5A$$