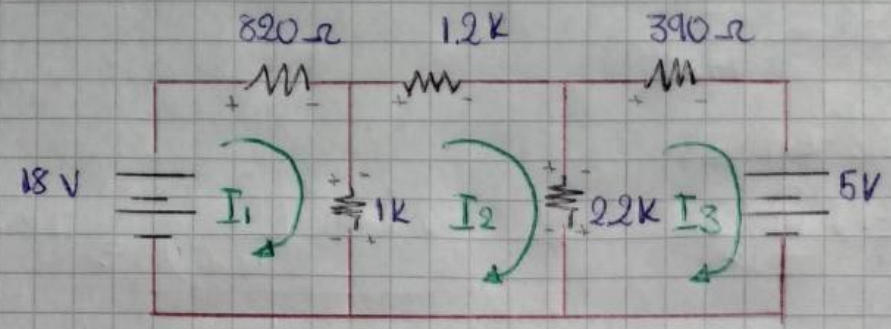
Desarrollo “Análisis de Mallas”



Análisis de Mallas

① $1820\,I_1 - 1000\,I_2 = 18$

② $4400\,I_2 - 1000\,I_1 - 2200\,I_3 = 0$

③ $2590\,I_3 - 2200\,I_2 = -5$

$$I_1 = \frac{18 + 1000\,I_2}{1820} = \frac{9 + 500\,I_2}{910}$$

$$\begin{cases} 2590\,I_3 - 2200\,I_2 = -5 \\ 4400\,I_2 - 1000\left(\frac{9 + 500\,I_2}{910}\right) - 2200\,I_3 = 0 \end{cases}$$

$$\begin{cases} 2590\,I_3 - 2200\,I_2 = -5 \\ -2200\,I_3 + \frac{350400\,I_2 - 900}{910} = 0 \end{cases}$$

Despejo I_3

$$I_3 = \frac{-5 + 2200\,I_2}{2590} = \frac{-1 + 440\,I_2}{518}$$

Sustituyo I_3 En

$$-2200\left(\frac{-1 + 440\,I_2}{518}\right) + \frac{350400\,I_2 - 900}{910} = 0$$

$$\frac{6672800\,I_2 - 19000}{3367} = 0$$

Despejo I_2

$$I_2 = \frac{5}{1756}$$

I_2 En I_3

$$I_3 = \frac{-1 + 440\, I_2}{518} = \frac{-1 + 940\left(\frac{5}{1756}\right)}{518} \Rightarrow I_3 = \frac{3}{6146}$$

I_2 en I_1

$$I_1 = \frac{9 + 500\, I_2}{910} = \frac{9 + 500\left(\frac{5}{1756}\right)}{910} \Rightarrow I_1 = \frac{176}{15365}$$

$$\begin{cases} I_1 = 0{,}0145 \ [A] \rightarrow 11{,}4546 \ [mA], \\ I_2 = 0{,}002847 \ [A] \rightarrow 2{,}8474 \ [mA], \\ I_3 = 0{,}000488 \ [A] \rightarrow 0{,}4881 \ [mA], \end{cases}$$