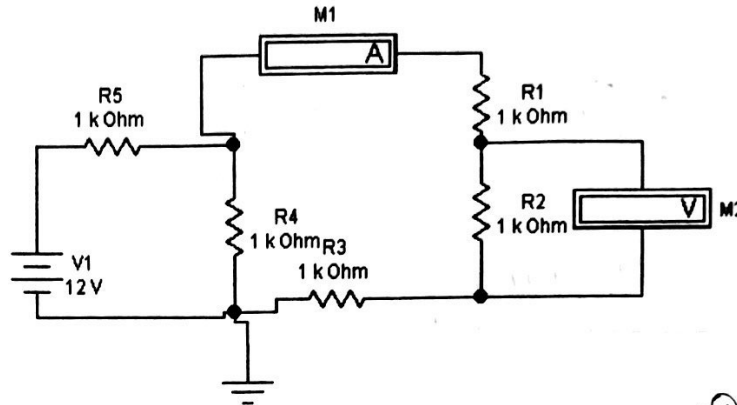


TAREA 1

- 1.- Para el circuito que se muestra calcular teóricamente:
- Resistencia equivalente del circuito
 - Voltaje en la resistencia R2
 - Corriente en la resistencia R5



$R_1, R_2, R_3 \rightarrow$ Serie

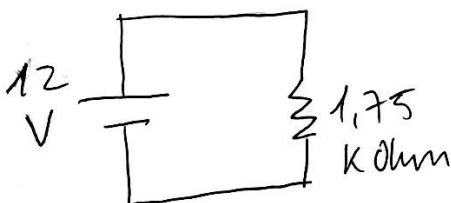
$$R_{123} = R_1 + R_2 + R_3 = \underline{3 \text{ kOhm}}$$

$R_4, R_{123} \rightarrow$ paralelo

$$\frac{1}{R_{1234}} = \frac{1}{R_{123}} + \frac{1}{R_4} = \frac{1}{3} + 1 = \frac{4}{3} = \frac{3}{4} = \underline{0,75 \text{ kOhm}}$$

$R_{1234}, R_5 \rightarrow$ Serie

$$R_T = R_{1234} + R_5 = \frac{3}{4} + 1 = \frac{7}{4} = \underline{1,75 \text{ kOhm}}$$



$$V_1 = I \cdot R \quad I = \frac{12}{1,75} = 6,857 \text{ mA}$$

$$I = \frac{V}{R} \quad I_{1234} = \underline{6,857 \text{ mA}}$$

R_5, R_{1234}

$$\underline{I_5 = I_{1234} = I}$$

$$\underline{I_5 = 6,857 \text{ mA}}$$

Respuestas

- 1,75 kOhm
- 1,71 Volt
- 6,857 mA

$$V_{1234} = I_{1234} \cdot R_{1234}$$

$$V_{1234} = 6,857 \cdot 0,75 = \underline{5,14 \text{ Volt}}$$

$$\underline{V_{123} = V_4 = 5,14 \text{ Volt}}$$

$$I_{123} = \frac{V_{123}}{R_{123}} = \frac{5,14}{3} = \underline{1,71 \text{ mA}}$$

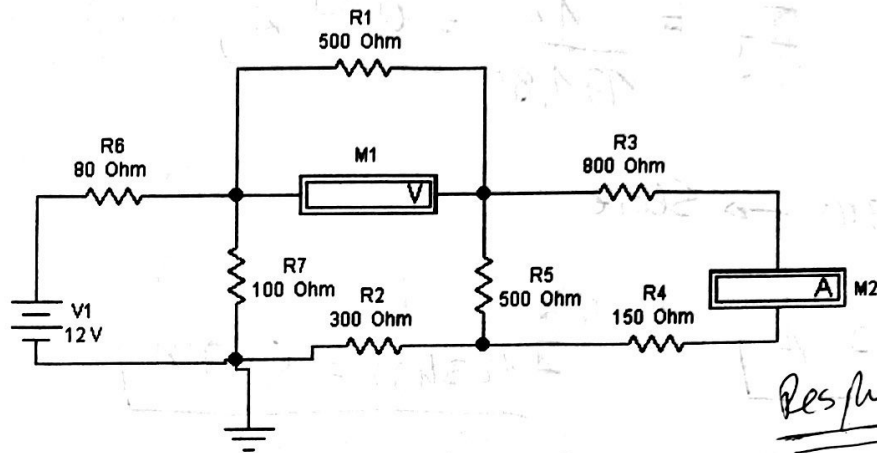
$$\underline{I_1 = I_2 = I_3 = 1,71 \text{ mA}}$$

$$V_2 = I_2 \cdot R_2$$

$$V_2 = 1,71 \cdot 1$$

$$\underline{V_2 = 1,71 \text{ Volt}}$$

- 2.- Para el circuito que se muestra calcular teóricamente:
- Resistencia equivalente del circuito
 - Voltaje en la resistencia R1
 - Corriente en el lugar que se indica



Respuestas

- 171,85 Ohm
- 2,85 Volt
- 2 mA

$R_3, R_4 \rightarrow$ Serie

$$R_{34} = R_3 + R_4 = 800 + 150 = \underline{950 \text{ Ohm}}$$

$R_{34}, R_5 \rightarrow$ paralelo

$$\frac{1}{R_{345}} = \frac{1}{R_{34}} + \frac{1}{R_5} = \left(\frac{1}{950} + \frac{1}{500} \right)^{-1} = \underline{327,59 \text{ Ohm}}$$

$R_1, R_2, R_3, R_4, R_5 \rightarrow$ Serie

$$R_{12345} = R_1 + R_2 + R_3 + R_4 + R_5 \\ = 500 + 300 + 327,59 = \underline{1127,59 \text{ Ohm}}$$

$R_{12345}, R_7 \rightarrow$ paralelo

$$R_{123457} = \left(\frac{1}{1127,59} + \frac{1}{100} \right)^{-1} = \underline{91,85 \text{ Ohm}}$$

$R_6, R_{123457} \rightarrow$ Serie

$$R_T = R_{123457} + R_6 = 91,85 + 80 = \underline{171,85 \Omega}$$

$$I = \frac{V}{R} \quad I_T = \frac{12}{171,85} = \underline{0,07 \text{ A}}$$

$R_6, R_{12345} \rightarrow$ Serie

$$\underline{I_6 = 0,07 \text{ A}}$$

$$\underline{I_{123457} = 0,07 \text{ A}}$$

$$V_{123457} = I \cdot R$$

$$V_{123457} = 0,07 \cdot 91,85 = \underline{6,43 \text{ Volt}}$$

$$\underline{V_7 = 6,43 \text{ Volt}}$$

* Están en Serie igual Voltage

$$\underline{V_{12345} = 6,43 \text{ Volt}}$$

$$I_{12345} = \frac{6,43}{1127,59} = \underline{5,70 \text{ mA}}$$

$$I_1 = I_2 = I_{345}$$

$$\underline{I_1 = 5,70 \text{ mA}}$$

$$V_1 = I_1 \cdot R_1$$

$$V_1 = 5,70 \cdot 10^{-3} \cdot 500$$

$$\underline{V_1 = 2,85 \text{ Volt}}$$

$$V_{345} = I_{345} \cdot R_{345}$$

$$V_{345} = 5,70 \times 10^{-3} \cdot 327,59$$

$$V_{345} = \underline{1,86 \text{ Volt}}$$

$R_{34}, R_5 \rightarrow \text{Paralelo}$

$$V_5 = V_{34} = \underline{1,86 \text{ Volt}} \quad \text{* multiplique } \times 1000$$

$$I_{34} = \frac{V_{34}}{R_{34}} = \frac{1,86}{950} = 1,957 \approx 2 \text{ mA}$$

$$\underline{I_3 = I_4 = 2 \text{ mA}}$$