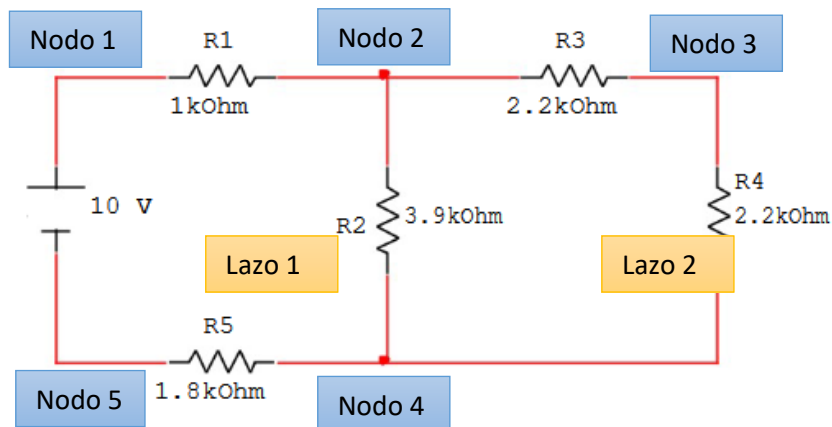


Resolución del circuito



CALCULO DE INTENSIDADES GENERALES:

$$I = V * R$$

Lazo 1:

$$10 - 1\text{ k}\Omega * I - 3.9\text{ k}\Omega (I_1 - I_2) - 1.8\text{ k}\Omega = 0$$

$$10 - 6.7\text{ k}\Omega I_1 + 3.9\text{ k}\Omega I_2 = 0 \quad (1)$$

Lazo 2

$$-2.2\text{ k}\Omega I_2 - 2.2\text{ k}\Omega I_2 - 3.9\text{ k}\Omega (I_2 - I_1) = 0$$

$$-8.3\text{ k}\Omega I_2 + 3.9\text{ k}\Omega = 0 \quad (2)$$

$$I_1 = 2.0544\text{ mA}$$

$$I_2 = 0.965\text{ mA}$$

CALCULO DE VOLTAJE Y AMPERAJE EN CADA RESISTENCIA:

$$V = R * I ; I = \frac{v}{R}$$

$$V_{R1} = 1000 * 2.0544 = 2.0544\text{ V}$$

$$I_{R1} = \frac{2.0544}{1000} = 2.54\text{ mA}$$

$$V_{R2} = 3.9(I_1 - I_2) = 3.9(1.0894) = 4.24\text{ V}$$

$$I_{R1} = \frac{4.24}{3.9} = 1.0894\text{ mA}$$

$$V_{R3} = 2.2(I_2) = 2.2(0.965) = 2.123\text{ V}$$

$$I_{R3} = \frac{2.123}{2.2} = 0.965\text{ mA}$$

$$V_{R4} = 2.2(I_2) = 2.2(0.965) = 2.123\text{ V}$$

$$I_{R4} = \frac{2.123}{2.2} = 0.965\text{ mA}$$

$$V_{R5} = 1.8 (I_1) = 1.8 (2.0544) = 3.6979 \text{ V}$$

$$I_{R5} = \frac{3.6979}{1.8} = 2.0544 \text{ mA}$$

TABLA 1.2

TRYECTORIA 1 (Vt=10V)

$$V_{R1} = 1k * 2.0544 \text{ mA} = 2.0544 \text{ V}$$

$$V_{R2} = 3.9(I_1 - I_2) = 3.9 (1.0894) = 4.24 \text{ V}$$

$$V_{R3} = 0$$

$$V_{R4} = 0$$

$$V_{R5} = 1.8 (I_1) = 1.8 (2.0544) = 3.6979 \text{ V}$$

TRYECTORIA 2

$$V_{R1} = 0 \text{ V}$$

$$V_{R2} = 4.24 \text{ V}$$

$$V_{R3} = 2.2 (I_2) = 2.2 (0.965) = 2.123 \text{ V}$$

$$V_{R3} = 2.2 (I_2) = 2.2 (0.965) = 2.123 \text{ V}$$

$$V_{R5} = 0 \text{ V}$$

TRYECTORIA 3

$$V_{R1} = 2.0544 \text{ V}$$

$$V_{R2} = 0 \text{ V}$$

$$V_{R3} = 2.123 \text{ V}$$

$$V_{R3} = 2.123 \text{ V}$$

$$V_{R5} = 3.6979 \text{ V}$$

TABLA 1.3

Nodo 1

$$I_{RT} = 2.0544 \text{ mA}$$

Nodo 2

$$I_{R1} = 2.0544 \text{ mA} \dots \frac{N1 - N2}{R_1} = 0$$

$$I_{R2} = 1.089 \text{ mA} \dots \frac{N2 - 0}{R_2} = 0$$

$$I_{R3} = 0.965 \text{ mA} \dots \frac{N3 - N2}{R_3} = 0$$

Nodo 3

$$I_{R3} = 0.965 \text{ mA} \dots \frac{N3 - N2}{R_3} = 0$$

$$I_{R4} = 0.965 \text{ mA} \dots \frac{N3 - 0}{R_4} = 0$$

Nodo 4

$$I_{R2} = 1.089 \text{ mA} \dots \frac{N2 - 0}{R_2} = 0$$

$$I_{R4} = 0.965 \text{ mA} \dots \frac{N4 - N3}{R_4} = 0$$

Nodo 5

$$I_{R5} = 2.0544 \text{ mA} \dots \frac{N5 - N4}{R_5} = 0$$