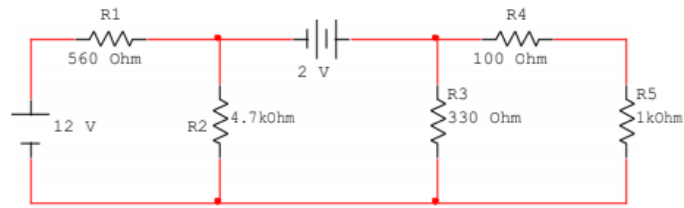


Calculos



Calculo del voltaje y corriente por método de mallas

Malla 1

$$12 - 560i_1 - 4700(i_1 - i_2) = 0$$

$$5260i_1 - 4700i_2 = 12$$

Malla 2

$$2 - 330(i_2 - i_3) - 4700(i_2 - i_1) = 0$$

$$4700i_1 - 5030i_2 + 330i_3 = -2$$

Malla 3

$$-330(i_3 - i_2) - 100i_3 - 1000i_3 = 0$$

$$330i_2 - 1430i_3 = 0$$

$$\begin{bmatrix} 5260 & -4700 & 0 & 12 \\ 4700 & -5030 & 330 & -2 \\ 0 & 330 & -1430 & 0 \end{bmatrix}$$

$$i_1 = 17,35 \text{ mA}$$

$$i_2 = 16,87 \text{ mA}$$

$$i_3 = 3,89 \text{ mA}$$

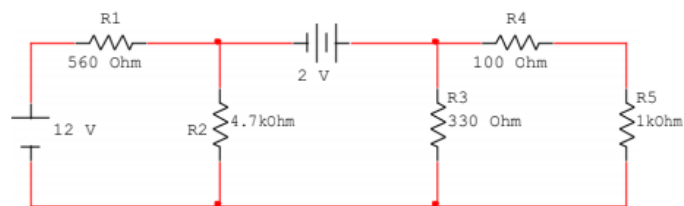
$$i_{R5} = i_3$$

$$i_{R5} = 3,89 \text{ mA}$$

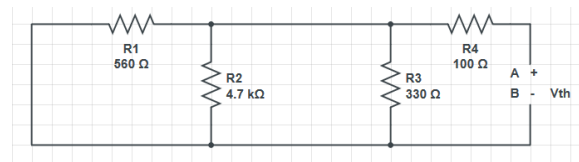
$$V_{R5} = 1000 * \frac{3,89}{1000}$$

$$V_{R5} = 3,89 \text{ V}$$

Cálculo del voltaje y corriente por el teorema de Thévenin



Cálculo de Rth



$$R_1 R_2 = \frac{560 * 4700}{560 + 4700}$$

$$R_1 R_2 = 500,38$$

$$R_1 R_2 R_3 = \frac{500,38 * 330}{500,38 + 330}$$

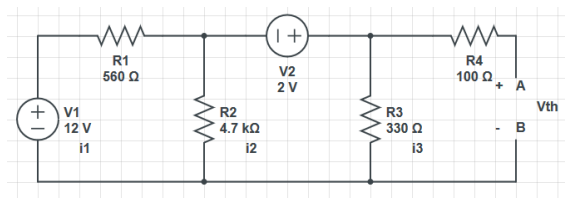
$$R_1 R_2 R_3 = 198,86$$

$$R_{eq} = 198,86 + 100$$

$$R_{eq} = 298,86$$

$$R_{th} = 298,86 \Omega$$

Calculo de vth



$$i_3 = 0$$

Malla 1

$$12 - 560i_1 - 4700(i_1 - i_2) = 0$$

$$5260i_1 - 4700i_2 = 12$$

Malla 2

$$2 - 330(i_2 - i_3) - 4700(i_2 - i_1) = 0$$

$$4700i_1 - 5030i_2 = -2$$

Malla 3

$$-V_{th} - 330(i_3 - i_2) - 100i_3 - 1000i_3 = 0$$

$$330i_2 - V_{th} = 0$$

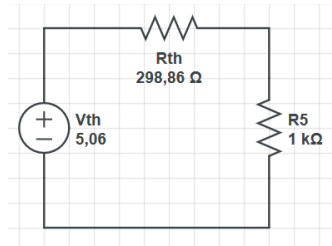
$$\begin{bmatrix} 5260 & -4700 & 0 & 12 \\ 4700 & -5030 & 0 & -2 \\ 0 & 330 & -1 & 0 \end{bmatrix}$$

$$i_1 = 15,97 \text{ mA}$$

$$i_2 = 15,32 \text{ mA}$$

$$v_{th} = 5,06 \text{ V}$$

Calculo de la corriente y el voltaje en R5



$$I_{R5} = \frac{v_{th}}{R_{eq}}$$

$$I_{R5} = \frac{5,06}{298,86 + 1000}$$

$$I_{R5} = 3,896 \text{ mA}$$

$$V_{R5} = 1000 * \frac{3,896}{1000}$$

$$V_{R5} = 3,896 \text{ V}$$