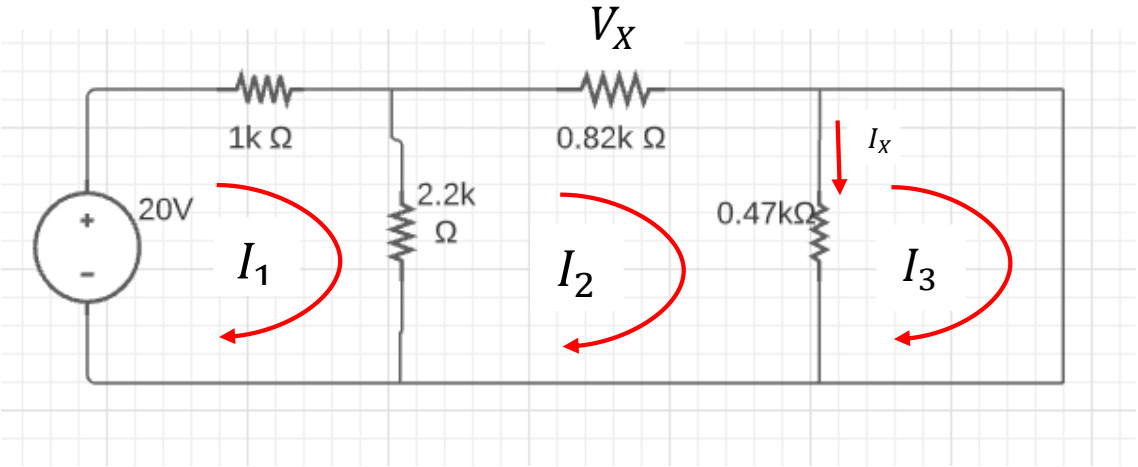


$$MALLA\ 1$$

$$20 - I_1(1) - 2.2(I_1 - I_2) = 0$$

$$-I_1 - 2.2I_1 + 2.2I_2 = -20$$

$$3.2I_1 - 2.2I_2 = 20 \quad (1)$$

$$MALLA\ 2$$

$$-0.82I_2 - 0.47(I_2 - I_3) - 2.2(I_2 - I_1) = 0$$

$$2.2I_1 - 3.49I_2 + 0.47I_3 = 0\ (2)$$

$$MALLA\ 3$$

$$-0.47(I_3 - I_2) = 0$$

$$0.47I_2 - 0.47I_3 = 0\ (3)$$

$$SISTEMA\ DE\ ECUACIONES$$

$$3.2I_1 - 2.2I_2 = 20 \quad (1)$$

$$2.2I_1 - 3.49I_2 + 0.47I_3 = 0\ (2)$$

$$0.47I_2 - 0.47I_3 = 0\ (3)$$

VALORES DE CORRIENTES

$I_1 = 12.52\ mA$

$I_2 = 9.12\ mA$

$I_3 = 9.12\ mA$

$VALOR\ DE\ LA\ CORRIENTE\ CUANDO\ V_2 = 0$

$I_X = I_2 - I_3$

$I_X = 9.12 - 9.12$

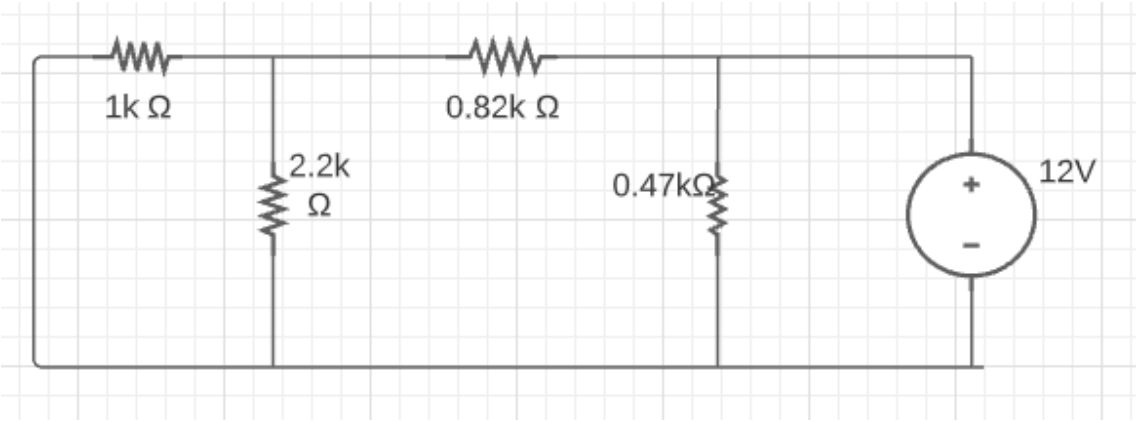
$I_X{}' = 0\ mA$

$VALOR\ DEL\ VOLTAJE\ V_X\ CUANDO\ V_2 = 0$

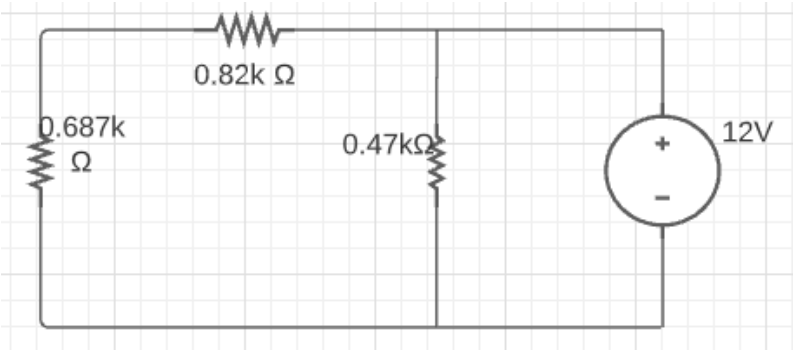
$V_X = I_2(R_{0.82})$

$V_X = 9.12mA\ (0.82)$

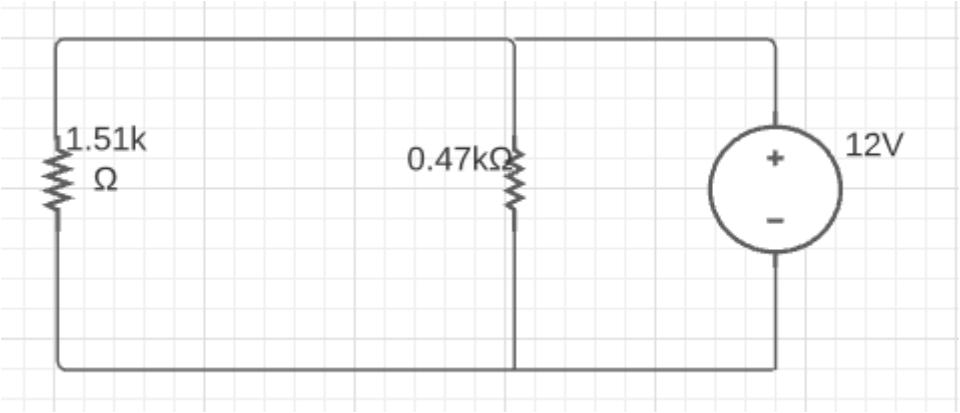
$V_X{}' = 7.47\ mV$



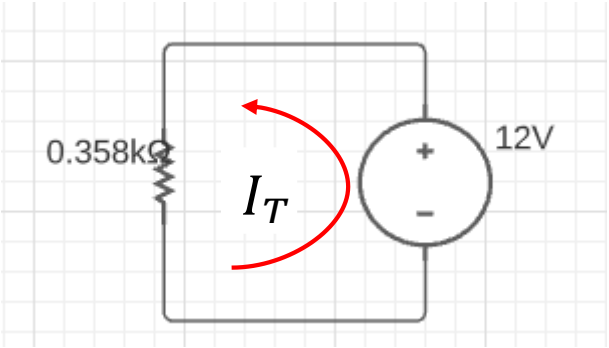
$$R_{eq1} = \frac{1}{\frac{1}{1} + \frac{1}{2.2}} = 0.687$$



$$R_T = 0.687 + 0.82 = 1.51$$

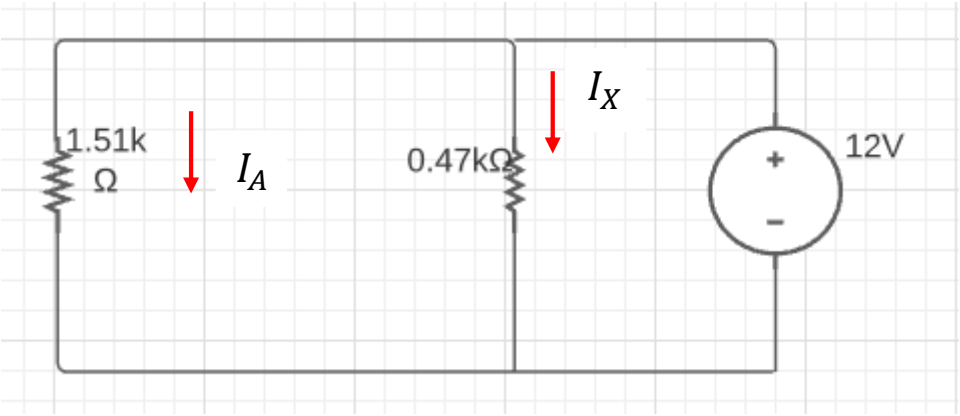


$$R_{eq2} = \frac{1}{\frac{1}{1.51} + \frac{1}{0.47}} = 0.358$$



$$I_T = \frac{12}{0.358}$$

$$I_T = 33.5\ mA$$



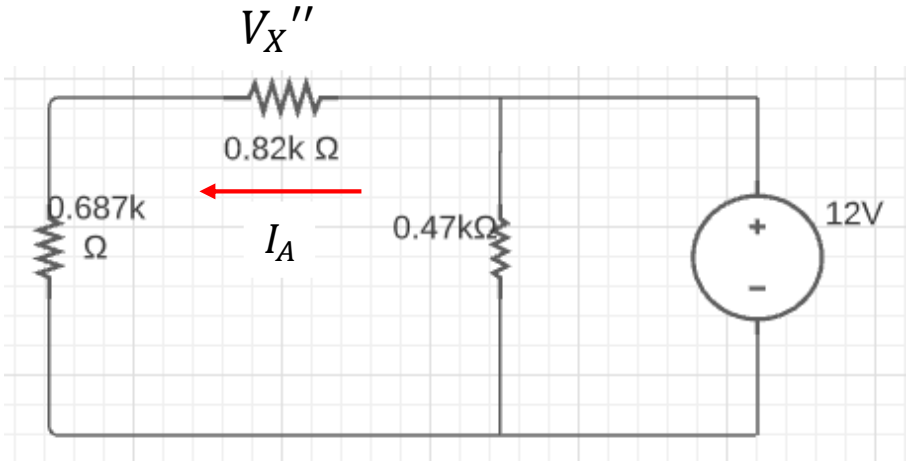
$INTENSIDAD\ I_X\ CUANDO\ V_1 = 0$

$$I_X = \frac{12}{0.47}$$

$$I_X'' = 25.53\ mA$$

$$I_A = \frac{12}{1.51}$$

$$I_A = 7.94\ mA$$

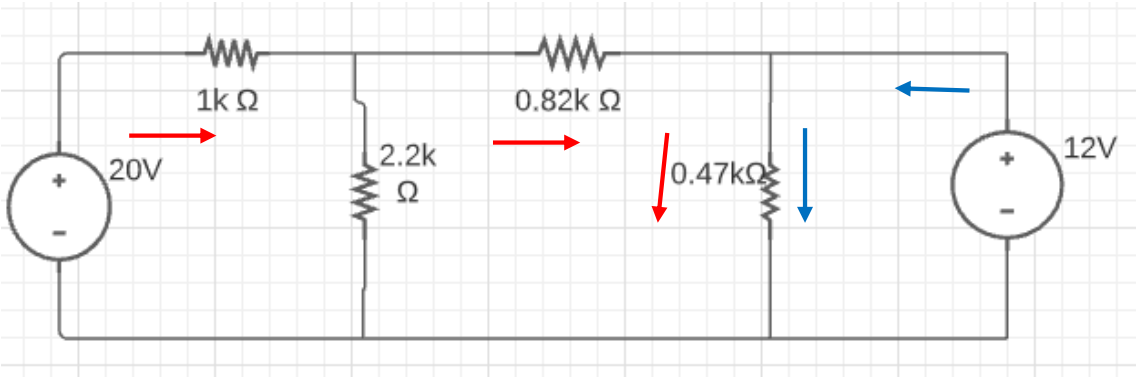


$VOLTAJE\ V_X''\ CUANDO\ V_1 = 0$

$$V_X'' = I_A(R_{0.82})$$

$$V_X'' = (7.94)(0.82)$$

$$V_X'' = 6.51\ mV$$



Ahora analizamos con las dos fuentes de voltaje tomando en cuenta la direccion de la corriente

$$I_X = I'_X + I''_X$$

$$I_X = 0 + 25.53$$

$$I_X = 25.53\ mA$$

Ahora analizamos el voltaje total en V_X

$$V_X = V'_X - V''_X$$

$$V_X = 7.47 - 6.51$$

$$V_X = 0.948$$

$$V_X = 948\ mV$$