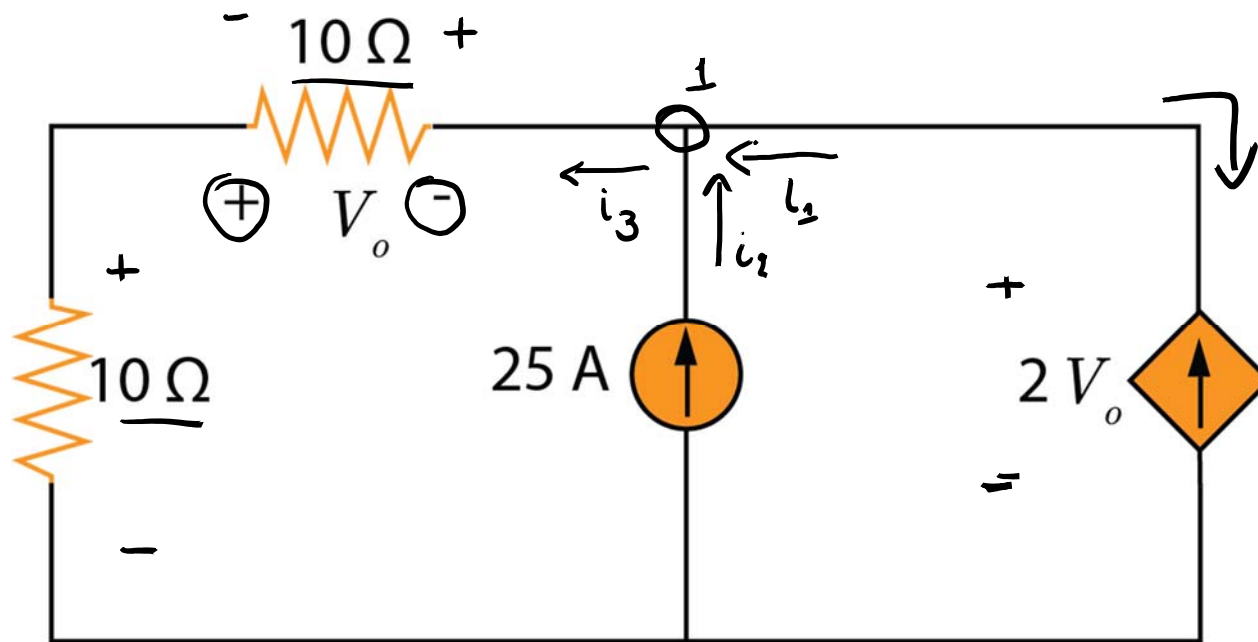


$$\text{KVL: } -10 + 16I + 14I + 25 = 0 \Rightarrow 30I = -15 \Rightarrow I = -0.5\text{A}$$

$$\textcircled{1} \quad V_o = 10 - 16 \cdot I = 10 - 16 \cdot (-0.5) = 10 + 8 = 18\text{V}$$

$$\textcircled{2} \quad V_o = 25 + 14I = 25 + 14 \cdot (-0.5) = 25 - 7 = 18\text{V}$$



$$\text{KCL: } i_1 + i_2 = i_3$$

$$i_1 = 2V_o$$

$$i_2 = 25$$

$$i_3 = -\frac{V_o}{10}$$

$$\Rightarrow -\frac{V_o}{10} = 25 + 2V_o$$

$$\Rightarrow V_o = -11.905 \text{ V}$$

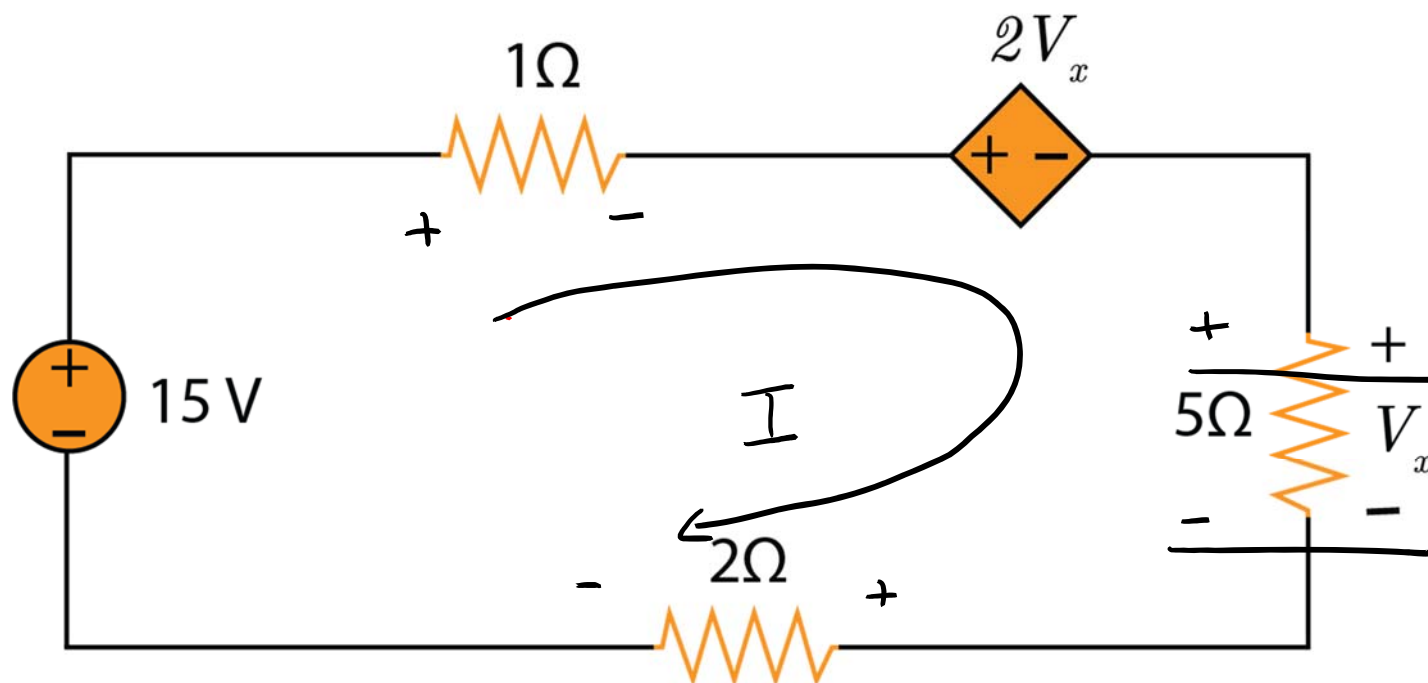
For the current source:

$$I = i_1 = 2V_o = -23.81 \text{ A}$$

$$V_1 = -V_o - V_o = -2V_o = 23.81 \text{ V}$$

$$P = V \cdot I = 23.81 \cdot (23.81) = 566.9 \text{ W}$$

The source absorbs power!!



$$V_x = 5 \cdot I$$

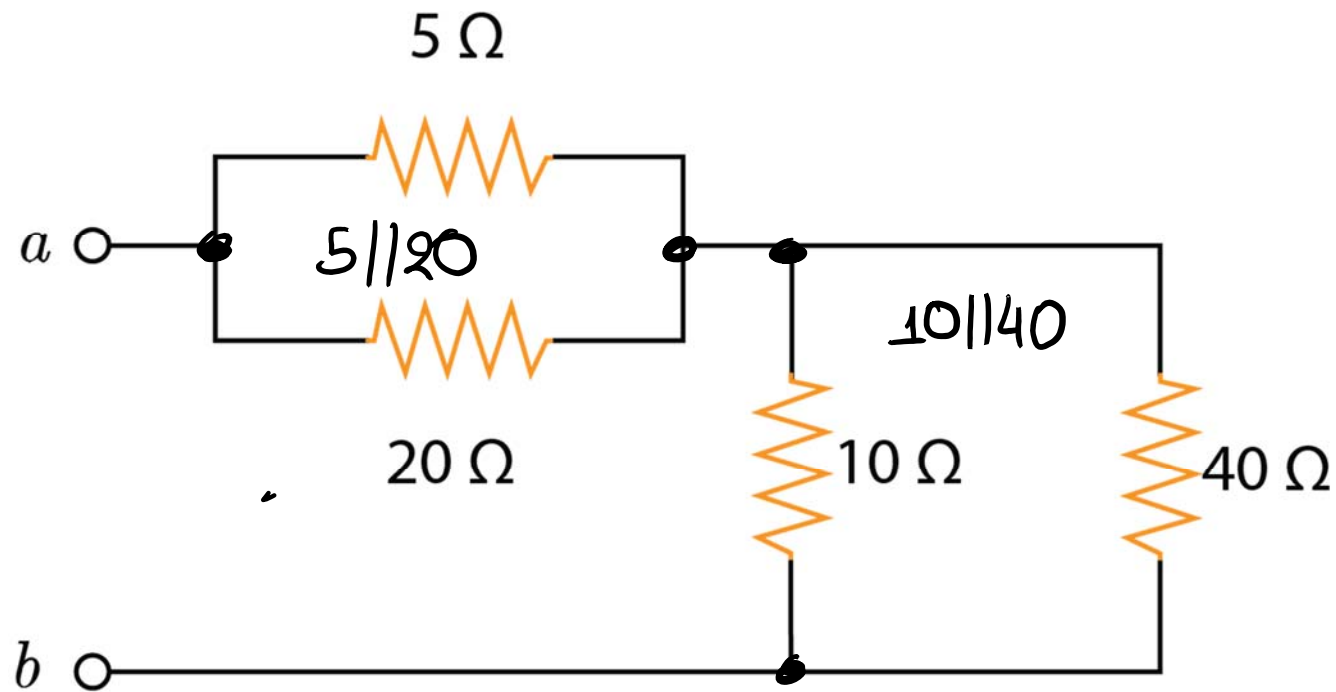
$$V_x = 5 \cdot \frac{5}{6} = \frac{25}{6} \text{ V}$$

$$= 4.167 \text{ V}$$

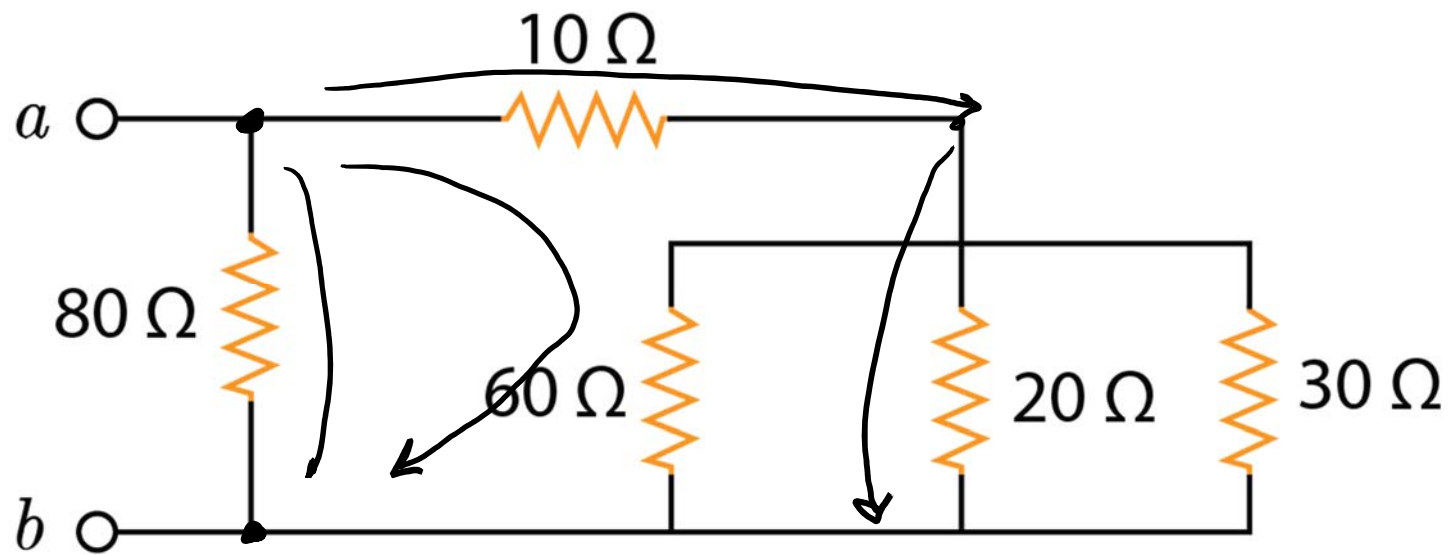
$$\text{KVL: } -15 + I + 2V_x + 5I + 2I = 0$$

$$\Rightarrow -15 + 8I + 2V_x = 0$$

$$\Rightarrow -15 + 8I + 10I = 0 \Rightarrow I = \frac{15}{18} = \frac{5}{6} \text{ A}$$



$$R_{ab} = (5 \parallel 20) + (10 \parallel 40) = \frac{20 \cdot 5}{20 + 5} + \frac{10 \cdot 40}{10 + 40} = 4 + 8 = 12\ \Omega$$



$$R_{ab} = 80 \parallel \left(10 + (60 \parallel 20 \parallel 30) \right)$$

$$= 80 \parallel (10 + 10) = 80 \parallel 20 = 16 \Omega$$