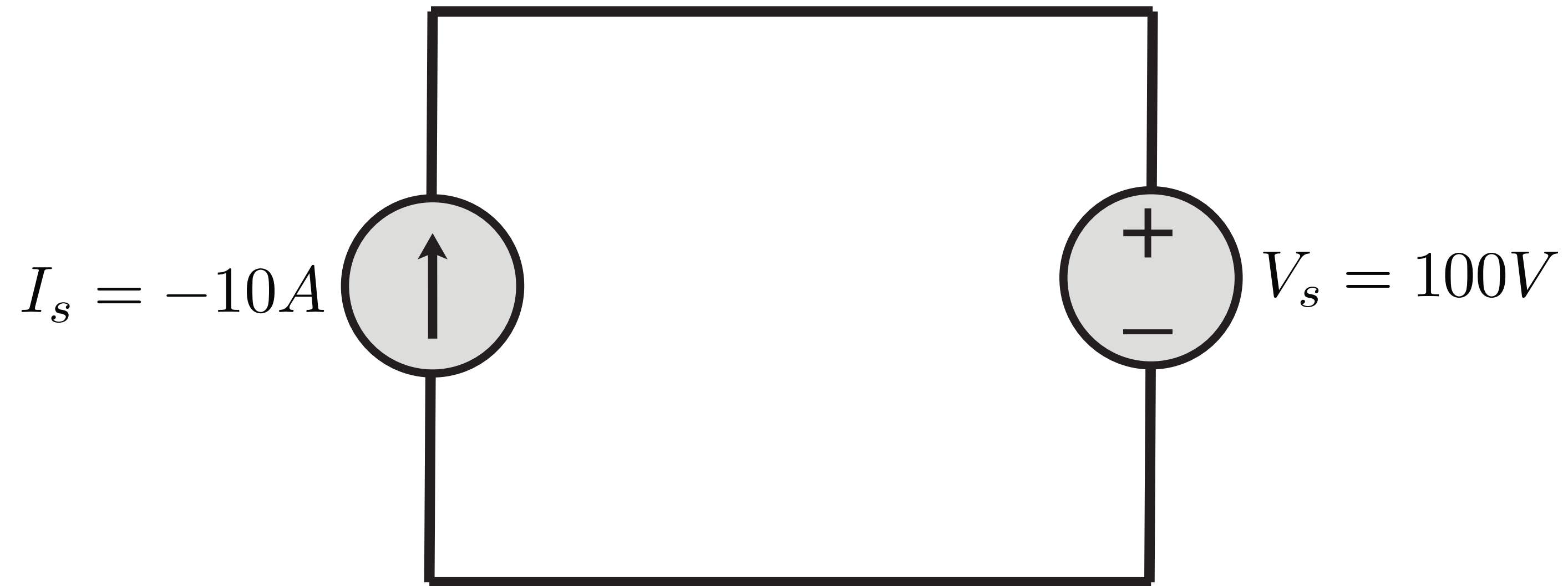
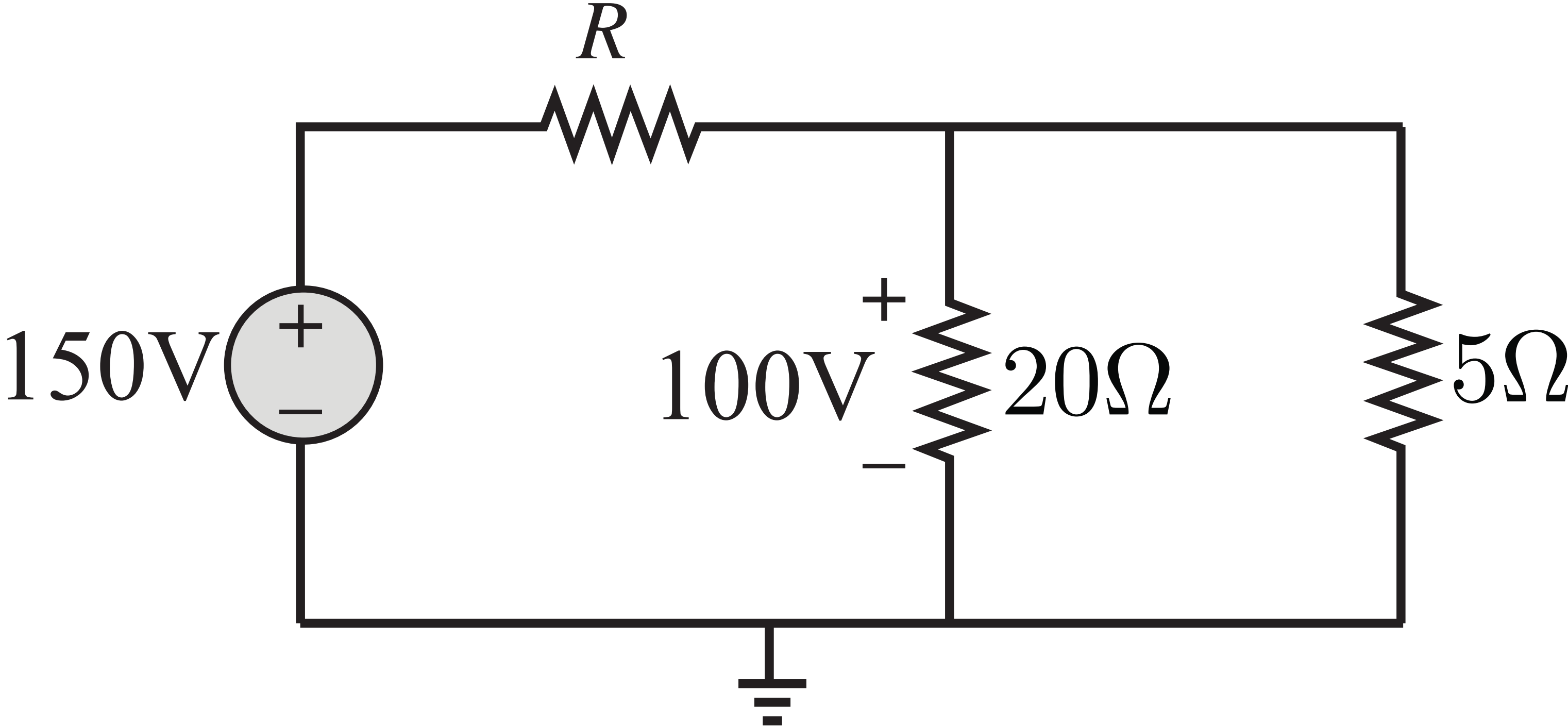


Which source is supplying energy ?

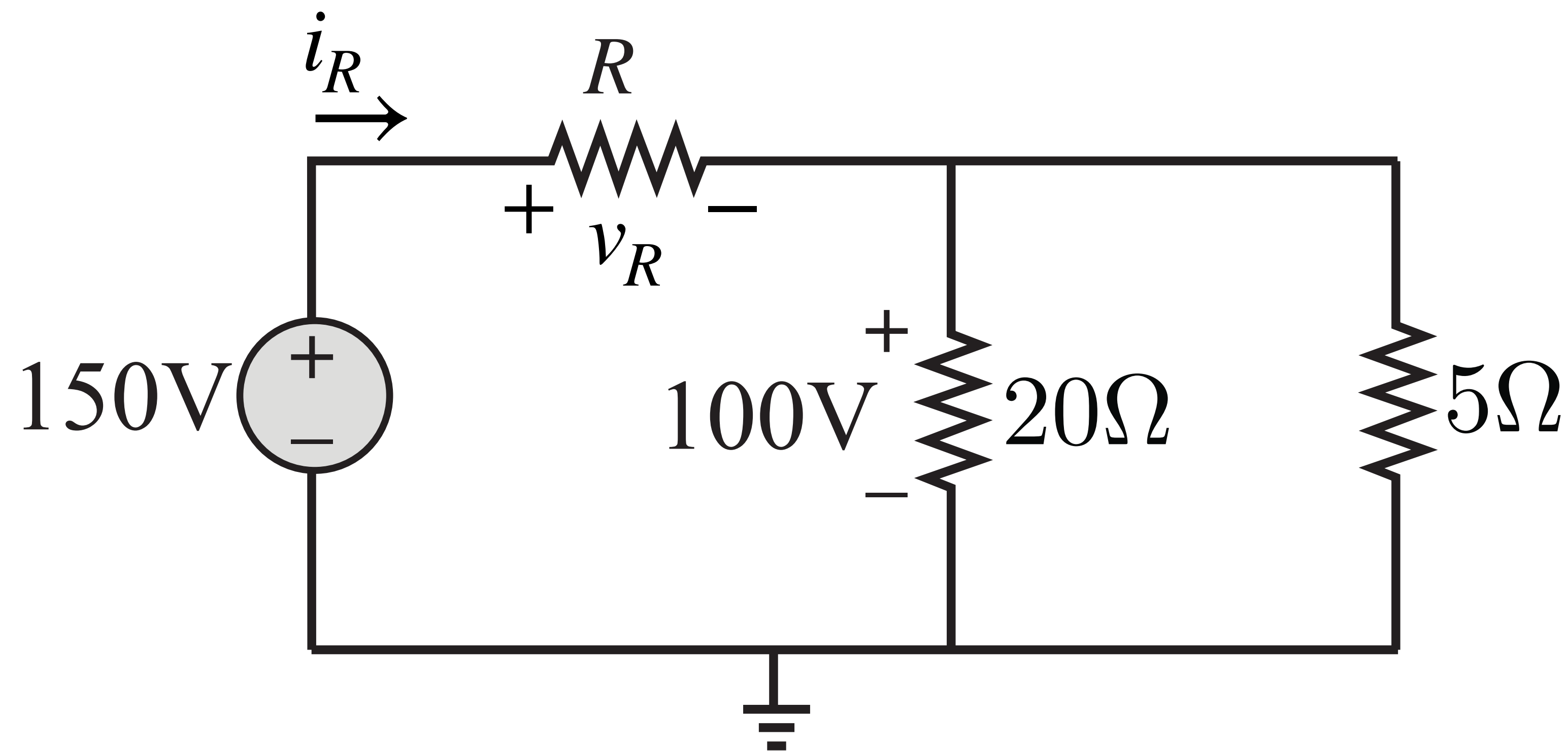


Answer: Voltage source

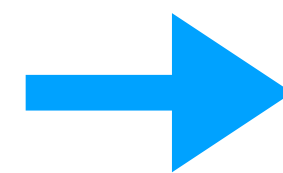
Compute R



Compute R



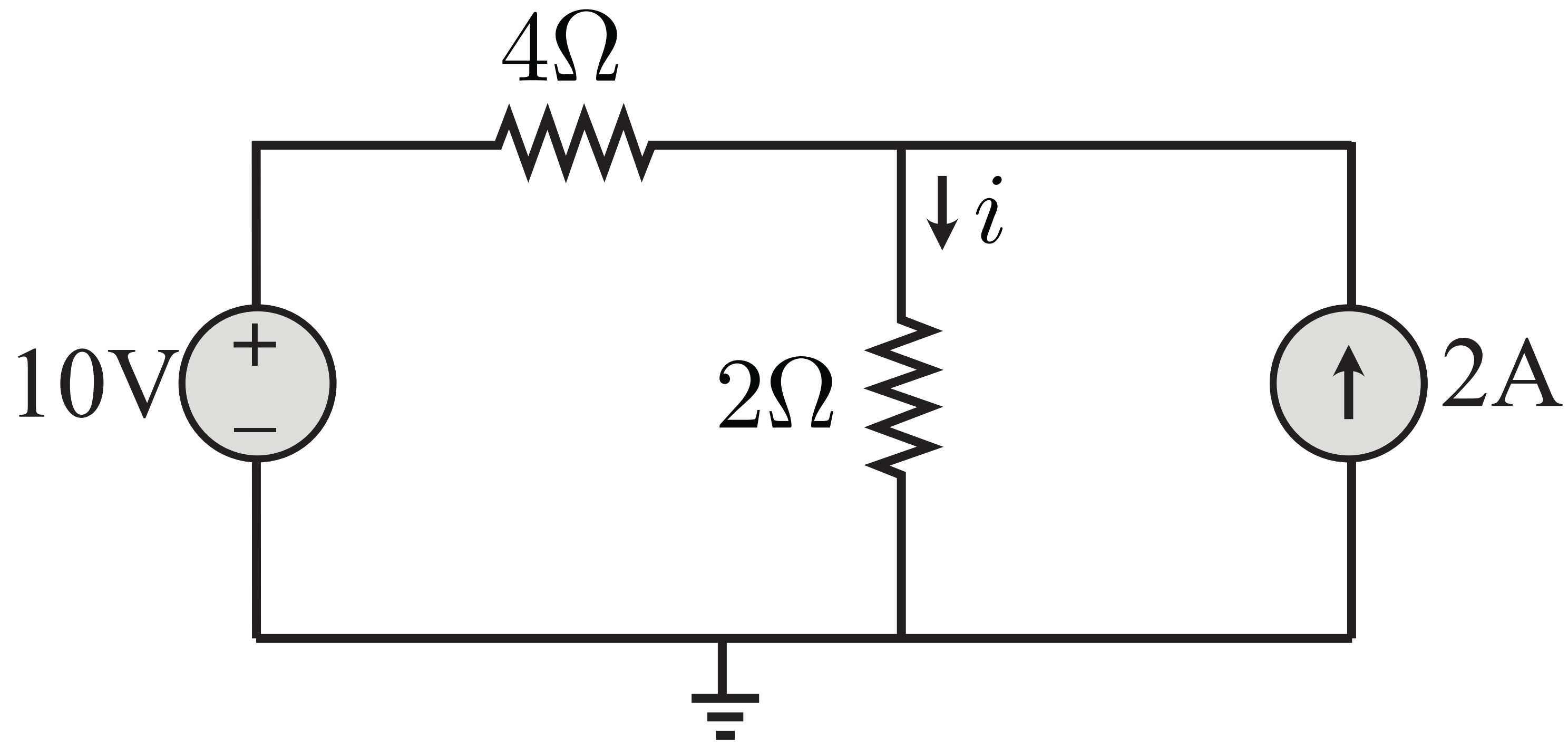
$$i_R = \frac{100V}{(20 \cdot 5)/(20 + 5)\Omega} = 25A$$



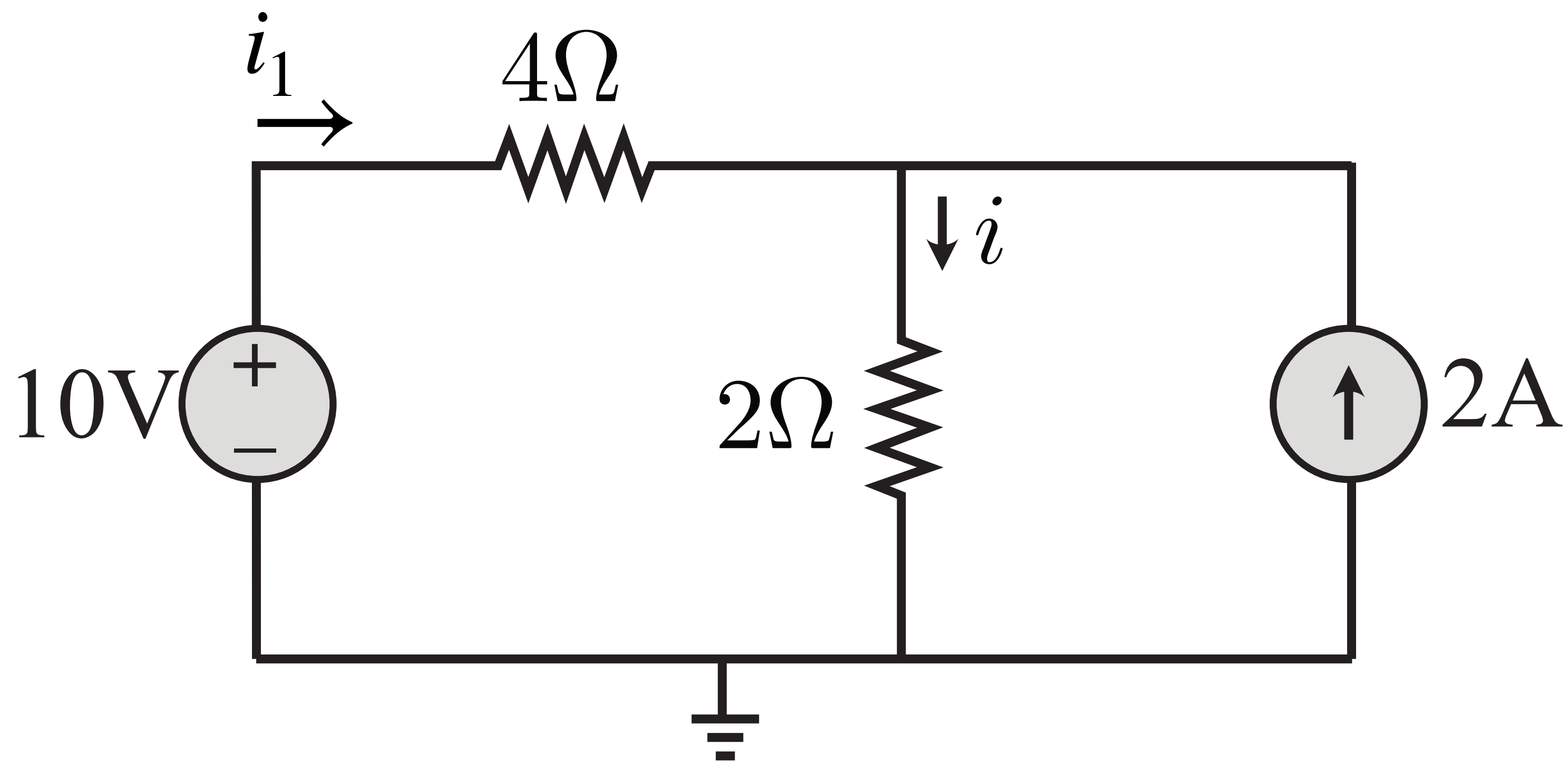
$$R = 2\Omega$$

$$i_R = \frac{(150 - 100)V}{R} = \frac{50V}{R}$$

Compute i



Compute i

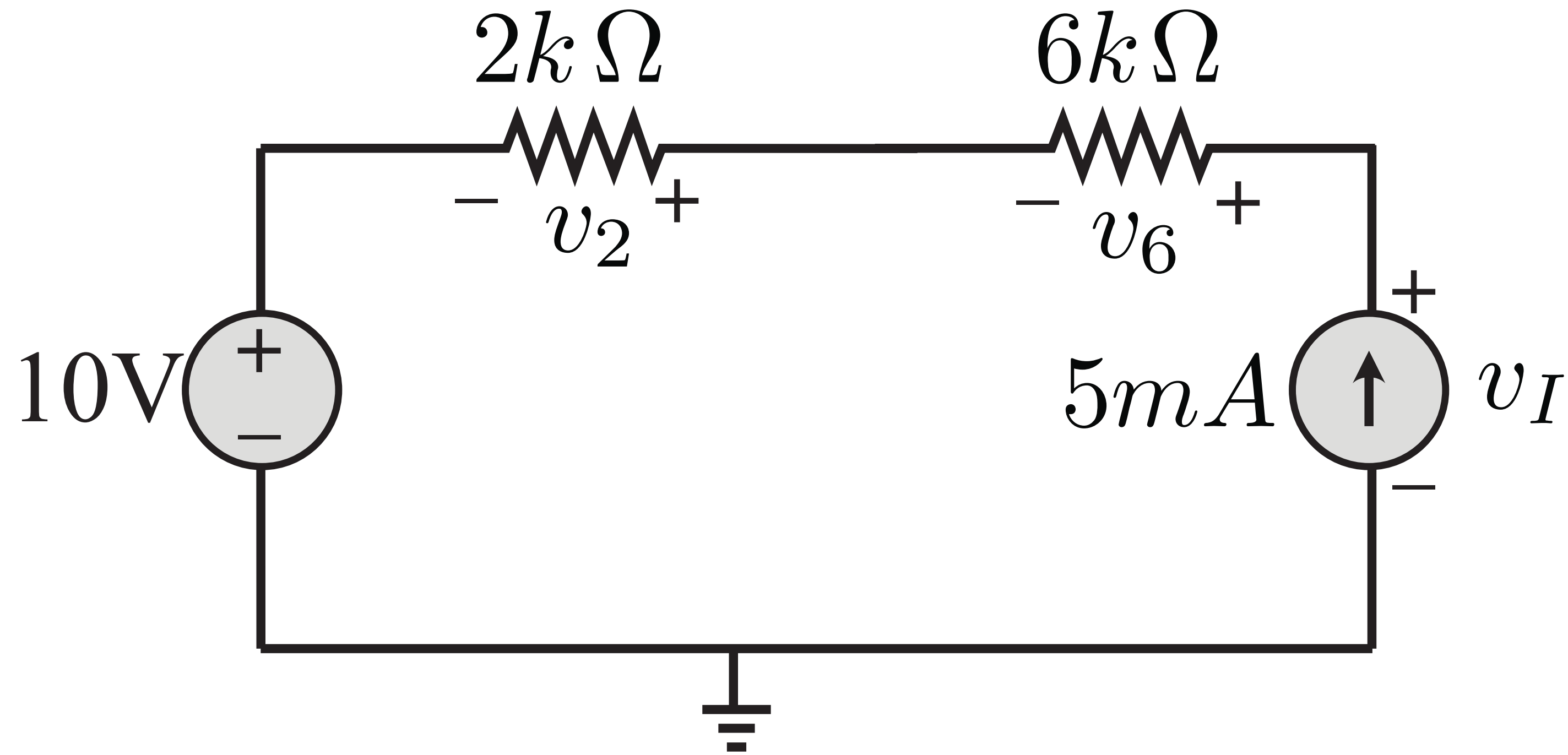


$$KCL \rightarrow i_1 = i - 2A$$

$$KVL \rightarrow 10A - 4i_1 - 2i = 0 \rightarrow 4(i - 2A) + 2i = 10A$$

➡ $i = 3A$

Find v_2 , v_6 & v_I

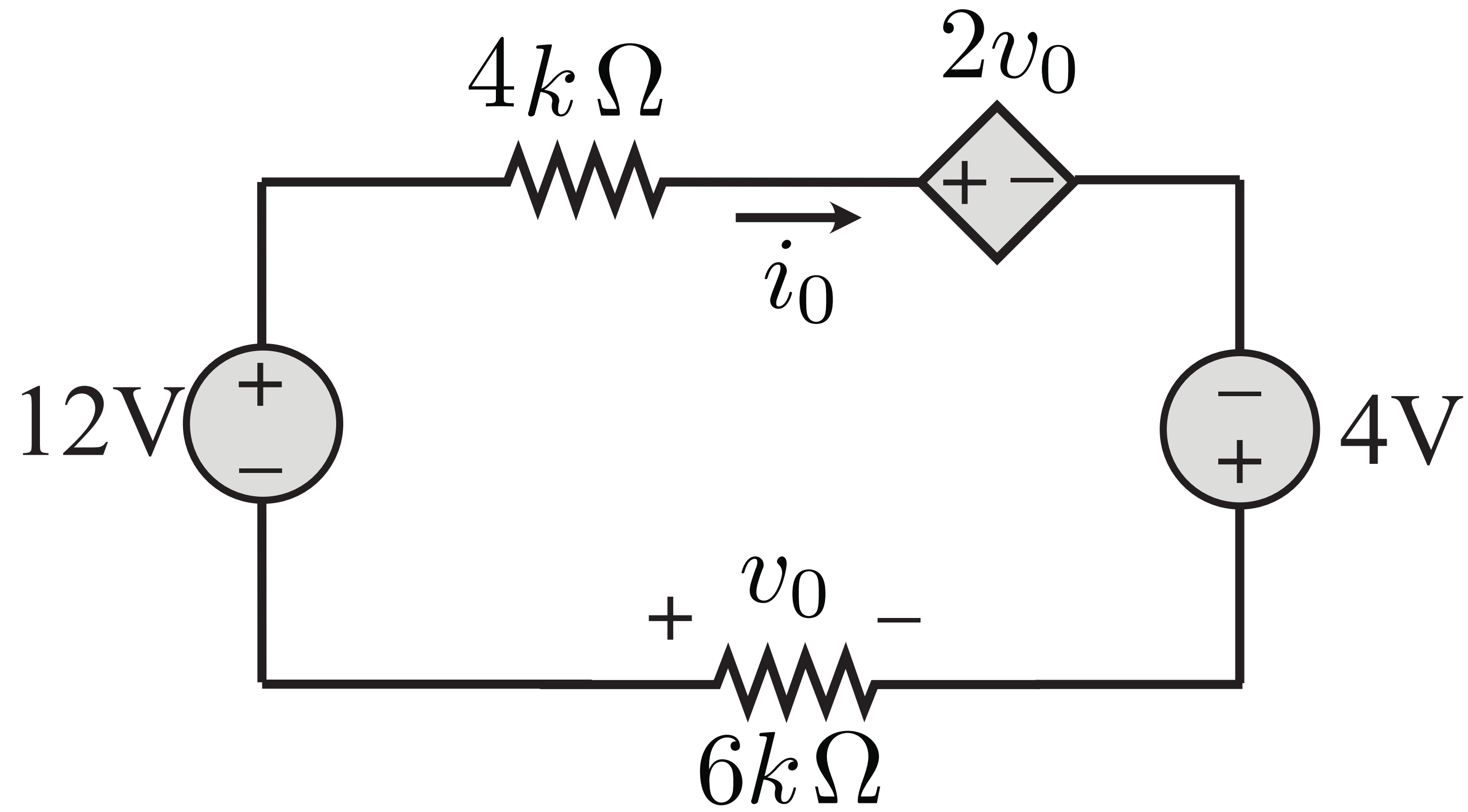


$$v_2 = 5mA \cdot 2k\Omega = 10V$$

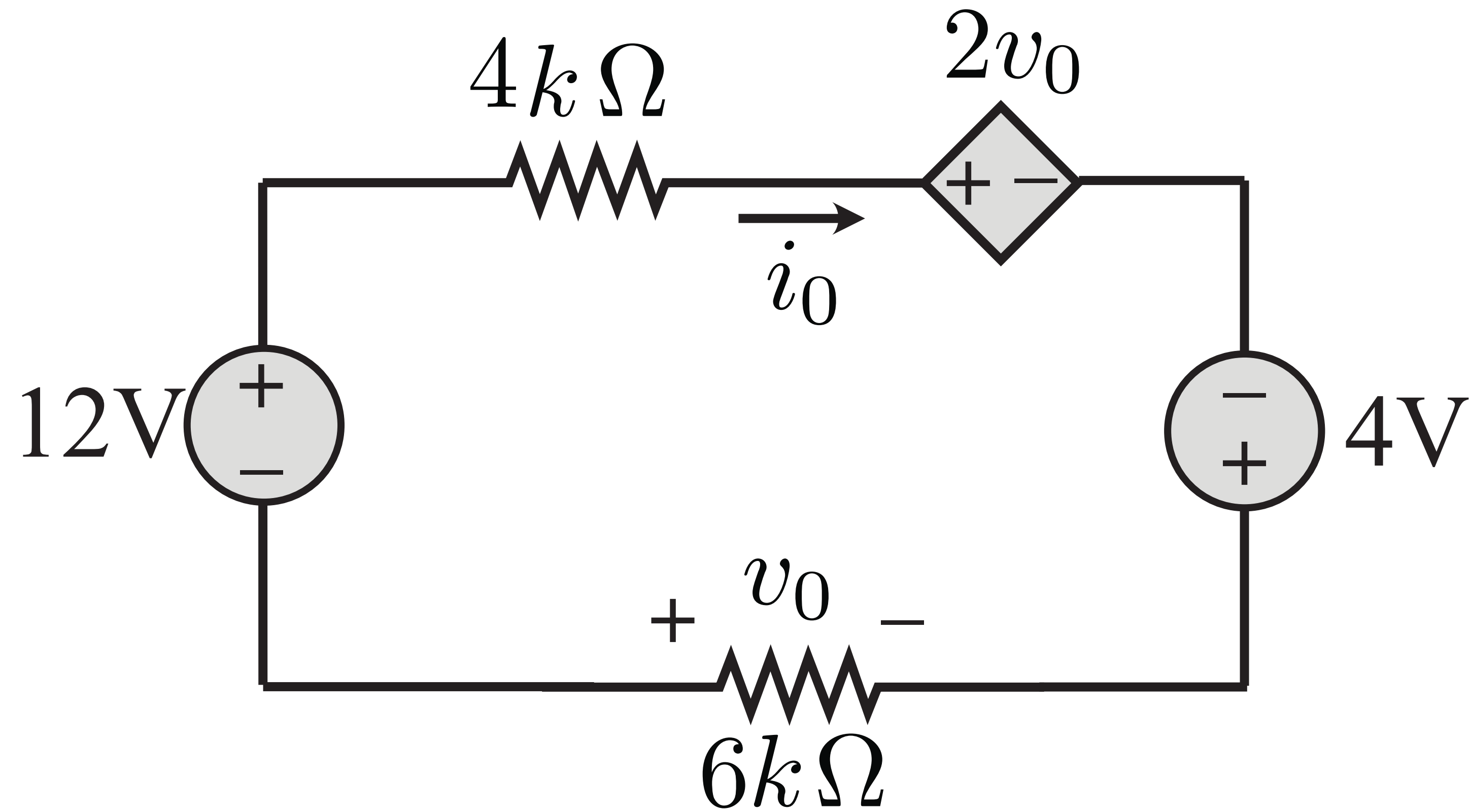
$$v_6 = 5mA \cdot 6k\Omega = 30V$$

$$v_I = 10V + 10V + 30V = 50V$$

Find v_0 & i_o



Find v_0 & i_0



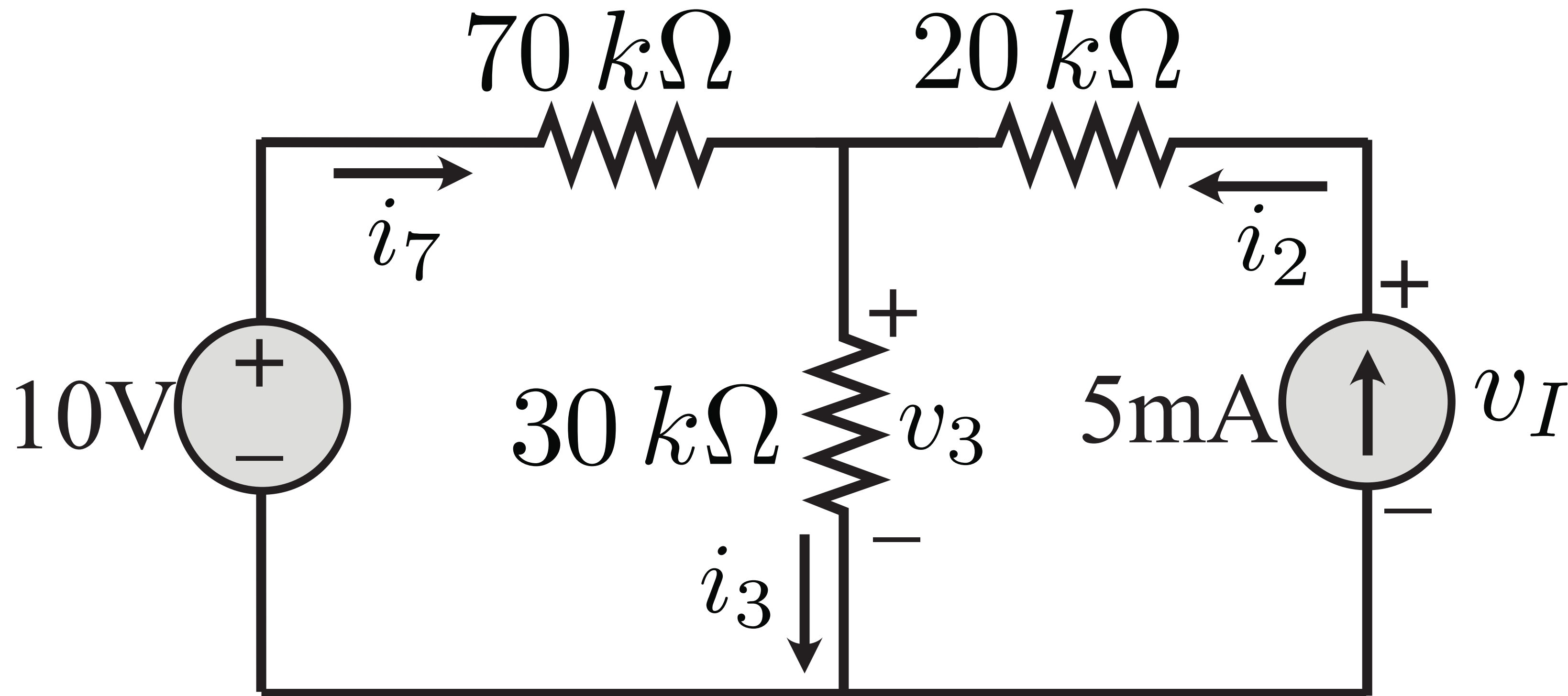
$$v_0 = -i_0 \cdot 6k\Omega$$

$$KVL \rightarrow 12V - 4k\Omega \cdot i_0 - 2v_0 + 4V + v_0 = 0$$

$$\rightarrow i_0 = -8mA \text{ \& } v_0 = 48V$$

Find i_2 , i_3 , i_7 , v_3 & v_I

$$i_2 = 5 \text{ mA}$$



$$KVL \rightarrow 10V - i_7 70k\Omega - i_3 30k\Omega = 0$$

$$KCL \rightarrow i_7 + 5 \text{ mA} = i_3$$

$$\rightarrow i_7 = -1.4 \text{ mA} \text{ \& } i_3 = 3.6 \text{ mA}$$

$$\rightarrow v_3 = 108 \text{ V}$$

$$KVL \rightarrow V_I = 208 \text{ V}$$