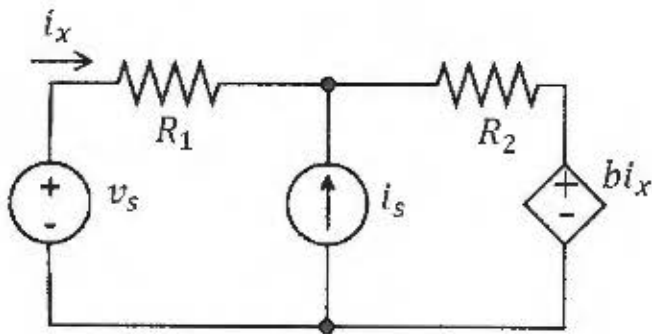


Use superposition to find i_x .



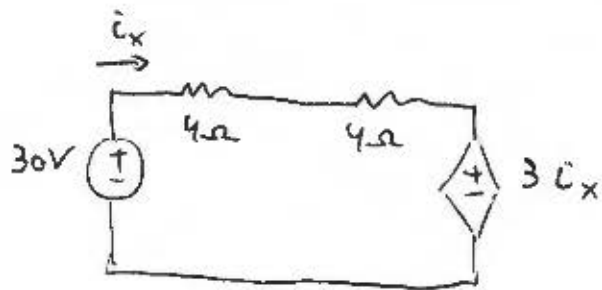
$$R_1 = 4 \text{ ohm}$$

$$R_2 = 4 \text{ ohm}$$

$$b = 3 \text{ V/A}$$

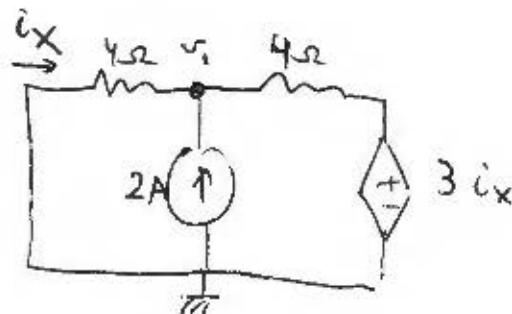
$$v_s = 30 \text{ V}$$

$$i_s = 2 \text{ A}$$



$$\text{KVL: } 30 = i_x \cdot 4 + i_x \cdot 4 + 3 i_x$$

$$i_x = \frac{30}{11} \text{ A}$$



$$i_x = -\frac{v_1}{4}$$

$$\text{nodal: } \frac{v_1}{4} - 2 + \frac{v_1 - 3 i_x}{4} = 0$$

$$v_1 - 8 + v_1 - 3 \left(-\frac{v_1}{4} \right) = 0$$

$$11 v_1 = 32$$

$$v_1 = \frac{32}{11} \Rightarrow i_x = -\frac{8}{11} \text{ A}$$

$$i_x = \frac{30}{11} - \frac{8}{11} = \frac{22}{11} \text{ A}$$

\Rightarrow

$$\boxed{i_x = 2 \text{ A}}$$