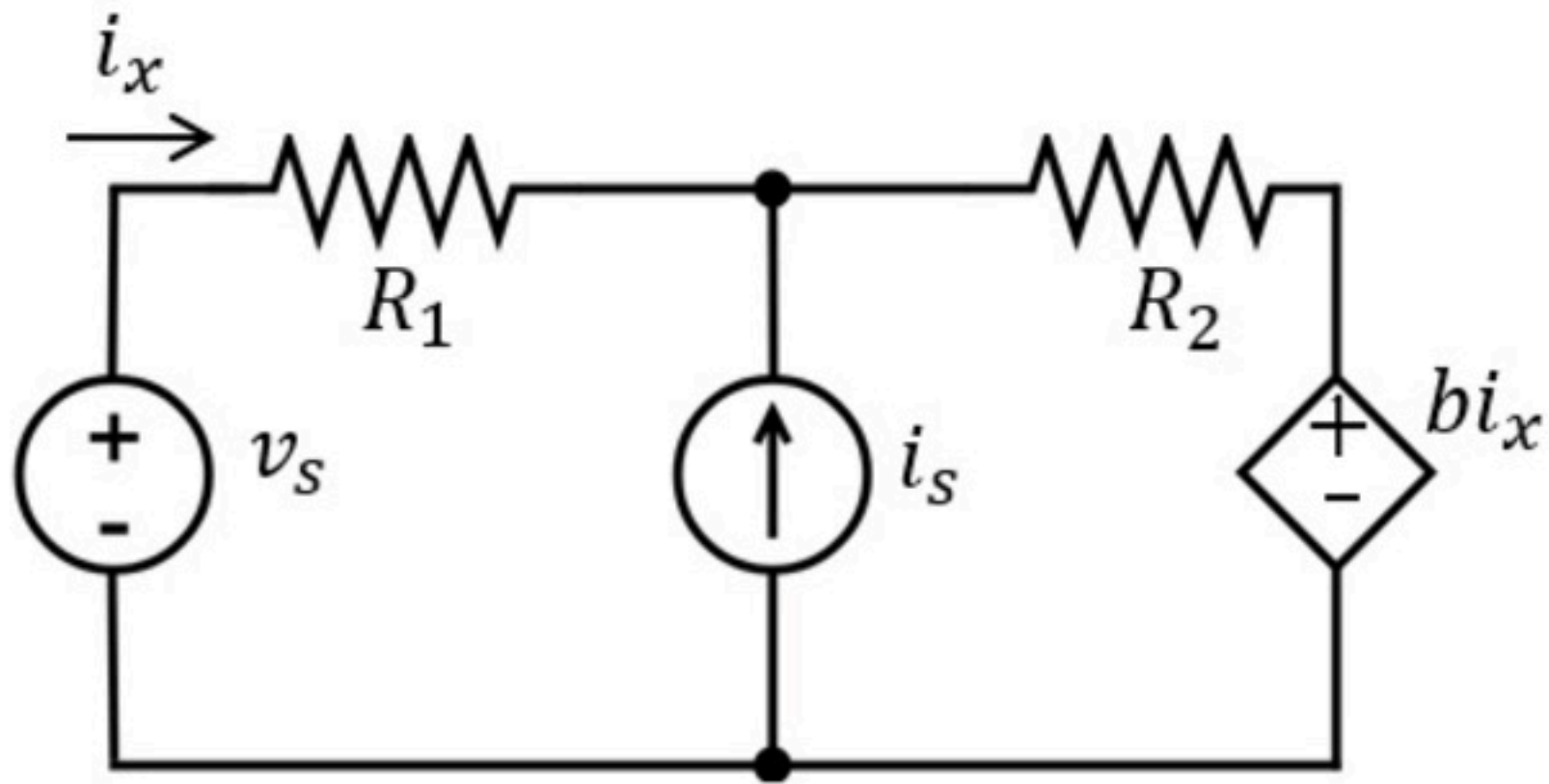Problem has been graded.

Use superposition to find i_x.

Given Variables:

R1 : 3 ohm

R2 : 4 ohm

b : 4 V/A

vs : 15 V

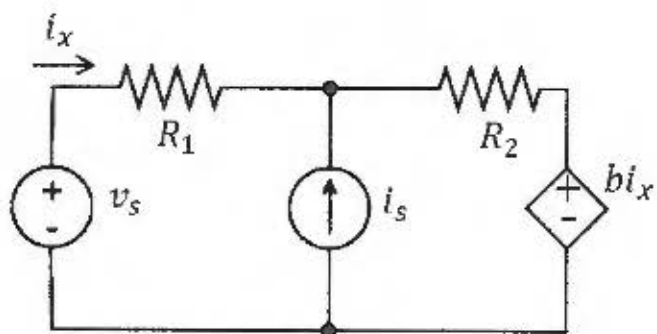is : 1 A

Calculate the following:
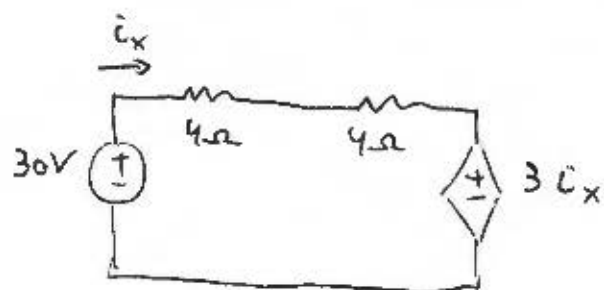
ix (A) :

Use superposition to find i_x.

R1 = 4 ohm

R2 = 4 ohm

b = 3 V/A

vs = 30 V

is = 2 A

$$KVL: \quad 30 = i_x \cdot 4 + i_x \cdot 4 + 3 i_x$$

$$i_x = \frac{30}{11} \ A$$
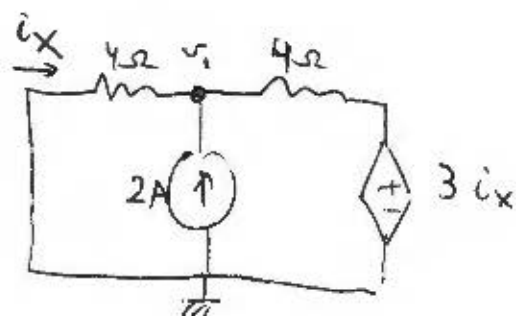
$$i_x = -\frac{v_1}{4}$$

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

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

$$11 \ v_1 = 32$$

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

$$i_x = \frac{30}{11} - \frac{8}{11} = \frac{22}{11} \ A \quad \Rightarrow \quad \boxed{i_x = 2 A}$$