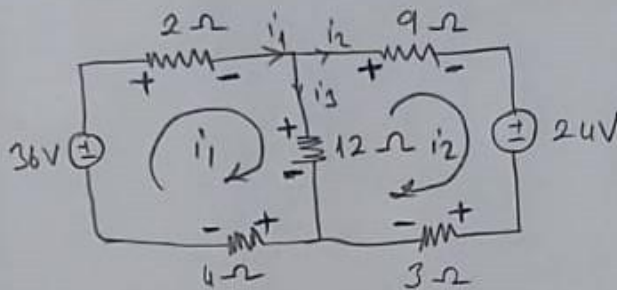


# QUESTION 1 HOMEWORK 5

## # QUESTION 1 # HOMEWORK #

Find the currents  $i_1$  and  $i_2$ .



$$i_1 = i_2 + i_3$$

$$i_3 = i_1 - i_2$$

$$-36 + 2i_1 + 12i_3 + 4i_1 = 0$$

$$-36 + 2i_1 + 12(i_1 - i_2) + 4i_1 = 0$$

$$18i_1 - 12i_2 = 36$$

Eq 1

$$+24 + 3i_2 - 12(i_3) + 9i_2 = 0$$

$$+3i_2 - 12(i_1 - i_2) + 9i_2 = -24$$

$$+3i_2 - 12i_1 + 12i_2 + 9i_2 = -24$$

$$-12i_1 + 24i_2 = -24$$

Eq 2

$$\begin{array}{r} 9 \quad 6 \quad 18 \\ 18i_1 - 12i_2 = 36 \\ -12i_1 + 24i_2 = -24 \\ \hline 6 \quad 12 \quad 12 \end{array}$$

$$\begin{array}{r} 6/ \quad 9i_1 - 6i_2 = 18 \\ 9/ \quad -6i_1 + 12i_2 = -12 \end{array}$$

$$\begin{array}{r} 54i_1 - 36i_2 = 108 \\ -54i_1 + 108i_2 = -108 \end{array}$$

$$72i_2 = 0$$

$$i_2 = 0$$

$$9i_1 - 6i_2 = 18$$

$$9i_1 = 18$$

$$i_1 = 2$$

Answer:

$$i_1 = 2 \text{ A}$$

$$i_2 = 0 \text{ A}$$

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