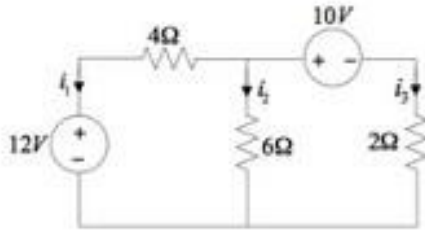


Answer on Question #61199-Engineering-Electrical Engineering

Help me solve this mesh analysis

3.36 Use mesh analysis to obtain i_1, i_2 and i_3 in the circuit.



Solution

$$\begin{cases} 12 + i_1 4 + (i_1 - i_2) 6 = 0 \\ 10 + i_3 2 + (i_3 - i_2) 6 = 0 \\ i_1 = i_2 + i_3 \end{cases} \rightarrow \begin{cases} 2 + i_1 4 - i_3 2 + (i_1 - i_3) 6 = 0 \\ 12 + i_1 4 + i_3 6 = 0 \end{cases} \rightarrow \begin{cases} 2 + i_1 10 - i_3 8 = 0 \\ 12 + i_1 4 + i_3 6 = 0 \end{cases}$$
$$\rightarrow \begin{cases} i_1 = -\frac{27}{23} A \approx -1.174 A \\ i_3 = -\frac{28}{23} A \approx -1.217 A \\ i_2 = i_1 - i_3 = \frac{1}{23} A \approx 0.043 A \end{cases}$$