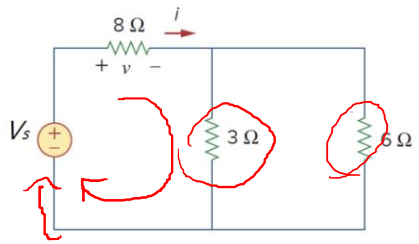
ENGR 065 Electric Circuits

Lecture 10a: Quiz 1 Review

Today's Topics

- Review the recent Quiz 1 concepts.

Questions



$3 \| 6 = \frac{3(6)}{3+6} = 2$

$-V_s + 8i + 2i = 0$

$i = \frac{2}{10} = 0.2\ A$

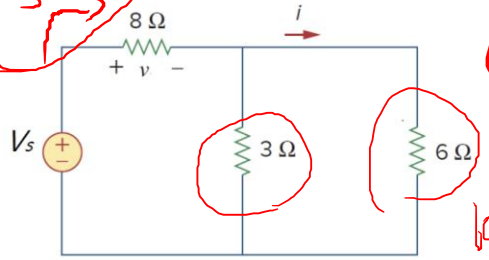
If v_s = 2 V, the power associated with the voltage source is

$p = -vi = -(2)(0.2)$

$= -0.4\ W$

- -0.4 W
- 0.4 W
- -0,5 W
- 0.5 W

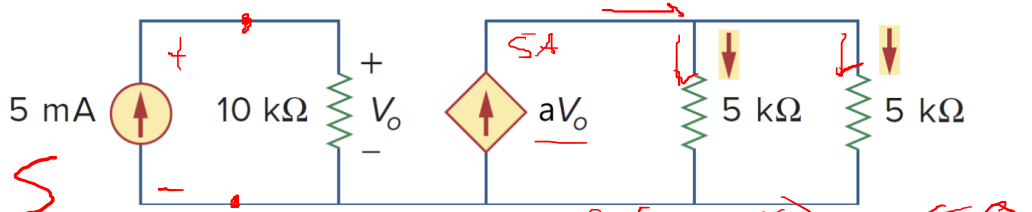
Questions



If V_s=120 V, the current i in the above circuit is equal to

- 4 A
- 1 A
- 2 A
- 3 A

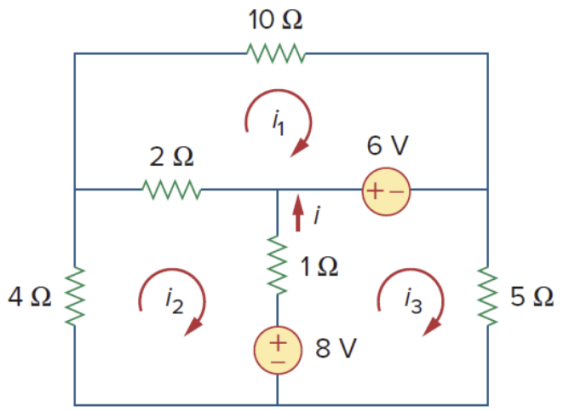
Questions



If a= 0.1 S, the current in each 5 kohms resistor in the above circuit is

- 2.5 A
- 5 A
- - 2.5 A
- - 5 A

Questions



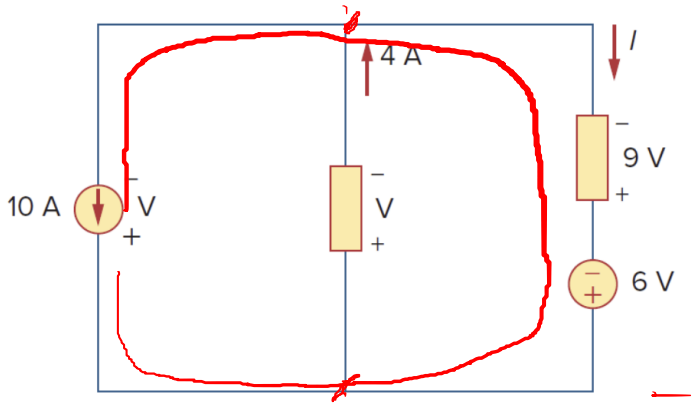
The mesh-current equation of mesh 3 in the above circuit is

(note: mesh 3 is the mesh where i_3 is defined)

- $-i_2 + 6i_3 - 2 = 0$
- $-i_2 + 6i_3 + 2 = 0$
- $i_2 + 6i_3 - 2 = 0$
- $i_2 + 6i_3 + 2 = 0$

Questions

KVL



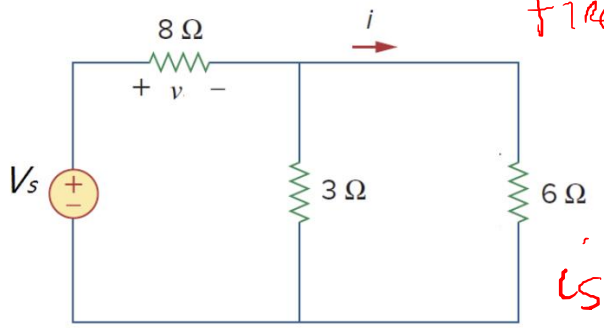
V $V = 6 + 9 = 15$ V

$-V + 6 + 9 = 0$

The voltage across the 10 A current source in the above circuit is

- ○ 15 V
- ○ -15 V
- ○ 3 V
- ○ - 3 V

Questions



find i_s

find i using current divider

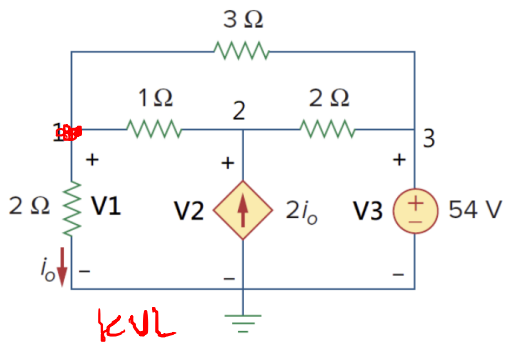
$i_s = \frac{30}{10} = 3$

$i = 3\left(\frac{3}{3+6}\right)$

If V_s = 30 V, the current i in the above circuit is equal to

- 1 A
- 2 A
- 3 A
- 4 A

Questions



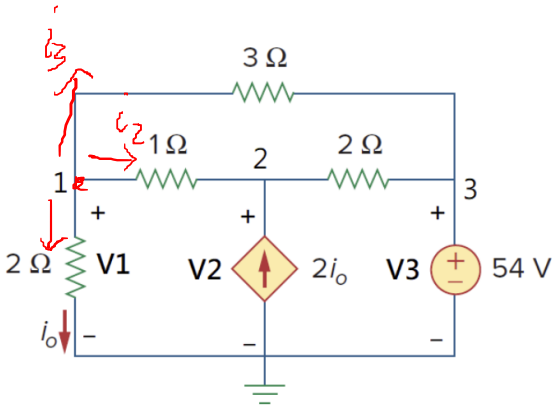
The current i_0 in the above circuit is

- ○ $i_o = \frac{V_1}{2}$
- ○ $i_o = \frac{V_1 - V_2}{2}$
- ○ $i_o = \frac{V_1 - V_3}{2}$
- ○ $i_o = \frac{V_1 + V_2}{2}$

$$-V_1 + 2i_0 = 0$$

$$i_0 = \frac{V_1}{2}$$

Questions



The node-voltage equation at node 1 in the above circuit is

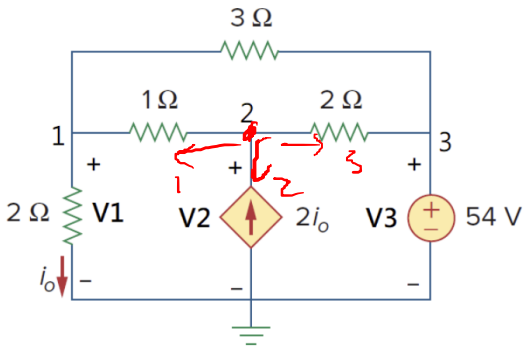
- $\frac{V_1}{2} + \frac{V_1 - V_2}{1} + \frac{V_1 - V_3}{3} = 0$
- $\frac{V_1}{2} + \frac{V_1 - V_2}{1} + \frac{V_1 + V_3}{3} = 0$
- $\frac{V_1}{2} + \frac{V_1 + V_2}{1} + \frac{V_1 - V_3}{3} = 0$
- $\frac{-V_1}{2} + \frac{V_1 - V_2}{1} + \frac{V_1 - V_3}{3} = 0$

$-V_1 + 2i_o = 0 \rightarrow i_o = \frac{V_1}{2}$

$-V_1 + 1i_2 + V_2 = 0 \rightarrow i_2 = V_1 - V_2$

$-V_1 + 3i_3 + V_3 = 0 \rightarrow i_3 = \frac{V_1 - V_3}{3}$

Questions



The node-voltage equation at node 2 in the above circuit is

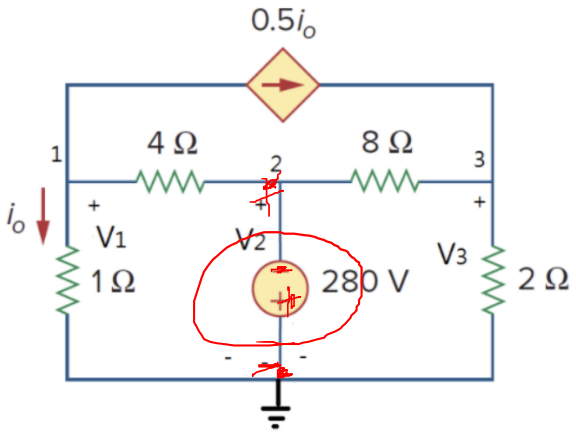
- ○ $\frac{V_2-V_1}{1} - 2i_o + \frac{V_2-V_3}{2} = 0$
- ○ $\frac{V_2-V_1}{1} + 2i_o + \frac{V_2-V_3}{2} = 0$
- ○ $\frac{V_2-V_1}{1} - 2i_o + \frac{V_3-V_2}{2} = 0$
- ○ $\frac{V_2-V_1}{1} + 2i_o + \frac{V_2-V_1}{2} = 0$

$-V_2 + 1\,i_1 + V_1 = 0 \rightarrow i_1 = \frac{V_2-V_1}{1}$

$i_2 = -2i_o$

$-V_2 + 2\,i_3 + V_3 = 0 \rightarrow i_3 = \frac{V_2-V_3}{2}$

Questions



The node-voltage equation at node 2 in the above circuit is

- ○ $V_2 = -280$
- ○ $V_2 = 280$
- ○ $\frac{V_2-V_1}{4} + 280 + \frac{V_2-V_3}{8} = 0$
- ○ $\frac{V_2-V_1}{4} - 280 + \frac{V_2-V_3}{8} = 0$

$V_2 = -280$ V