

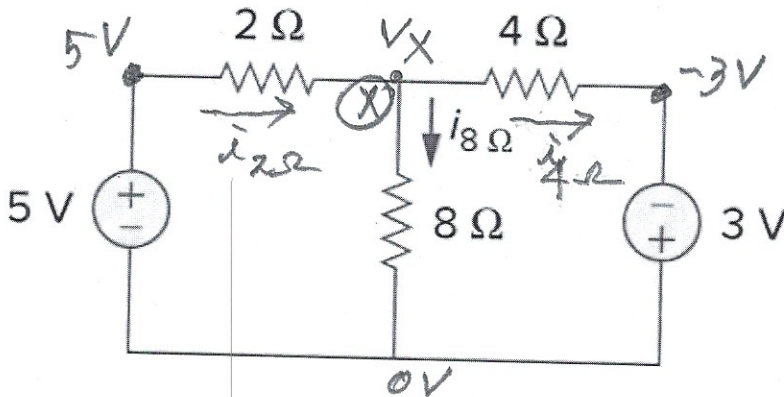
EE101 Quiz 1 (15 minutes)

January 17, 2018

Solution

NAME _____ ID _____

Show all work done for calculation for the following two parts.



1. (5 points) Find $i_{8\Omega}$ [A]

KCL at node X: $i_{2\Omega} = i_{8\Omega} + i_{4\Omega}$

$$\frac{5 - V_x}{2} = \frac{V_x}{8} + \frac{V_x - (-3)}{4}$$

Multiply both sides by 8:

$$4(5 - V_x) = V_x + 2(V_x + 3)$$

$$20 - 4V_x = V_x + 2V_x + 6$$

$$\Rightarrow 14 = 7V_x \quad \underline{V_x = 2V}$$

$$i_{8\Omega} = \frac{V_x}{8} = \frac{2}{8} = \frac{1}{4} = \underline{0.25A}$$

2. (5 points) Find power P [W] consumed by the 8Ω resistor.

$$P_{8\Omega} = V_x \cdot i_{8\Omega} = 2[V] \cdot 0.25[A]$$

$$= \underline{0.5[W]}$$

(Ans)

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