

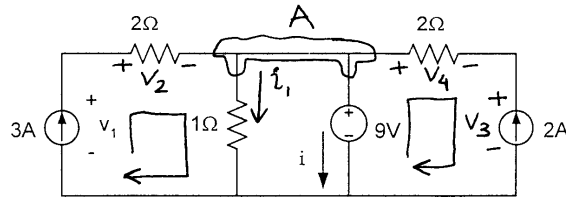
EE 201 Electric Circuits Quiz 2 Solution (Sample Quiz)

Quiz # 2
EE201-06 (032)

Name KEY
ID# _____

For the following circuit find

- (a) i and v_1
(b) Power absorbed or delivered by 3A, 9V and 2A sources. Indicate if the power is absorbed or delivered.



① 1Ω is in parallel to 9V, therefore same voltage
 $i_1 = \frac{9}{1} = 9A$.

Apply KCL at big node. A

$$3 + 2 = i_1 + i \Rightarrow \boxed{i = -4A}$$

To find ~~the~~ v_1 , apply KVL in the loop.

$$-v_1 + v_2 + 9 = 0 \Rightarrow v_1 = v_2 + 9 \Rightarrow v_1 = (3 \times 2) + 9$$

$$\Rightarrow \boxed{v_1 = 15V}$$

② $P_{3A} = -(3 \times v_1) = -45W$ (supplied or delivered)

$P_{9V} = +(i \times 9) = +(-4)(9) = -36W$ (supplied).

To find power of 2A source, find voltage across it

Apply KVL in last loop.

$$-9 + v_4 + v_3 = 0 \Rightarrow v_3 = 9 - v_4 \Rightarrow v_3 = 9 - (-2)(2)$$

$$\Rightarrow v_3 = 13V.$$

$\therefore P_{2A} = -(2 \times v_3) = -(2 \times 13) = -26W$ (supplied)

ohm's law
passive sign
convention.