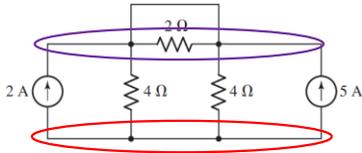


Quiz #1 Q.1

Q.1) Referring to the circuit shown in Figure Q.1, count the number of nodes: [2-Points]

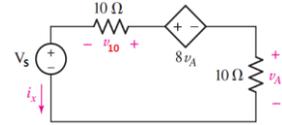


Number of nodes = 2

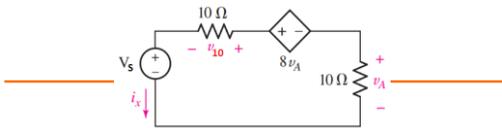
1

Quiz #1 Q.2

Q.2) In the circuit shown in Figure Q.2, find v_{10} , v_A , and the power of the dependent source if $V_S=100$ volts. [3-Points]

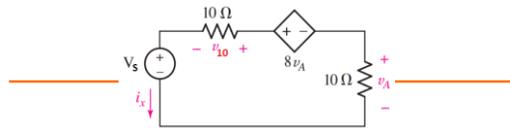


2



$$\begin{aligned}
 +100 - V_A - 8v_A + 10i_x &= 0 & 100 - 9(-10i_x) + 10i_x &= 0 \\
 100 - 9V_A + 10i_x &= 0 & 100 + 90i_x + 10i_x &= 0 \\
 V_A = -i_x(10) = -10i_x & & 100 + 100i_x &= 0 \\
 & & i_x = -1A &
 \end{aligned}$$

3



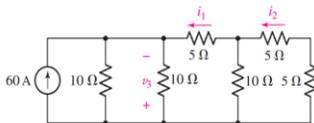
$$\begin{aligned}
 v_{10} &= i_x(10) = (-1)(10) = -10V \\
 v_A &= -10i_x = -10(-1) = 10V \\
 P &= VI = (8v_A)(i_x) \\
 &= -8(10)(-1) \\
 &= 80W
 \end{aligned}$$

$v_{10} = -10 \text{ Volts}$
 $v_A = 10 \text{ Volts}$
 P dependent source = 80 watt

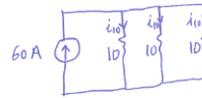
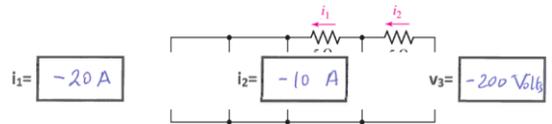
4

Quiz #1 Q.3

Q.3) Find the current i_1 , the current i_2 , and the voltage v_3 in the circuit shown in Figure Q.3. [5-Points]



5



$i_{10} = 20A$
 $i_1 = -20A$

$5 + 5 = 10\Omega$
 $10 \parallel 10 \Rightarrow Req = 5$

$5 + 5 = 10$
 $i_2 = -10A$
 $v_3 = (-20)(10)$
 $= -200 \text{ volts}$

6