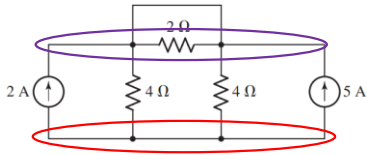


Quiz #1 Q.1

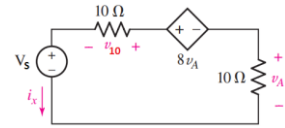
Q.1) Referring to the circuit shown in Figure Q.1, count the number of nodes: [2-Points]



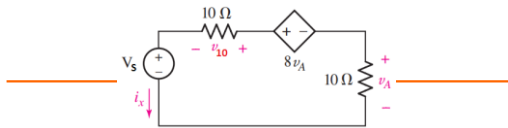
Number of nodes = 2

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



$$+100 - V_A - 8V_A + 10i_x = 0$$

$$100 - 9(-10i_x) + 10i_x = 0$$

$$100 - 9V_A + 10i_x = 0$$

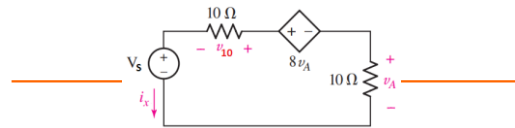
$$100 + 90i_x + 10i_x = 0$$

$$V_A = -i_x(10) = -10i_x$$

$$100 + 100i_x = 0$$

$$i_x = -1A$$

3



$$V_{10} = i_x(10) = (-1)(10) = -10V$$

$$P = VI = (8V_A)(i_x)$$

$$= -8(10)(-1)$$

$$V_A = -10i_x = -10(-1) = 10V$$

$$= 80W$$

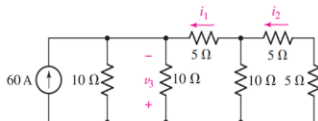
$$V_{10} = -10V$$

$$V_A = 10V$$

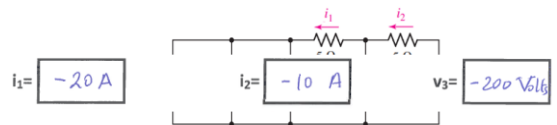
$$P_{\text{dependent source}} = 80W$$

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



$$i_1 = -20A$$

$$i_2 = -10A$$

$$v_3 = -200V$$



$$i_{10} = 20A$$

$$i_1 = -20A$$

$$5 + 5 = 10\Omega$$

$$10 \parallel 10 \Rightarrow R_{eq} = 5$$

$$5 + 5 = 10$$

$$i_2 = -10A$$

$$v_3 = (-20)(10) = -200V$$

6