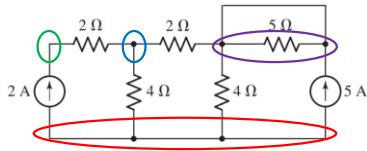


Quiz #1 Q.1

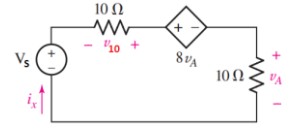
Q.1) Referring to the circuit shown in Figure Q.1, count the number of nodes: [2-Points]



Number of nodes = 4

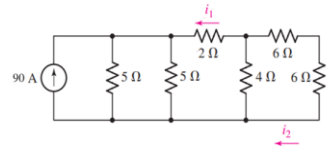
1

Quiz #1 Q.2

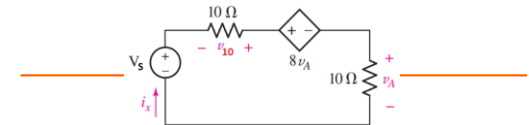
Q.2) In the circuit shown in Figure Q.2, find v_{10} , v_A , and the power of the dependent source if $V_s = 100$ volts. [3-Points]

2

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]

4



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

$$v_{10} = (-i_x)(10) = -10V$$

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

$$v_A = 10i_x = 10V$$

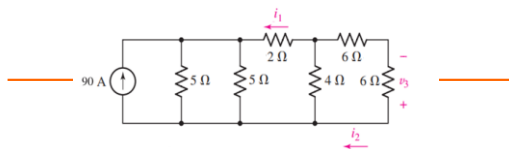
$$v_A = 10i_x$$

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

$$P = VI = (8v_A)(i_x) = (80)(1)$$

$$-100 + 100i_x = 0$$

$$v_{10} = -10 \text{ Volts} \quad v_A = 10 \text{ Volts} \quad P_{\text{dependent source}} = 80 \text{ Watts}$$

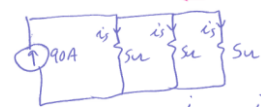
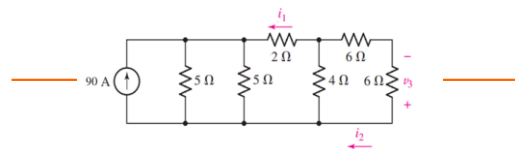
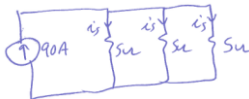


$$6 + 6 = 12 \Omega$$

$$12 || 4 = \frac{12 \times 4}{16} = \frac{48}{16} = 3 \Omega$$

$$3 + 2 = 5 \Omega$$

$$i_3 = \frac{90}{3} = 30 \text{ A}$$



$$i_2 = i \frac{4}{4+12}$$

$$i_1 = -30 \text{ A}$$

$$v_3 = (-7.5)(6) = (30) \frac{1}{4}$$

$$v_3 = -45 \text{ volts} = 7.5 \text{ A}$$