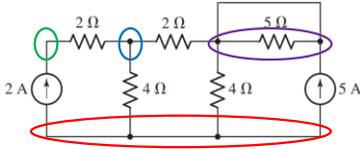


Quiz #1 Q.1

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

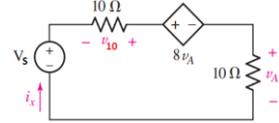


Number of nodes = 4

1

Quiz #1 Q.2

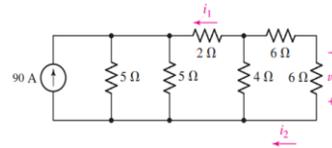
Q.2) In the circuit shown in Figure Q.2, find v_{10} , v_A , and the power of the dependent source if $V_s = 100$ volts. [3-Points]



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

$-100 + 10i_x + 8v_A + v_A = 0$
 $-100 + 10i_x + 9v_A = 0$
 $v_A = 10i_x$
 $-100 + 10i_x + 90i_x = 0$
 $-100 + 100i_x = 0$
 $i_x = 1$
 $v_{10} = (-i_x)(10) = -10V$
 $v_A = 10i_x = 10V$
 $P = VI = (8v_A)(i_x) = (80)(1) = 80W$
 $v_{10} = -10 \text{ Volts}$ $v_A = 10 \text{ Volts}$ $P_{\text{dependent source}} = 80 \text{ Watts}$

$6 + 6 = 12 \Omega$
 $12 || 4 = \frac{12 \times 4}{16} = \frac{48}{16} = 3 \Omega$
 $3 + 2 = 5 \Omega$
 $i_s = \frac{90}{3} = 30 \text{ A}$

$i_1 = -30 \text{ A}$
 $i_2 = i \frac{4}{4+12} = (30) \frac{1}{4} = 7.5 \text{ A}$
 $v_3 = (-7.5)(6) = -45 \text{ volts}$