Electrical Engineering

HW 1 – Chapter 2

<1>

2.13 Use KCL to determine the unknown currents in the circuit of Figure P2.13. Assume $i_0 = 2$ A and $i_2 = -7$ A.
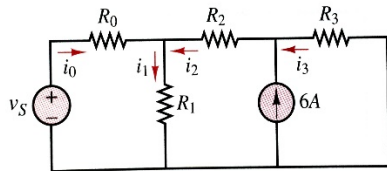

Figure P2.13

<2>

2.17 Use KCL to determine the current i_1, i_2, i_3, and i_4 in the circuit of Figure P2.17. Assume that $i_a = -2$ A, $i_b = 6$ A, $i_c = 1$ A and $i_d = -4$ A.
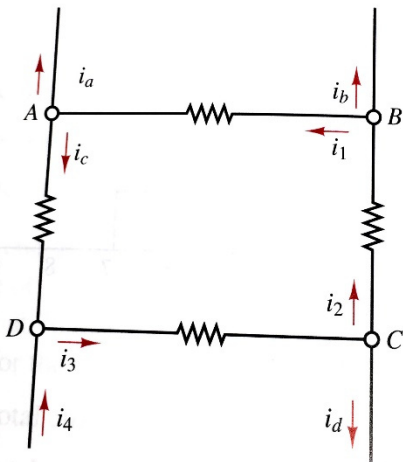

Figure P2.17

<3>

2.24 For the circuit shown in Figure P2.24, determine which components are supplying power and which are dissipating power. Also determine the amount of power dissipated and supplied.
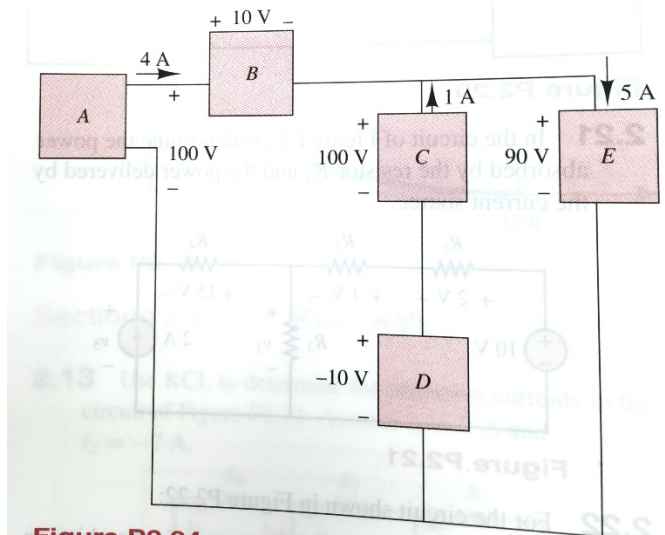

Figure P2.24

<4>

2.57 For the circuit shown in Figure P2.57, find the equivalent resistance seen by the source. How much power is delivered by the source?

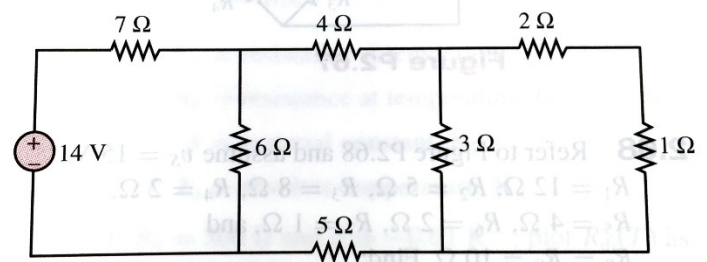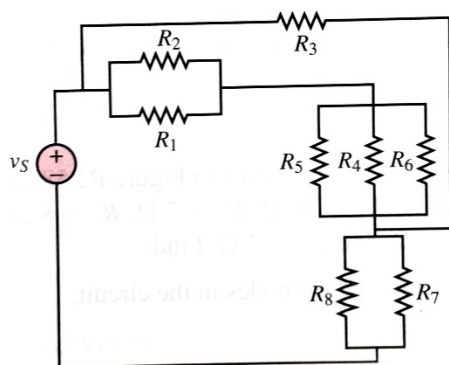**Figure P2.57**

2.59 Refer to Figure P2.59. Assume $v_S = 20$ V, ꟼ
$R_1 = 10$ Ω, $R_2 = 5$ Ω, $R_3 = 8$ Ω, $R_4 = 2$ Ω,
$R_5 = 4$ Ω, $R_6 = 2$ Ω, $R_7 = 1$ Ω, and $R_8 = 10$ Ω. How
many nodes are in the circuit? Use KCL and Ohm's
law to determine:

a. The current in the resistor R_7.

b. The equivalent resistance seen by the voltage
    source v_S.

Figure P2.59