

Figure P3.2

3.3 Using node voltage analysis in the circuit of Figure P3.3, find the voltage v across the 0.25-ohm resistance.

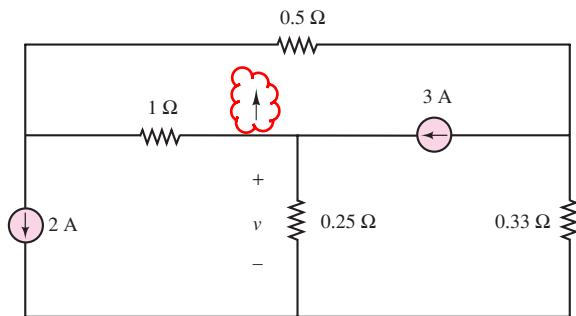


Figure P3.3

3.4 Using node voltage analysis in the circuit of Figure P3.4, find the current i through the voltage source.

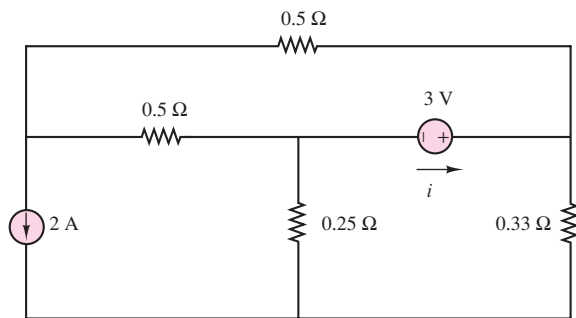


Figure P3.4

3.5 In the circuit shown in Figure P3.5, the mesh currents are

$$I_1 = 5 \text{ A} \quad I_2 = 3 \text{ A} \quad I_3 = 7 \text{ A}$$

Determine the branch currents through:

- a. R_1 . b. R_2 . c. R_3 .

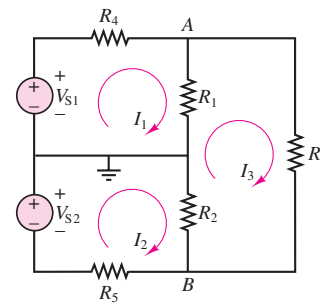


Figure P3.5

3.6 In the circuit shown in Figure P3.5, the source and node voltages are

$$V_{S1} = V_{S2} = 110 \text{ V}$$

$$V_A = 103 \text{ V} \quad V_B = -107 \text{ V}$$

Determine the voltage across each of the five resistors.

3.7 Using node voltage analysis in the circuit of Figure P3.7, find the currents i_1 and i_2 . $R_1 = 3 \Omega$; $R_2 = 1 \Omega$; $R_3 = 6 \Omega$.

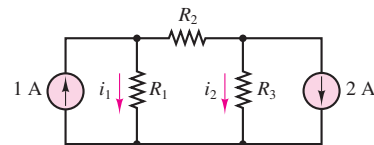


Figure P3.7

3.8 Use the mesh analysis to determine the currents i_1 and i_2 in the circuit of Figure P3.7.

3.9 Using node voltage analysis in the circuit of Figure P3.9, find the current i through the voltage source. Let $R_1 = 100 \Omega$; $R_2 = 5 \Omega$; $R_3 = 200 \Omega$; $R_4 = 50 \Omega$; $V = 50 \text{ V}$; $I = 0.2 \text{ A}$.

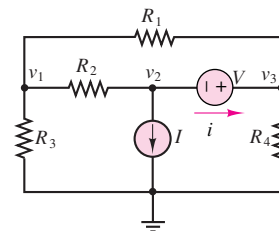


Figure P3.9

3.10 Using node voltage analysis in the circuit of Figure P3.10, find the three indicated node voltages. Let