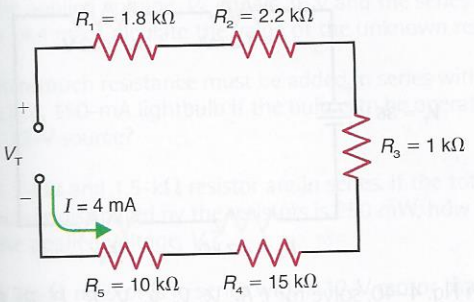
4–19 MultiSim In Fig. 4–31, solve for the individual resistor voltage drops. Then, using Kirchhoff's voltage law, find V_T.

Figure 4–31



4–20 An applied voltage of 15 V is connected across resistors R_1 and R_2 in series. If $V_2 = 3$ V, how much is V_1?

SECTION 4–5 POLARITY OF *IR* VOLTAGE DROPS

4–21 In Fig. 4–32,

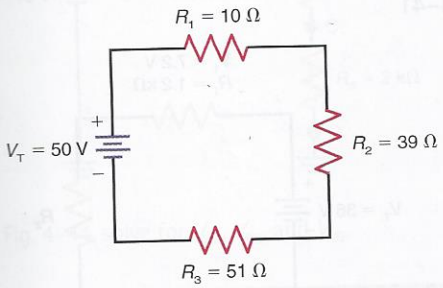
a. Solve for R_T, I, V_1, V_2, and V_3.

b. Indicate the direction of electron flow through R_1, R_2, and R_3.

c. Write the values of V_1, V_2, and V_3 next to resistors R_1, R_2, and R_3.

d. Indicate the polarity of each resistor voltage drop.

Figure 4–32



4–22 In Fig. 4–32, indicate the polarity for each resistor voltage drop using conventional current flow. Are the polarities opposite to those obtained with electron flow or are they the same?

4–23 If the polarity of V_T is reversed in Fig. 4–32, what happens to the polarity of the resistor voltage drops and why?

SECTION 4–6 TOTAL POWER IN A SERIES CIRCUIT

4–24 In Fig. 4–24, calculate P_1, P_2, and P_T.

4–25 In Fig. 4–25, calculate P_1, P_2, P_3, and P_T.

4–26 In Fig. 4–26, calculate P_1, P_2, P_3, P_4, P_5, and P_T.

4–27 In Fig. 4–27, calculate P_1, P_2, P_3, and P_T.

4–28 In Fig. 4–28, calculate P_1, P_2, P_3, P_4, and P_T.

SECTION 4–7 SERIES–AIDING AND SERIES–OPPOSING VOLTAGES

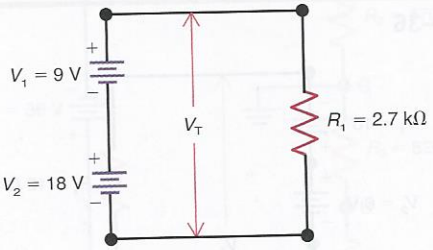
4–29 MultiSim In Fig. 4–33,

a. How much is the net or total voltage, V_T across R_1?

b. How much is the current, I, in the circuit?

c. What is the direction of electron flow through R_1?

Figure 4–33



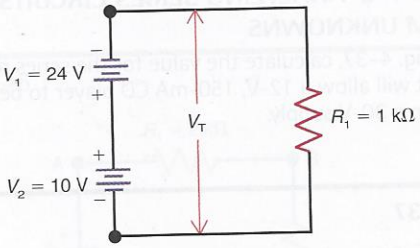
4–30 MultiSim In Fig. 4–34,

a. How much is the net or total voltage, V_T, across R_1?

b. How much is the current, I, in the circuit?

c. What is the direction of electron flow through R_1?

Figure 4–34



4–31 In Fig. 4–34, assume that V_2 is increased to 30 V. What is

a. The net or total voltage, V_T, across R_1?

b. The current, I, in the circuit?

c. The direction of electron flow through R_1?

4–32 In Fig. 4–35,

a. How much is the net or total voltage, V_T, across R_1?

b. How much is the current, I, in the circuit?

c. What is the direction of electron flow through R_1?

Figure 4–35