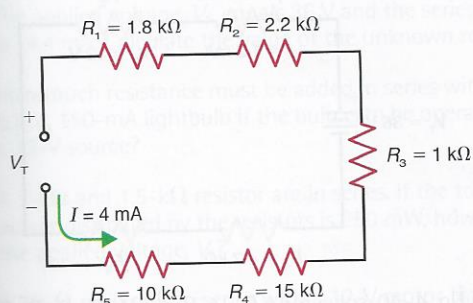


- 4-19 **MultiSim** In Fig. 4-31, solve for the individual resistor voltage drops. Then, using Kirchhoff's voltage law, find V_T .

Figure 4-31

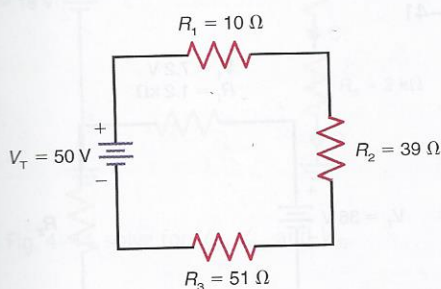


- 4-20 An applied voltage of 15 V is connected across resistors R_1 and R_2 in series. If $V_2 = 3$ V, how much is V_1 ?

SECTION 4-5 POLARITY OF I/R VOLTAGE DROPS

- 4-21 In Fig. 4-32, solve for R_1 , I , V_1 , V_2 , and V_3 .
 a. Solve for R_1 , 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 .

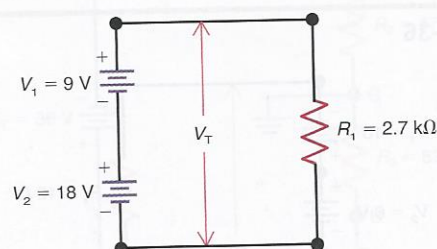
- 4-28 In Fig. 4-28, calculate P_1 , P_2 , P_3 , P_4 , and P_T .

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 ?

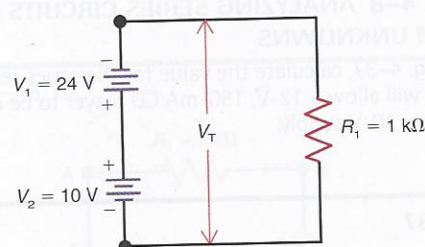
Figure 4-33



- 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

