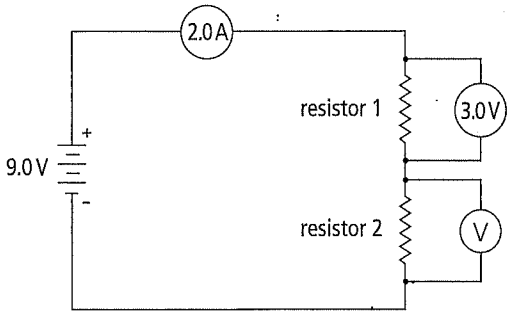
Check Your Understanding

Checking Concepts

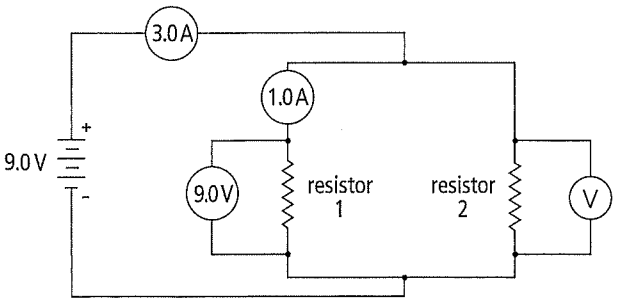
1. How is a parallel circuit different from a series circuit?
2. In a series circuit, how does the voltage supplied by the battery compare to the voltages on each load?
3. What happens to the total resistance of a series circuit when another resistor is added?
4. What happens to the total resistance of a parallel circuit when another resistor is added?
5. Two resistors are connected in parallel to a battery. What must be the voltage across these two resistors?
6. Is the current in one branch of a parallel circuit more than, less than, or equal to the total current entering the junction point of the circuit?

Understanding Key Ideas

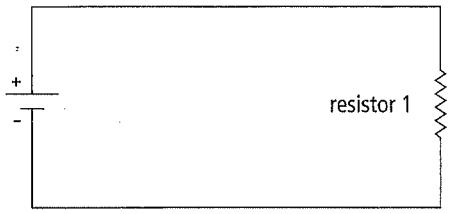
7. For the following circuit, find:
   (a) the current through resistor 2
   (b) the voltage across resistor 2



8. For the following circuit, find:
   (a) the current through resistor 2
   (b) the voltage across resistor 2

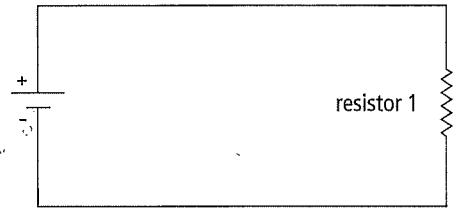


9. You are given the following circuit.



A second resistor is now added in series with resistor 1.
(a) Draw the new circuit diagram.
(b) Comparing your new circuit to the original, describe the changes in:
   (i) total resistance
   (ii) current leaving the cell
   (iii) voltage across resistor 1

10. You are given the following circuit.



A second resistor is now added in parallel with resistor 1.
(a) Draw the new circuit diagram.
(b) Comparing your new circuit to the original, describe the changes in:
   (i) total resistance
   (ii) current leaving the cell
   (iii) voltage across resistor 1

Pause and Reflect

Are the lights in your school connected in series or in parallel? Justify your answer using facts about series and parallel circuits.