Chapter 7 Review Exercises

Section 7.1

Temperature and Resistance **The table shows the resistances of a coil of copper wire at various temperatures. In Exercises 1–4, use the table.**

Temperature (°C)	Resistance (ohms)
20	100.00
21	100.38
22	100.76
23	101.14
24	101.52
25	101.90
26	102.28

1. Does the table relating temperature and resistance represent a linear pattern? Explain your reasoning.

2. Use a spreadsheet to graph the data. Is the graph linear?

3. Find the resistance of the coil when the temperature is 30°C.

4. Find the resistance of the coil when the temperature is 48°C.

Length (meters)	Resistance (ohms)
0	0
4	0.068
8	0.136
12	0.204
16	0.272
20	0.340
24	0.408

Length and Resistance **The table shows the resistances of a coil of copper wire for various lengths. In Exercises 5 and 6, use the table.**

5. Is the length of the wire proportional to its resistance? Make a scatter plot of the data to verify your answer.

6. Extend the pattern in the table to find the resistance for each length of the copper wire.
   - **a.** 26 meters
   - **b.** 28 meters
   - **c.** 30 meters

Voltage and Current **In Exercises 7 and 8, use the information below.**

Electric current is proportional to voltage.

7. Suppose a wire connected to a 3-volt battery has a current of 15 amperes. What is the current when the wire is connected to a 9-volt battery?

8. Suppose a wire connected to a 1.5-volt battery has a current of 20 amperes. What is the current when the wire is connected to a 4.5-volt battery?