

## GUIDED NOTES – 2.3 MODELS AND APPLICATIONS

### LEARNING OBJECTIVES

In this section, you will:

- Set up a linear equation to solve a real-world application.
- Use a formula to solve a real-world application.

### SETTING UP A LINEAR EQUATION TO SOLVE A REAL-WORLD APPLICATION

- Write out the 5 step procedure for modeling a linear equation to fit a given real-world problem, as described in this textbook section.

1.

2.

3.

4.

5.

**Try It:** Read Example 1 in the text, then answer the following.

Find a linear equation to solve for the following unknown quantities:

One number is three more than twice another number. If the sum of the two numbers is 36, find the numbers.

**Try It:** Read Example 2 in the text, then answer the following.

Find a linear equation to model this real-world application:

It costs ABC electronics company \$2.50 per unit to produce a part used in a popular brand of desktop computers. The company has monthly operating expenses of \$350 for utilities and \$3,300 for salaries. What are the company's monthly expenses?

### USING A FORMULA TO SOLVE A REAL-WORLD APPLICATION

- Many applications are solved using known formulas. Examples of formulas include the area of a rectangle, the perimeter of a rectangle, and the volume of a rectangular solid. Write out the formulas for the 3 examples.

1. Area of a Rectangle: \_\_\_\_\_
2. Perimeter of a Rectangle: \_\_\_\_\_
3. Volume of a Rectangular Solid: \_\_\_\_\_

**Try It:** Read Example 3 in the text, then answer the following.

On a Saturday morning, it took Jennifer 3.6 h to drive to her mother's house for the weekend. On Sunday evening, due to heavy traffic, it took Jennifer 4 h to return home. Her speed was 5 mi/h slower on Sunday than on Saturday. What was her speed on Sunday?

**Try It:** Read Example 4 in the text, then answer the following.

Find the dimensions of a rectangle given that the perimeter is 110 cm and the length is 1 cm more than twice the width.

**Try It:** Read Example 5 in the text, then answer the following.

A game room has a perimeter of 70 ft. The length is five more than twice the width. How many  $\text{ft}^2$  of new carpeting should be ordered?

