

EXAMPLE 2 Write an expression

CHOOSE A VARIABLE

To write an expression for a real-world problem, choose a letter that reminds you of the quantity represented, such as l for length.

CUTTING A RIBBON A piece of ribbon l feet long is cut from a ribbon 8 feet long. Write an expression for the length (in feet) of the remaining piece.

Solution

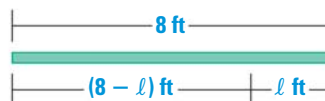
Draw a diagram and use a specific case to help you write the expression.

Suppose the piece cut is 2 feet long.



The remaining piece is $(8 - 2)$ feet long.

Suppose the piece cut is l feet long.



The remaining piece is $(8 - l)$ feet long.

► The expression $8 - l$ represents the length (in feet) of the remaining piece.

VERBAL MODEL A **verbal model** describes a real-world situation using words as labels and using math symbols to relate the words. You can replace the words with numbers and variables to create a *mathematical model*, such as an expression, for the real-world situation.

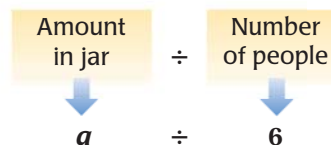
EXAMPLE 3 Use a verbal model to write an expression

TIPS You work with 5 other people at an ice cream stand. All the workers put their tips into a jar and share the amount in the jar equally at the end of the day. Write an expression for each person's share (in dollars) of the tips.

Solution

STEP 1 Write a verbal model.

STEP 2 Translate the verbal model into an algebraic expression. Let a represent the amount (in dollars) in the jar.



► An expression that represents each person's share (in dollars) is $\frac{a}{6}$.

AVOID ERRORS

Read the statement of the problem carefully. The number of people sharing tips is 6.



GUIDED PRACTICE for Examples 2 and 3

- WHAT IF?** In Example 2, suppose that you cut the original ribbon into p pieces of equal length. Write an expression that represents the length (in feet) of each piece.
- WHAT IF?** In Example 3, suppose that each of the 6 workers contributes an equal amount for an after-work celebration. Write an expression that represents the total amount (in dollars) contributed.