

**MM1P1d** Monitor and reflect on the process of mathematical problem solving.**MM1P3a** Organize and consolidate their mathematical thinking through communication.

In Exercises 1–3, identify what you know and what you need to find out. You do *not* need to solve the problem.

1. You are making blueberry muffins for a bake sale and need to make enough muffins to fill 24 boxes of 6 muffins each. How many dozen muffins do you need to make?
2. The cellular phone plan you signed up for gives you 400 minutes a month for \$35 and charges \$.15 for each additional minute over 400 minutes. How long can you talk on the phone each month and stay within a budget of \$45?
3. You drive for 3 hours at an average speed of 50 miles per hour. How far do you travel?

In Exercises 4 and 5, state the formula that is needed to solve the problem. You do *not* need to solve the problem.

4. You invest \$200 into a savings account that earns 2% simple annual interest. How long will it take to earn \$50 in interest?
5. It takes you half an hour to travel 26 miles to work. What is your average speed?
6. **Sticker Collection** Your sticker collection consists of 175 stickers. Each sticker is either an animated cartoon character or an animal. There are 43 less stickers that are animated characters than stickers that are animals. Let x be the number of stickers that are animals. Which equation correctly models this situation?
A. $x - 43 = 175$ **B.** $x + (x + 43) = 175$ **C.** $x + (x - 43) = 175$
7. **Candles** You sell candles for \$1 each. It costs you \$.60 to make each candle. What is your profit if you sell 200 candles?
8. **Bookshelf** You installed a bookshelf on the wall to organize some of your books. The books that you absolutely want on the shelf weigh a total of $6\frac{3}{4}$ pounds. The bookshelf can handle no more than 9 pounds. You plan on filling the rest of the shelf with your paperbacks that each weigh about $\frac{1}{8}$ pound. Assuming you won't run out of room, how many paperback books can you add to the shelf?
9. **Camping** You are responsible for buying supplies for an upcoming camping trip. You can buy packages of stew that just need water added and then are heated. Each package costs \$4.95 and contains enough stew for 2 people. You need to buy enough packages so that you can have stew for 3 days of the trip. There will be 8 people on the trip. How many packages do you need? What is the total cost?
10. **Banking** You are going to open a certificate of deposit (CD) that earns simple interest. One CD earns 2% annual interest on a \$500 deposit for 3 years. Another CD earns 3% annual interest on a \$250 deposit for 4 years. Which CD will earn more interest?

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- 1. Stamp Collection** Your stamp collection consists of 145 stamps. Each stamp has either a cancellation mark or no cancellation mark. There are 93 more stamps with cancellation marks than stamps without cancellation marks. Let x be the number of stamps with cancellation marks. Which equation correctly models this situation?

A. $x + 93 = 145$ **B.** $x + (x + 93) = 145$ **C.** $x + (x - 93) = 145$

In Exercises 2–4, write an equation that you can use to solve the problem. You do *not* need to solve the problem.

- 2.** Your soccer team has raised \$400 for cleats and shin guards. It will cost \$41.50 for each of the 15 players to have a pair of cleats and shin guards. How much more money will each player have to pay to cover the cost?
- 3.** You are putting tile on part of the walls in your kitchen. You use both plain and decorative tiles. You need to use a total of 500 tiles and you want to use three times as many plain tiles as decorative tiles. How many of each kind of tile will you need?
- 4.** You buy 8 gifts. Some of the gifts are CDs for \$12 each and the others are DVDs for \$20 each. How many CDs do you buy if you spend a total of \$136?

In Exercises 5 and 6, write the formula that is needed to solve the problem and identify the values of the variables that are given. You do *not* need to solve the problem.

- 5.** You are traveling 250 miles to your friend's house. It takes you 5 hours to get there. What was your average speed?
- 6.** The savings account in which you initially invested \$250 has earned \$30 simple annual interest in 5 years. What is the annual interest rate of the account?
- 7. Garden** You are putting fence around a rectangular garden whose length is twice its width. You use 90 feet of fencing. What are the dimensions of the garden?
- 8. Party** You are responsible for buying the frozen lasagna for an upcoming birthday party. Each package of lasagna costs \$7.99 and serves 8. You need to buy enough packages so that each person can have two servings. There will be 17 people at the party. How many packages do you need? What is the total cost for the lasagna?
- 9. Temperature** Last year, the low temperature in your town was 32°F. The high temperature for the year was 3 times this temperature. What were last year's high and low temperatures in degrees Celsius? Round your answers to the nearest tenth.
- 10. Painting** You and your friend are painting a 150-foot long fence. You start at opposite ends at the same time and paint towards each other. You paint the fence at a rate of 1.75 feet per minute and your friend paints at a rate of 1.25 feet per minute.
- a.** How long will it take both of you to complete the fence?
- b.** How far from your beginning point will each of you be?