Homework and Problem-Solving Practice Workbook

Includes

- 91 Homework Practice Worksheets
- 91 Problem-Solving Practice Worksheets
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Lesson 1 Homework Practice

Factors and Multiples

Find the GCF of each set of numbers.

1. 12, 30
2. 50, 40

3. 28, 42, 56
4. 14, 56, 63

ANALYZE TABLES A store is organizing toys into bins. The toys must be put into bins so that each bin contains the same number of toys without mixing the toys.

5. What is the greatest number of toys that can be put in a bin?

6. How many bins are needed for each type of toy?

Find the LCM of each set of numbers.

7. 3, 5
8. 8, 12

9. 4, 5, 6
10. 5, 10, 15

11. Avery gets newsletters by e-mail. He gets one for sports every 5 days, one for model railroads every 10 days, and one for music every 8 days. If he got all three today, how many more days will it be until he gets all three newsletters on the same day again?
Lesson 1 Problem-Solving Practice

Factors and Multiples

Solve.

1. A warehouse has three shelves that can hold 8, 12, or 16 skateboards. Each shelf has sections holding the same number of skateboards. What is the greatest number of skateboards that can be put in a section?

2. Monique has 15 oranges, 9 peaches, and 18 pears. She wants to put all of the fruit into decorative baskets. Each basket must have the same number of pieces of fruit in it. Without mixing fruits, what is the greatest number of pieces of fruit that Monique can put in each basket?

3. Jill wants to put 45 sunflower seeds, 81 corn plants, and 63 tomato plants in her garden. If she puts the same number of plants in each row and if each row has only one type of plant, what is the greatest number of plants that Jill can put in one row?

4. The high school marching band rehearses with either 6 or 10 members in every line. What is the smallest number of people who can be in the marching band?

5. The Line A bus arrives at the bus stop every 25 minutes, and the Line B bus arrives every 15 minutes. Both are at the bus stop right now. In how many minutes will both be at the bus stop again?

6. In a clock, a large gear completes a rotation every 45 seconds, and a small gear completes a rotation every 18 seconds. If the gears are aligned now, how many seconds will pass before the gears are aligned again?
Lesson 2 Homework Practice

Ratios

1. **FRUITS** Find the ratio of bananas to oranges in the graphic at the right. Write the ratio as a fraction in simplest form. Then explain its meaning.

2. **MODEL TRAINS** Hiroshi has 4 engines and 18 box cars. Find the ratio of engines to box cars. Write the ratio as a fraction in simplest form. Then explain its meaning.

**ANALYZE TABLES** For Exercises 3 and 4, refer to the table showing tide pool animals. Write each ratio in simplest form.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemones</td>
<td>11</td>
</tr>
<tr>
<td>Limpets</td>
<td>14</td>
</tr>
<tr>
<td>Snails</td>
<td>18</td>
</tr>
<tr>
<td>Starfish</td>
<td>9</td>
</tr>
</tbody>
</table>

3. Find the ratio of limpets to snails. Then explain its meaning.

4. Find the ratio of snails to the total number of animals. Then explain its meaning.

5. **ZOOS** A petting zoo has 5 lambs, 11 rabbits, 4 goats, and 4 piglets. Find the ratio of goats to the total number of animals. Write the ratio in simplest form. Then explain its meaning.

6. **FOOD** At the potluck, there were 6 pecan pies, 7 lemon pies, 13 cherry pies, and 8 apple pies. Find the ratio of apple pies to the total number of pies. Write each ratio in simplest form. Then explain its meaning.

7. **BAKERY** Rolls are being prepared to go to grocery stores. Divide 72 rolls into 2 groups so the ratio is 3 to 5.

8. **LAUNDRY** A basket of laundry is being separated. Divide 48 pieces of clothing into 2 groups so the ratio is 1 to 3.
Lesson 2 Problem-Solving Practice

Ratios

For Exercises 1–3, use the figure below. The circle has been divided in eighths.

1. Find the ratio of shaded sections to striped sections. Then explain its meaning.

2. Find the ratio of shaded sections to the total number of sections. Write the ratio as a fraction in simplest form. Then explain its meaning.

3. What is the ratio of empty sections to striped or shaded sections? Explain its meaning.

4. FOOTBALL In a recent NFL season, the Miami Dolphins won 4 games and the Oakland Raiders won 5 games. What is the ratio of wins for the Dolphins to wins for the Raiders?

5. GARDENING Rod has 10 rosebushes, 2 of which produce yellow roses. Write the ratio 2 yellow rosebushes out of 10 rosebushes in simplest form.

6. AGES Oscar is 16 years old and his sister Julia is 12 years old. What will be the ratio of Oscar’s age to Julia’s age in 2 years? Write as a fraction in simplest form.
Lesson 3 Homework Practice

Rates

Write each rate as a unit rate.

1. 3 inches of rain in 6 hours
2. $46 for 5 toys

3. 70 miles in 2 hours
4. 64 ounces in 8 cups

5. CLASSES A school has 825 students and 55 teachers. How many students are there per teacher?

6. CELL PHONE Tiffany pays $40 for 160 minutes of talk time on her cell phone. How many minutes of talk time does she get per dollar?

7. HAMBURGERS Mrs. Farley made 72 ounces of hamburger into 24 meat patties. How many ounces of hamburger are in each meat patty?

For Exercises 8 and 9, refer to the table showing the statistics of women’s baseball teams.

8. For each team, find the unit rate games per loss.

9. Which team has the best record? Explain how you know.

10. BREAKFAST Franco is making breakfast. He uses 36 eggs for 12 orders. How many eggs does he use per order?

11. TRAINS A train travels 558 miles in 3 hours. At this rate, how far does the train travel per hour?

12. SCHEDULES A bus makes 28 stops every 2 hours. How many stops does it make in 3 hours? in 4 hours?

The Flamingo League Stats

<table>
<thead>
<tr>
<th>Team</th>
<th>Games</th>
<th>Losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jules’ Rules</td>
<td>36</td>
<td>12</td>
</tr>
<tr>
<td>Pink Sox</td>
<td>68</td>
<td>17</td>
</tr>
<tr>
<td>Go-Girls</td>
<td>52</td>
<td>13</td>
</tr>
<tr>
<td>High-5s</td>
<td>72</td>
<td>8</td>
</tr>
</tbody>
</table>
Lesson 3 Problem-Solving Practice

Rates

For Exercises 1 and 2, use the table. It shows the types of containers and prices of Jolly Juice Orange Juice.

<table>
<thead>
<tr>
<th>Bottles of Jolly Juice Orange Juice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Containers</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>8 oz</td>
</tr>
<tr>
<td>16 oz</td>
</tr>
<tr>
<td>32 oz</td>
</tr>
<tr>
<td>64 oz</td>
</tr>
</tbody>
</table>

1. Find the unit rate for an 8-ounce container of Jolly Juice. Explain your answer.

2. Find the unit rates for each size. Then order the sizes from the least to greatest unit rates.

3. MOVIES Four friends paid a total of $32 for movie tickets. What is the ratio $32 for 4 people written as a unit rate?

4. WORKING At a warehouse, the employees can unload 18 trucks in 6 hours. What is the unit rate for unloading trucks?

5. ANIMALS A reindeer can run 96 miles in 3 hours. At this rate, how far can a reindeer run in 1 hour? Explain.

6. BABYSITTING Mrs. Carson pays Kristen $48 for babysitting 6 hours, and Mr. Vasquez pays her $67.50 for babysitting 9 hours. Who pays Kristin the better salary? Explain your answer.
Lesson 4 Homework Practice

Ratio Tables

For Exercises 1–3, use the ratio tables given to solve each problem.

1. **CAMPING** To disinfect 1 quart of stream water to make it drinkable, you need to add 2 tablets of iodine. How many tablets do you need to disinfect 4 quarts?

   Number of Tablets
   \[
   \begin{array}{c|c}
   \text{Number of Tablets} & 2 \\
   \text{Number of Quarts} & 1 \\
   \end{array}
   \]

   Number of Quarts
   \[
   \begin{array}{c|c}
   \text{Number of Tablets} & 2 \\
   \text{Number of Quarts} & 1 \\
   \end{array}
   \]

2. **BOOKS** A book store bought 160 copies of a book from the publisher for $4,000. If the store gives away 2 books, how much money will it lose?

   Cost in Dollars
   \[
   \begin{array}{c|c}
   \text{Cost in Dollars} & 4,000 \\
   \text{Number of Copies} & 160 \\
   \end{array}
   \]

3. **BIRDS** An ostrich can run at a rate of 50 miles in 60 minutes. At this rate, how long would it take an ostrich to run 15 miles?

   Distance Run (mi)
   \[
   \begin{array}{c|c}
   \text{Distance Run (mi)} & 50 \\
   \text{Time (min)} & 60 \\
   \end{array}
   \]

4. **SALARY** Luz earns $400 for 40 hours of work. Use a ratio table to determine how much she earns for 6 hours of work.

5. **DISTANCE** If 10 miles is about 16 kilometers and the distance between two towns is 45 miles, use a ratio table to find the distance between the towns in kilometers. Explain your reasoning.

**RECIPES** For Exercises 6–8, use the following information.

A soup that serves 16 people calls for 2 cans of chopped clams, 4 cups of chicken broth, 6 cups of milk, and 4 cups of cubed potatoes.

6. Create a ratio table to represent this situation.

7. How much of each ingredient would you need to make an identical recipe that serves 8 people? 32 people?

8. How much of each ingredient would you need to make an identical recipe that serves 24 people? Explain your reasoning.
Lesson 4 Problem-Solving Practice

**Ratio Tables**

For Exercises 1–4, use the ratio tables below to solve each problem.

<table>
<thead>
<tr>
<th>Cups of Flour</th>
<th>1</th>
<th></th>
<th></th>
<th>Number of Books</th>
<th>6</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cookies</td>
<td>30</td>
<td></td>
<td></td>
<td>Cost in Dollars</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. **BAKING** In Table 1, how many cookies could you make with 4 cups of flour?

2. **BAKING** In Table 1, how many cups of flour would you need to make 90 cookies?

3. **BOOKS** In Table 2, at this rate how many books can you buy with $5?

4. **BOOKS** In Table 2, at this rate, how much would it cost to buy 9 books?

5. **FRUIT** Patrick buys 12 bunches of bananas for $9 for the after school program. Use a ratio table to determine how much Patrick will pay for 8 bunches of bananas.

6. **HIKING** On a hiking trip, LaShana notes that she hikes about 12 kilometers every 4 hours. If she continues at this rate, use a ratio table to determine about how many kilometers she could hike in 6 hours.
Lesson 5 Homework Practice

Graph Ratio Tables

Graph and label each point on the coordinate plane at the right.

1. \(N (8, 6)\)  
2. \(P (0, 8)\)  
3. \(R (4, 8)\)  
4. \(S (3, 4)\)  
5. \(T (6, 8)\)  
6. \(W (6, 2)\)  
7. \(A (8, 2)\)  
8. \(B (2, 7)\)

9. **CAR WASH** Use the following information.

A car wash can wash four cars in one hour. The table shows the total number of cars washed in 0, 1, 2, and 3 hours.

<table>
<thead>
<tr>
<th>Hours</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars Washed</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>12</td>
</tr>
</tbody>
</table>

- a. List this information as ordered pairs (number of hours, number of cars washed).
- b. Graph the ordered pairs on the coordinate plane at the right. Then describe the graph.

10. **ERASERS** Erasers cost 5 cents each at the school store. The table shows this relationship.

<table>
<thead>
<tr>
<th>Number of Erasers</th>
<th>Cost (¢)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>

- a. List this information as ordered pairs (number of erasers, cost).
- b. Graph the ordered pairs. Then describe the graph.
Lesson 5 Problem-Solving Practice

Graph Ratio Tables

PHOTOGRAPHY A photography store sells black and white film. The cost of 1, 2, and 3 rolls of black and white film are shown in the table.

<table>
<thead>
<tr>
<th>Black and White Film Costs</th>
<th>Number of Rolls</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

1. List this information as ordered pairs (number of rolls of film, cost).

2. Graph the ordered pairs. Then describe the graph.

EXERCISE The table shows the time it takes Bernard to jog 1, 2, 3, and 4 laps around the track.

<table>
<thead>
<tr>
<th>Number of Times Around Track</th>
<th>Total Time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>

3. List this information as ordered pairs (number of times around track, total time).

4. Graph the ordered pairs. Then describe the graph.

FOOTBALL In football, each field goal made scores 3 points. The table shows this relationship.

<table>
<thead>
<tr>
<th>Field Goals Made</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

5. List this information as ordered pairs (field goals made, total points).

6. Graph the ordered pairs. Then describe the graph.

JEWELRY The table gives the number of beads needed to make bracelets of lengths 7, 8, 9, and 10 inches.

<table>
<thead>
<tr>
<th>Bracelet Length (in.)</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Beads</td>
<td>28</td>
<td>32</td>
<td>36</td>
<td>40</td>
</tr>
</tbody>
</table>

7. List this information as ordered pairs (bracelet length, number of beads).

8. Graph the ordered pairs. Then describe the graph.
Homework Practice

Problem-Solving Investigation: Four-Step Plan

Mixed Problem Solving

Use any strategy to solve.

1. **CAMPING** A cabin has room for 7 campers and 2 counselors. How many cabins are needed for a total of 49 campers and 14 counselors?

2. **CLOTHING** Heidi spent a total of $60 on clothing items. She bought 2 pairs of shorts for $10 each. She bought some T-shirts for $4 each. She also bought some sandals for $12 each. How many of each clothing item did Heidi purchase?

3. **TRAVEL** Jackie went on a trip to New York City and spent a total of $200 going to the theater. She purchased 4 student tickets for Broadway plays that cost $25 each and 5 discount tickets. How much did each discount ticket cost?

4. **CONTEST** A radio station is giving every third caller a T-shirt and every tenth caller a ceramic mug. Which caller will be the first to receive both prizes?

5. **NUMBERS** Describe the pattern below. Then, find the missing number.

   50, 500, ____ , 50,000

6. **AGES** Felicia’s mother is four times as old as Felicia. In 16 years, her mother will be twice her age. How old is Felicia now?

7. **FARBIC** Ginny has a piece of fabric 20 yards long. How many cuts will she make if she cuts the fabric into sections that are 2 yards long?

8. **FOOTBALL** Clint completed 3 passes the first year that he played football, 5 passes the second year, and 7 passes the third year. At this rate, how many passes should he expect to complete by his sixth year playing football?
**Problem-Solving Practice**

**Problem-Solving Investigation: Four-Step Plan**

<table>
<thead>
<tr>
<th>1. NUMBERS</th>
<th>2. ANIMALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lin and Pazi each think of a number. Lin’s number is 7 more than Pazi’s number. The sum of the two numbers is 49. What is Pazi’s number?</td>
<td>An animal shelter is building new cages for 26 dogs and 34 cats. All the animals are kept separate. The first crew can build a cage in 1 hour and the second crew, which is smaller, takes 2 hours to build a cage. How many hours will it take to build the cages using both crews if they do not take a break?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. MONEY</th>
<th>4. SHOPPING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breanna has quarters, dimes, and nickels in her purse. She has 3 fewer nickels than dimes, but she has 2 more nickels than quarters. If Breanna has 2 quarters, how much money does she have?</td>
<td>You are shopping for some new clothes. You buy a shirt for $28 and a pair of dress shoes for $45. If you give the cashier a $100 bill, how much change will you get back?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. REASONING</th>
<th>6. HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haya, Kurra, and Brooke are waiting in line. Brooke is not first in line. Haya is behind the oldest in line. Brooke is behind Haya. List the girls in order from first to last.</td>
<td>Noel is 6 inches taller than Gail. Gail is 4 inches taller than Carlisa. Carlisa is 8 inches shorter than Paolo. If Paolo is 48 inches tall, how tall is Noel?</td>
</tr>
</tbody>
</table>
Lesson 6 Homework Practice

Equivalent Ratios

Determine if each pair of ratios or rates are equivalent. Explain your reasoning.

1. 18 vocabulary words learned in 2 hours; 27 vocabulary words learned in 3 hours

2. $15 for 5 pairs of socks; $25 for 10 pairs of socks

3. 20 out of 45 students attended the concert; 12 out of 25 students attended the concert

4. 78 correct answers out of 100 test questions; 39 correct answers out of 50 test questions

5. 15 minutes to drive 21 miles; 25 minutes to drive 35 miles

ANIMALS For Exercises 6–8, refer to the table on lengths of some animals with long tails. Determine if each pair of animals has the same ratio of body length to tail length. Explain your reasoning.

6. brown rat and opossum

7. hamster and lemming

8. opossum and prairie dog

Animal Lengths (mm)

<table>
<thead>
<tr>
<th>Animal</th>
<th>Head &amp; Body</th>
<th>Tail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown Rat</td>
<td>240</td>
<td>180</td>
</tr>
<tr>
<td>Hamster</td>
<td>250</td>
<td>50</td>
</tr>
<tr>
<td>Lemming</td>
<td>125</td>
<td>25</td>
</tr>
<tr>
<td>Opossum</td>
<td>480</td>
<td>360</td>
</tr>
<tr>
<td>Prairie Dog</td>
<td>280</td>
<td>40</td>
</tr>
</tbody>
</table>
Lesson 6 Problem-Solving Practice

Equivalent Ratios

1. **FITNESS** Jessica can do 60 jumping-jacks in 2 minutes. Dale can do 150 jumping-jacks in 5 minutes. Are these rates equivalent? Explain your reasoning.

2. **BAKING** A cookie recipe that yields 48 cookies calls for 2 cups of flour. A different cookie recipe that yields 60 cookies calls for 3 cups of flour. Are these rates equivalent? Explain your reasoning.

3. **MUSIC** A music store is having a sale where you can buy 2 new-release CDs for $22 or you can buy 4 new-release CDs for $40. Are these rates equivalent? Explain your reasoning.

4. **TRAVEL** On the Mertler’s vacation to Florida, they drove 180 miles in 3 hours before stopping for lunch. After lunch they drove 120 miles in 2 hours before stopping for gas. Are these rates equivalent? Explain your reasoning.

5. **BOOKS** At the school book sale, Michael bought 3 books for $6. Darnell bought 5 books for $10. Are these rates equivalent? Explain your reasoning.

6. **SURVEY** One school survey showed that 3 out of 5 students own a pet. Another survey showed that 6 out of 11 students own a pet. Are these results equivalent? Explain your reasoning.
Lesson 7 Homework Practice

Ratio and Rate Problems

Solve.

1. **MAMMALS** A pronghorn antelope can travel 105 miles in 3 hours. If it continued traveling at the same speed, how far could a pronghorn travel in 11 hours?

2. **BIKES** Out of 32 students in a class, 5 said they ride their bikes to school. Based on these results, how many of the 800 students in the school ride their bikes to school?

3. **MEAT** Hamburger sells for 3 pounds for $6. If Samantha buys 10 pounds of hamburger, how much will she pay?

4. **FOOD** If 24 extra large cans of soup will serve 96 people, how many cans should Ann buy to serve 28 people?

5. **BIRDS** The ruby-throated hummingbird has a wing beat of about 200 beats per second. About how many wing beats would a hummingbird have in 3 minutes?

Use the table to answer questions 6–9. The table shows the vehicles that passed Luann on the highway.

<table>
<thead>
<tr>
<th>Types of Vehicles</th>
<th>Number of Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car</td>
<td>6</td>
</tr>
<tr>
<td>Truck</td>
<td>10</td>
</tr>
<tr>
<td>SUV</td>
<td>14</td>
</tr>
<tr>
<td>Minivan</td>
<td>15</td>
</tr>
</tbody>
</table>

6. At this rate, how many minivans would pass Luann if 60 vehicles passed her?

7. At this rate, how many trucks would pass Luann if 90 vehicles passed her?

8. If 150 vehicles passed Luann, how many more minivans than cars would you expect to pass her? Assume the rate continues.

9. Luann predicted that if a certain number of vehicles passed her by, 42 of them would be SUVs. What was that certain number of vehicles she had in mind?
Lesson 7 Problem-Solving Practice

**Ratio and Rate Problems**

<table>
<thead>
<tr>
<th>1. SCHOOL</th>
<th>2. FACTORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ratio of boys to girls in history class is 4 to 5. How many girls are in the class if there are 12 boys in the class?</td>
<td>A factory produces 6 motorcycles in 9 hours. Find how many hours it takes to produce 16 motorcycles at this rate.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. READING</th>
<th>4. BAKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alejandro read 4 pages in a book in 6 minutes. How long would you expect him to take to read 6 pages at this rate?</td>
<td>A recipe that will make 3 pies calls for 7 cups of flour. Find how many pies can be made with 28 cups of flour.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. TYPING</th>
<th>6. BASKETBALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sara can type 90 words in 4 minutes. About how many words would you expect her to type in 10 minutes at this rate?</td>
<td>The Lakewood Wildcats won 5 of their first 7 games this year. There are 28 games in the season. About how many games would you expect the Wildcats to win this season?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. FOOD</th>
<th>8. SHOPPING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two slices of Dan’s Famous Pizza have 230 Calories. How many Calories would you expect to be in 5 slices of the same pizza?</td>
<td>Grant paid $12 for 4 baseball card packs. How many baseball card packs can he purchase for $21?</td>
</tr>
</tbody>
</table>
Lesson 1 Homework Practice

Decimals and Fractions

Write each decimal as a fraction in simplest form.
1. 0.5
2. 0.8
3. 0.9
4. 0.75
5. 0.48
6. 0.72

Write each decimal as a mixed number in simplest form.
7. 3.6
8. 10.4
9. 2.11

Write each fraction or mixed number as a decimal.
10. \( \frac{7}{8} \)
11. \( \frac{7}{20} \)
12. \( \frac{13}{250} \)
13. \( \frac{7}{5} \)
14. \( \frac{929}{40} \)
15. \( \frac{729}{80} \)

16. DISTANCE The library is 0.96 mile away from Theo’s home. Write this distance as a fraction in simplest form.

17. INSECTS A Japanese beetle has a length between 0.3 and 0.5 inch. Find two lengths that are within the given span. Write them as fractions in simplest form.
Lesson 1 Problem-Solving Practice

Decimals and Fractions

1. **FIELD TRIP** About 0.4 of a biology class will be going on a field trip. Write the decimal as a fraction in simplest form.

2. **EARTH** Eight tenths of all life on Earth is below the ocean’s surface. Write 0.8 as a fraction in simplest form.

3. **DISTANCE** The distance of planets from the Sun is shown in the table. Write each decimal as a mixed number in simplest form.

<table>
<thead>
<tr>
<th>Planet</th>
<th>Distance from the Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth</td>
<td>92.96 million miles</td>
</tr>
<tr>
<td>Mercury</td>
<td>35.99 million miles</td>
</tr>
<tr>
<td>Venus</td>
<td>67.24 million miles</td>
</tr>
</tbody>
</table>

4. **SATURN** If you weighed 138 pounds on Earth, you would weigh 128.34 pounds on Saturn. Write the weight on Saturn as a mixed number in simplest form.

5. **MERCURY** The planet Mercury is roughly \( \frac{2}{5} \) the size of Earth. Write the fraction as a decimal.

6. **HEIGHT** Winona is \( 2 \frac{3}{12} \) the height of her little brother. Write the mixed number as a decimal.
Lesson 2 Homework Practice

Percents and Fractions

Write each percent as a fraction in simplest form.
1. 60%
2. 16%
3. 4%
4. 35%
5. 10%
6. 1%

Write each fraction as a percent.
7. \(\frac{6}{10}\)
8. \(\frac{8}{20}\)
9. \(\frac{8}{10}\)
10. \(\frac{3}{4}\)
11. \(\frac{7}{100}\)
12. \(\frac{4}{100}\)

13. ENERGY The United States uses 24% of the world’s supply of energy. What fraction of the world’s energy is this?

14. ANALYZE TABLES The table shows the makeup of a New Year’s Eve television show. What fraction of the show will be for the audience to speak?

<table>
<thead>
<tr>
<th>Part of the Show</th>
<th>Introduction</th>
<th>Skits</th>
<th>Guests</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>10%</td>
<td>25%</td>
<td>45%</td>
<td>20%</td>
</tr>
</tbody>
</table>
Lesson 2 Problem-Solving Practice

Percents and Fractions

1. **TOYS** The Titanic Toy Company has a 4% return rate on its products. Write this percent as a fraction in simplest form.

2. **MUSIC** There are 4 trombones out of 25 instruments in the Landers town band. What percent of the instruments are trombones?

3. **SHOPPING** Cynthia’s favorite clothing store is having a 30% off sale. What fraction represents 30%?

4. **SCHOOL** In Janie’s class, 7 out of 25 students have blue eyes. What percent of the class has blue eyes?

5. **BASKETBALL** In a recent NBA season, Shaquille O’Neal made 60% of his field goals. What fraction of his field goals did Shaquille make?

6. **RESTAURANTS** On Saturday afternoon, 41 out of 50 telephone calls taken at The Overlook restaurant were for dinner reservations. What percent of the telephone calls were for dinner reservations?

7. **HOMES** The percent of students who live within different ranges of distances from the school was recorded in a table. What fraction of the students live less than one mile from the school?

<table>
<thead>
<tr>
<th>Distance from School</th>
<th>Percent of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 mile</td>
<td>15%</td>
</tr>
<tr>
<td>1–5 miles</td>
<td>68%</td>
</tr>
<tr>
<td>More than 5 miles</td>
<td>17%</td>
</tr>
</tbody>
</table>

8. **BOWLING** The local bowling team won 13 out of 20 of their games this year. What percent of their games did the team win?
Lesson 3 Homework Practice

Percents and Decimals

Express each percent as a decimal.
1. 29%  
2. 63%  
3. 4%  
4. 9%
5. 48%  
6. 16%  
7. 10%  
8. 32%

9. ENERGY The United States gets about 39% of its energy from petroleum. Write 39% as a decimal.

10. SCIENCE About 8% of the earth’s crust is made up of aluminum. Write 8% as a decimal.

Express each decimal as a percent.
11. 0.45  
12. 0.12  
13. 0.68  
14. 0.73
15. 0.2  
16. 0.7  
17. 0.95  
18. 0.46

19. POPULATION In 2000, the number of people 65 years and older in Arizona was 0.13 of the total population. Write 0.13 as a percent.

20. GEOGRAPHY About 0.41 of Hawaii’s total area is water. What percent is equivalent to 0.41?

Replace each • with <, >, or = to make a true sentence.
21. 26% • 0.3  
22. 0.9 • 9%  
23. 4.7 • 47%

24. ANALYZE TABLES A batting average is the ratio of hits to at bats. Batting averages are expressed as a decimal rounded to the nearest thousandth. Show two different ways of finding how much greater Derek Jeter’s batting average was than Jorge Posada’s batting average. Express as a percent.

<table>
<thead>
<tr>
<th>New York Yankees, 2009 Batting Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Player</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Derek Jeter</td>
</tr>
<tr>
<td>Alex Rodriguez</td>
</tr>
<tr>
<td>Jorge Posada</td>
</tr>
<tr>
<td>Hideki Matsui</td>
</tr>
</tbody>
</table>
## Lesson 3 Problem-Solving Practice
### Percents and Decimals

#### 1. COMMUTING
According to the U.S. Census, 76% of U.S. workers commute to work by driving alone. Write 76% as a decimal.

#### 2. BASEBALL
A player’s batting average was 0.29 rounded to the nearest hundredth. Write 0.29 as a percent.

#### 3. ELECTIONS
In a recent U.S. midterm election, 39% of eligible adults voted. What is 39% written as a decimal?

#### 4. BASKETBALL
In a recent season, Jason Kidd of the Dallas Mavericks had a field goal average of 0.43 rounded to the nearest hundredth. What is 0.43 written as a percent?

#### 5. SPORTS
When asked to choose their favorite sport, 27% of U.S. adults who follow sports selected professional football. What decimal is equivalent to 27%?

#### 6. DRINKS
The table shows the percent of students in the sixth grade who chose each kind of drink as their favorite. Write the percent of students who chose tea as a decimal.

<table>
<thead>
<tr>
<th>Drink</th>
<th>Percent of Votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tea</td>
<td>22%</td>
</tr>
<tr>
<td>Cocoa</td>
<td>5%</td>
</tr>
<tr>
<td>Water</td>
<td>18%</td>
</tr>
<tr>
<td>Milk</td>
<td>24%</td>
</tr>
<tr>
<td>Juice</td>
<td>31%</td>
</tr>
</tbody>
</table>

#### 7. WATER
About 5% of the surface area of the U.S. is water. What decimal represents the amount of the U.S. surface area taken up by water?

#### 8. POPULATION
China accounts for 0.21 of the world’s population. What percent of the world’s population lives in China?
Lesson 4 Homework Practice

Percents Greater Than 100% and Percents Less Than 1%

Write each percent as a decimal and as a mixed number or fraction in simplest form.

1. 225%  2. 550%  3. 300%  4. 800%

5. 0.8%  6. 0.06%  7. 0.45%  8. 0.02%

Write each decimal as a percent.

9. 7.2  10. 12  11. 4.56  12. 1.04

13. 0.001  14. 0.008  15. 0.0078  16. 0.0092

Write each mixed number or fraction as a percent.

17. $4\frac{1}{2}$  18. $8\frac{1}{4}$  19. $\frac{1}{250}$  20. $\frac{3}{400}$

Write each percent as a decimal.

21. $\frac{3}{8} \%$  22. $\frac{7}{10} \%$  23. $\frac{17}{20} \%$  24. $\frac{13}{25} \%$

25. ATMOSPHERE Helium gas accounts for less than 0.01% of Earth’s atmospheric gases. Write this percent as a decimal and as a mixed number or fraction in simplest form. Then interpret its meaning.

26. STOCKS The stock of a particular company skyrocketed 1,550% in a one-month period. Write this percent as a decimal and as a mixed number. Then interpret its meaning.

27. ANALYZE TABLES Refer to the table shown.

   a. Write the percent of Venus’s diameter compared to the Sun’s diameter as a decimal.

   b. Which planet’s diameter is approximately $\frac{1}{200}$ of the Sun’s diameter? Explain.

<table>
<thead>
<tr>
<th>Diameter Size Compared to the Sun’s Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planet</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>Mercury</td>
</tr>
<tr>
<td>Venus</td>
</tr>
<tr>
<td>Earth</td>
</tr>
<tr>
<td>Mars</td>
</tr>
</tbody>
</table>
Lesson 4 Problem-Solving Practice

Percents Greater Than 100% and Percents Less Than 1%

1. INTERNET Kilroy's Web site business has increased every year for the last 3 years. Write the percent it increased during the second year as a decimal and as a fraction in lowest terms.

<table>
<thead>
<tr>
<th>Year</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>148%</td>
</tr>
<tr>
<td>Second</td>
<td>115%</td>
</tr>
<tr>
<td>Third</td>
<td>186%</td>
</tr>
</tbody>
</table>

2. BUSINESS Jocelyn expects her new software company to increase its sales next year $2\frac{3}{4}$ times their present value. Write this increase as a percent.

3. UTILITIES City records showed that 0.8% of new homes had no access to electricity. Write this percent as a decimal and as a fraction in simplest form.

4. PETS Berto got a puppy 8 weeks ago. In this time, the puppy's weight increased 215%. Write this percent as a decimal and as a fraction.

5. MANUFACTURING The Quality Assurance department at a gear company found that there were 3 defective gears for every 500 produced. Write this as a fraction and as a percent.

6. MEDICINE Estelle's pharmacist said that the medicine Estelle was taking contained no more than $\frac{1}{500}$ gram of impurities per gram of total weight. Write this fraction as a percent.
Mixed Problem Solving

Use the solve a simpler problem strategy to solve Exercises 1–3.

1. **ART** An artist plans to make 1 clay pot the first week and triple the number of clay pots each week for 5 weeks. How many clay pots will the artist make the fifth week?

2. **GEOGRAPHY** The total area of Wisconsin is 65,498 square miles. Of that, about 80% is land area. About how many square miles of Wisconsin is not land area?

3. **SCIENCE** Sound travels through seawater at a speed of about 1,500 meters per second. At this rate, how far will sound travel in 2 minutes?

Use any strategy to solve Exercises 4–8.

4. **MUSIC** Tanya scored 50 out of 50 points in her latest piano playing evaluation. She scored 42, 48, and 45 on previous evaluations. What is the average score of her evaluations?

5. **EXERCISE** At the community center, 9 boys and 9 girls are playing singles table tennis. If each girl plays against each boy exactly once, how many games are played?

6. **CLOCK** The clock in the bell tower rings every half hour. How many times will it ring in one week?

7. **VENN DIAGRAMS** The Venn diagram shows information about the 100 sixth graders in the school.

   How many more sixth graders in the school do not participate in band or chorus than do participate in band or chorus?

8. **MONEY** Kono wants to give $69 to charity. He will give each of 3 charities an equal amount of money. How much money will each charity receive?
Problem-Solving Practice

Problem-Solving Investigation: Solve a Simpler Problem

1. **FOOD** Is $8 enough money to buy a dozen eggs for $1.29, one pound of ground beef for $3.99, and a gallon of milk for $2.09? Explain.

2. **SURVEY** The results of a favorite-juice survey are shown below. What percents best describe the data?

   Favorite Juice
   - Cranberry
   - Grape
   - Apple
   - Orange

3. **MONEY** A total of 32 students are going on a field trip. Each student must pay $4.75 for travel and $5.50 for dining. About how much money should the teacher collect in all from the students?

4. **TRAVEL** Mr. Ishikawa left Jacksonville at 3:00 P.M. and arrived in Miami at 9:00 P.M., driving a distance of approximately 350 miles. During his trip, he took a one-hour dinner break. What was Mr. Ishikawa’s average speed?

5. **BAKE SALE** Oakdale Middle School received 240 contributions for its bake sale. If 30% of the contributions were pies, how many pies did the school receive?

6. **BABYSITTING** About how much more did Carrie earn babysitting in 2008 than in 2007?

<table>
<thead>
<tr>
<th>Carrie's Babysitting Earnings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Earnings ($)</td>
</tr>
<tr>
<td>2006</td>
<td>98.50</td>
</tr>
<tr>
<td>2007</td>
<td>149.00</td>
</tr>
<tr>
<td>2008</td>
<td>218.75</td>
</tr>
</tbody>
</table>
Lesson 5 Homework Practice

Compare and Order Fractions, Decimals, and Percents

Replace each \( \bullet \) with <, >, or = to make a true statement.

1. \( \frac{11}{12} \bullet \frac{2}{3} \)
2. 0.5 \( \bullet \) \( \frac{9}{18} \)
3. 237.5 \( \bullet \) \( \frac{8}{24} \)

4. \( \frac{6\frac{2}{3}}{6} \) \( \bullet \) \( \frac{12}{15} \)
5. 5.75 \( \bullet \) \( \frac{8}{12} \)
6. \( \frac{2}{3} \) \( \bullet \) \( \frac{10}{18} \)

7. \( \frac{18}{14} \) \( \bullet \) \( \frac{2}{7} \)
8. \( \frac{11}{12} \) \( \bullet \) \( \frac{2\frac{1}{3}}{3} \)
9. \( \frac{34}{18} \) \( \bullet \) \( \frac{15}{6} \)

Order the fractions from least to greatest.

10. \( \frac{\frac{3}{5}}{\frac{1}{4}} \) \( \), \( \frac{\frac{1}{2}}{\frac{2}{5}} \) \( \) 
11. \( \frac{\frac{7}{9}}{\frac{13}{18}} \) \( \), \( \frac{\frac{5}{6}}{\frac{2}{3}} \) \( \) 

12. \( \frac{\frac{3}{4}}{\frac{6\frac{1}{2}}{6}} \) \( \), \( \frac{\frac{5}{6}}{\frac{6\frac{3}{8}}{8}} \) \( \) 
13. \( \frac{\frac{2\frac{1}{3}}{2}}{\frac{\frac{6\frac{1}{2}}{15}}{2\frac{3}{5}}} \) \( \), \( \frac{\frac{2\frac{4}{9}}{2}}{2\frac{3}{5}} \) \( \)

14. MUSIC Ramundus is making a xylophone. So far, he has bars that are 1.75 feet, \( 1\frac{7}{12} \) feet, and \( 1\frac{2}{3} \) feet long. What is the length of the longest bar?

15. DANCE Alana practiced dancing for \( \frac{11}{4} \) hours on Monday, \( \frac{19}{8} \) hours on Wednesday, and 2.6 hours on Friday. On which day did she practice the closest to 2 hours? Explain your reasoning.
Lesson 5 Problem-Solving Practice

Compare and Order Fractions, Decimals, and Percents

1. **SHOES** Toya is looking in her closet. Use the table to determine whether she has more black shoes or more brown shoes. Explain.

<table>
<thead>
<tr>
<th>Shoe Color</th>
<th>Fraction of Shoes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>$\frac{1}{3}$</td>
</tr>
<tr>
<td>Brown</td>
<td>$\frac{2}{5}$</td>
</tr>
<tr>
<td>Gray</td>
<td>$\frac{4}{15}$</td>
</tr>
</tbody>
</table>

2. **BUDGET** Daniel spends $\frac{3}{7}$ of his money on rent and $\frac{4}{9}$ of his money on food. Does he spend more money on food or rent? Explain.

3. **WOODWORKING** Gabrielle drilled a hole that is $\frac{5}{9}$ inch wide. She has a screw that is $\frac{5}{6}$ inch wide. Is the hole wide enough to fit the screw? Explain.

4. **FOOD** In a recent survey, 0.4 of the people surveyed said their favorite food was pizza, 25% said it was hot dogs, and $\frac{3}{10}$ said it was popcorn. Which food was favored by the greatest number of people? Explain.

5. **OFFICE SUPPLIES** A blue paper clip is $\frac{1}{6}$ inch wide. A silver paper clip is $\frac{3}{8}$ inch wide, and a red paper clip is $\frac{1}{3}$ inch wide. What color paper clip has the smallest width? Explain.

6. **GUMBALLS** A red gumball is $2\frac{5}{8}$ inches across. A green gumball is $2\frac{5}{6}$ inches across, and a blue gumball is $2\frac{7}{9}$ inches across. List the gumballs in order from smallest to largest.
Lesson 6 Homework Practice

Estimate with Percents

Estimate each percent.

1. 51% of 62  
2. 39% of 42  
3. 78% of 148  
4. 34% of 99

5. 74% of 238  
6. 70% of 103  
7. 22% of 152  
8. 91% of 102

9. 26% of 322  
10. 65% of 181  
11. 98% of 60  
12. 11% of 10

13. Estimate twenty-nine percent of forty-eight.

14. Estimate sixty-two percent of one hundred twenty-four.

Estimate the percent that is shaded in each figure.

15.  
16.  
17.  

18. WORK Karl made $365 last month doing odd jobs after school. If 75% of the money he made was from doing yardwork, about how much did Karl make doing yardwork?

19. HOMEWORK Jin spent 32 hours on math and language arts homework last month. She spent about 30% of this total time on math. About how many hours were spent on math?
Lesson 6 Problem-Solving Practice

Estimate with Percents

1. **SCHOOL** The table shows how the 215 sixth-grade students at Westside School get to school. About how many of the sixth-grade students walk to school?

<table>
<thead>
<tr>
<th>Way to School</th>
<th>Percent of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus</td>
<td>56%</td>
</tr>
<tr>
<td>Car</td>
<td>20%</td>
</tr>
<tr>
<td>Walk</td>
<td>24%</td>
</tr>
</tbody>
</table>

2. **BASKETBALL** In a recent regular season, the WNBA Houston Comets won 54.76% of their games. They had 42 games in their regular season. About how many games did they win?

3. **SALES TAX** The sales tax rate in Lacon is 9%. About how much tax would you pay on an item that costs $61?

4. **SPORTS** The concession stand at a football game served 178 customers. Of those, about 52% bought a hot dog. About how many customers bought a hot dog?

5. **SLEEP** A recent study shows that people spend about 31% of their time asleep. About how much time will a person spend asleep during an average 78-year lifetime?

6. **BIOLOGY** The human body is 72% water, on average. About how much water will be in a person that weighs 138 pounds?

7. **MONEY** A video game that originally costs $25.99 is on sale for 50% off. If you have $14, would you have enough money to buy the video game? Explain.

8. **SHOPPING** A store is having a 20% sale. That means the customer pays 80% of the regular price. If you have $33, will you have enough money to buy an item that regularly sells for $44.99? Explain.
Lesson 7 Homework Practice

Percent of a Number

Find the percent of each number.

1. 28% of 70
2. 160% of 19

3. 0.9% of 54
4. 15% of 376

5. 44% of 205
6. 9% of 600

7. 1.4% of 85
8. 550% of 22

9. 0.68% of 425
10. 2.8% of 32

11. BASKETBALL At basketball practice, team members record the number of shots they take and the number of times they score. Find the number of shots each team member made during a practice.

<table>
<thead>
<tr>
<th>Student</th>
<th>Percent of Shots Made</th>
<th>Total Number of Shots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awan</td>
<td>75%</td>
<td>28</td>
</tr>
<tr>
<td>Isi</td>
<td>60%</td>
<td>35</td>
</tr>
<tr>
<td>Wade</td>
<td>72%</td>
<td>25</td>
</tr>
</tbody>
</table>

12. SHOPPING Chen wants to buy a pair of pants that regularly costs $54. Today, the pants are on sale for 60% of the original price. How much will Chen have to pay for the pants?
Lesson 7 Problem-Solving Practice

Percent of a Number

CAREERS The results of a survey about what 432 students would like as a career are shown below. Use the graph to answer Exercises 1–3. Round to the nearest whole number if necessary.

1. How many of the students want to be teachers?

2. How many students want to work as doctors or nurses?

3. How many students did not want to be lawyers?

4. SCHOOL The school took in $875 at the bake-sale fundraiser. Sixty-eight percent of the money came from cupcake sales. How much money did the school make selling cupcakes?

5. THEME PARK Eduardo spent 35% of his time at the theme park on roller coasters. If he was there for 8 hours, how much time did he spend on roller coasters?

6. TRACK Jesse was in the lead for 75% of the laps during the track race. If the race lasted 12 laps, how many laps did Jesse lead?
Lesson 8 Homework Practice

Solve Percent Problems

Write a proportion and solve each problem.

1. What percent of 600 is 12?  2. $4 is what percent of $50?  3. What number is 35% of 20?

4. 15% of 20 is what number?  5. 13 is 26% of what number?  6. 10 is 40% of what number?

7. What percent of 400 is 72?  8. 1% of what number is 7?  9. 33 is 50% of what number?

10. What number is 3% of 100?  11. What percent of 200 is 6?

12. What number is 15% of 40?  13. What number is 60% of 600?

14. What percent of 300 is 300?  15. 10% of what number is 30?

16. ALLOWANCE Mallorie has $5 in her wallet. If this is 10% of her monthly allowance, what is her monthly allowance?

17. WEDDING Of the 200 guests invited to a wedding, 154 attended the wedding. What percent of the invited guests attended the wedding?

18. CAMERA The memory card on Melcher’s digital camera can hold about 400 pictures. Melcher used 24% of the memory card while taking pictures at a family reunion. How many pictures did Melcher take at the family reunion?

19. OCEANS Use the table shown.
   a. The area of the Indian Ocean is what percent of the area of the Pacific Ocean? Round to the nearest whole percent.

   b. If the area of the Arctic Ocean is 16% of the area of the Atlantic Ocean, what is the area of the Arctic Ocean? Round to the nearest whole million.

<table>
<thead>
<tr>
<th>Ocean</th>
<th>Area (square miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific</td>
<td>64 million</td>
</tr>
<tr>
<td>Atlantic</td>
<td>32 million</td>
</tr>
<tr>
<td>Indian</td>
<td>25 million</td>
</tr>
</tbody>
</table>
## Lesson 8 Problem-Solving Practice

### Solve Percent Problems

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. DRIVING</strong> Mudrik installed a device on his car that guaranteed to increase his gas mileage by 10%. He currently gets 30 miles per gallon. How much will the gas mileage increase after installing the device?</td>
<td><strong>2. POPULATION</strong> The number of students at Marita’s school decreased to 90% of last year’s number. Last year, there were 1,500 students. How many students are there this year?</td>
</tr>
<tr>
<td><strong>3. VOTING</strong> Yolanda’s club has 50 members. Its rules require that 60% of them must be present for any vote. At least how many members must be present to have a vote?</td>
<td><strong>4. GARBAGE</strong> This month, Chun’s office produced 700 pounds of garbage. Chun wants to reduce the weight of garbage produced to 85% of the weight produced this month. What is the target weight for the garbage produced next month?</td>
</tr>
<tr>
<td><strong>5. SALARIES</strong> Yara just received a 6% raise in salary. Before the raise, she was making $52,000 per year. How much more will Yara earn next year?</td>
<td><strong>6. SPORTS</strong> Sally’s soccer team played 25 games and won 17 of them. What percent did the team win?</td>
</tr>
</tbody>
</table>
Lesson 1 Homework Practice

Add and Subtract Decimals

Find each sum or difference.

1. \(1.546 + 0.07\)
2. \(75.4 + 0.5919\)
3. \(100.8 + 5.87\)

4. \(3.72 + 6.0064\)
5. \(0.802 + 0.4581\)
6. \(4.3 + 0.1748\)

7. \(60 - 43.6\)
8. \(18.31 - 8.25\)
9. \(38.61 - 5.04\)

10. \(88.39 - 20.8\)
11. \(75 - 14.25\)
12. \(12.64 - 7.3\)

13. SHOPPING Lorena bought groceries for $102.34 and new shoes for $53.36. How much did Lorena spend on groceries and shoes altogether?

14. SCHOOL The school is 3.2 blocks from Hector's house. How many blocks does Hector walk to go to and from school?

15. FOOD Jabir buys 2.74 pounds of dried pinto beans and 4.05 pounds of dried lima beans. What is the difference between the weights of the beans that Jabir buys?

16. WEIGHT Kelly's baby brother weighs 7.71 pounds. Her newborn kitten weighs 0.24 pound. How much more does Kelly's baby brother weigh than her kitten?
## Lesson 1 Problem-Solving Practice

### Add and Subtract Decimals

**Solve.**

1. **MONEY** Last month, Shelly earned $15.38 for mowing lawns, $6.25 for cleaning her room, and $12.04 for other chores. How much did she earn last month?

2. **BOOKS** Micah had $10.52 after he left the bookstore. If he bought a book for $6.39, how much money did he have before he went to the bookstore?

3. **FABRIC** Noah measured the length of three pieces of cloth. The measurements were 4.29 feet, 3.6 feet, and 2.34 feet. What was the total length of the three pieces of cloth?

4. **SNOW** Charlotte is happy because it has snowed in her town for three straight days. On Monday, it snowed 3.56 inches. On Tuesday, it snowed 4.359 more inches. On Wednesday, it snowed 3.07 more inches. What was the total snowfall over the three days?

5. **MUSIC** During the first week of her vacation, Madison practices playing her flute 5.75 hours. In the following week, she spends 4.2 hours practicing the flute. What is the difference in the amount of time she spends practicing the flute during these weeks?

6. **HIKING** Roberto hikes 21.48 miles on one weekend. The next weekend he hikes 30 miles. How much less is the distance he hiked on the first weekend than the distance he hiked on the second weekend?

7. **ELEVATION** Cheyenne lives on a mountain that is 576.54 feet above sea level. The mountain her grandmother lives on is 408.6 feet above sea level. What is the difference in the elevations of these mountains?

8. **GARAGE SALE** Clinton had his sister sell some of their toys at a garage sale. Clinton makes $12.94 at the sale, and his sister makes $20.18. How much less did Clinton make at the garage sale than his sister?
Lesson 2 Homework Practice

Estimate Products

Estimate each product.

1. $4.7 \times 5.2$
2. $7.1 \times 2.1$
3. $32.9 \times 9.8$
4. $72.7 \times 19.8$
5. $25.4 \times 48.6$
6. $29.6 \times 29.6$
7. $5.2 \times 6$
8. $26.4 \times 3.4$
9. $75.8 \times 12$
10. $8.9 \times 11$
11. $42.4 \times 2$
12. $16.7 \times 13.1$
13. $11.5 \times 58.5$
14. $78.4 \times 21.5$
15. $32.1 \times 18.1$

16. **SPEED** A car moving at 35 miles per hour travels a distance of 51.3 feet each second. About how far does the car travel in 7.1 seconds?

17. **DINING OUT** The prices for a complete meal at a local restaurant average about $7.75 per person. About how much would a family of six expect to pay for a meal?

Use estimation to determine whether each answer is reasonable. If the answer is reasonable, write *yes*. If not, write *no* and provide a reasonable estimate.

18. $48.6 \times 6.7 = 125.62$
19. $3.7 \times 8.2 \times 5.5 = 166.87$
Lesson 2 Problem-Solving Practice

**Estimate Products**

Estimate each product.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>BIKING</strong> Mr. Chen can bike about 12.8 miles per hour. About how many miles can he ride in 3.7 hours?</td>
<td>2. <strong>BILLS</strong> Renee wants to figure out how much it costs her per year for her phone service. Her monthly bill is $23.21. About how much does it cost for one year of service?</td>
</tr>
<tr>
<td>3. <strong>COOKIES</strong> One package of cookie mix contains 7.8 ounces of mix. About how many ounces of mix would there be in 6 packages of cookie mix?</td>
<td>4. <strong>MOVIES</strong> Mr. Smith takes his children and a few of their friends to the movies and buys each of them a ticket. If admission for the children is $5.75 each for a total of 8 children, about how much should Mr. Smith expect to spend for their tickets?</td>
</tr>
<tr>
<td>5. <strong>RUNNING</strong> Corey is training to be a distance runner. His time for 6 miles is 37 minutes, 10 seconds. If he keeps the same pace for 6 more miles, about how long will it take him for the entire run?</td>
<td>6. <strong>DISTANCE</strong> The distance from Charlie’s home to school is 1.6 miles. If he walks to school and back, about how far will Charlie have walked?</td>
</tr>
<tr>
<td>7. <strong>FUN</strong> The prices in the table show the cost of each activity at the Fun Place. About how much would it cost for 4 people to play miniature golf?</td>
<td>8. <strong>BIRDHOUSES</strong> It takes Craig 2.5 hours to build a birdhouse. He wants to build five birdhouses for his yard. About how long will it take him to build all five birdhouses?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Miniature Golf</strong></td>
<td>$3.25</td>
</tr>
<tr>
<td><strong>Go-Karts</strong></td>
<td>$3.75</td>
</tr>
<tr>
<td><strong>Skating</strong></td>
<td>$4.50</td>
</tr>
</tbody>
</table>
Lesson 3 Homework Practice

Multiply Decimals by Whole Numbers

Multiply.
1. $0.8 \times 6$
2. $0.7 \times 4$
3. $1.9 \times 5$
4. $3.4 \times 9$
5. $6 \times 3.4$
6. $5.2 \times 9$
7. $0.6 \times 6$
8. $4 \times 0.8$
9. $5 \times 0.05$
10. $3 \times 0.029$
11. $0.0027 \times 15$
12. $0.0186 \times 92$
13. $6 \times 0.06$
14. $2 \times 0.037$
15. $0.015 \times 15$
16. $0.45 \times 45$

17. **ERASERS** Vernon buys 12 pencil erasers. Each costs $0.85. How much does Vernon spend on the erasers before tax?

18. **SOUP** Hot ’n Spicy Soup costs $2.39 a can. Brand X Soup costs $1.93 a can. Which costs more, 10 cans of Hot ’n Spicy, or 12 cans of Brand X? What is the difference?

19. **SHOPPING** Basketballs sell for $27.99 each at the Super D and for $21.59 each at the Bargain Spot. If the coach buys a dozen basketballs, how much can he save by buying them at the Bargain Spot? Justify your answer.

20. **SCHOOL** Jaimie purchases 15 pencils at the school bookstore. They cost $0.30 each. How much did she spend on pencils?
Lesson 3 Problem-Solving Practice

Multiply Decimals by Whole Numbers

1. **COOKING** Norberto uses three 14.7-ounce cans of chicken broth when he makes his tortilla soup. How many total ounces of chicken broth does he use?

2. **TIME** Amanda works on a farm. It takes her 2.25 hours to drive to town and back. She usually goes to town twice a week to get supplies. How much time does Amanda spend driving if she takes 8 trips to town each month?

3. **EXERCISE** The local health club is advertising a special for new members: no initiation fee to join and only $34.50 per month for the first year. If Andy joins the health club for one year, how much will he spend on membership?

4. **BIKING** In order to train for a cross-state biking trip, Julie rides her bike 34.75 miles five times a week. How many total miles does she ride each week?

5. **MONEY** David is building a doghouse and needs bolts and washers from the hardware store. How much will David pay for 16 bolts that are 4 inches long and a washer for each?

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-inch bolts</td>
<td>$0.87 each</td>
</tr>
<tr>
<td>4-inch bolts</td>
<td>$0.92 each</td>
</tr>
<tr>
<td>washers</td>
<td>$0.12 each</td>
</tr>
</tbody>
</table>

6. **INSECTS** One wing of a Royal Moth is 0.75 inch across. How wide is the moth’s wingspan when both wings are open?

7. **COSTUMES** K.J. is making costumes for this year’s parade. The pattern she is using calls for 2.125 yards of fabric for each costume. How many yards of fabric will she need to make 34 costumes?

8. **POOL PASSES** The Girl Scouts are going to the pool. It will cost them $2.50 per person to go and there are 10 people going. What will the total cost be?
Lesson 4 Homework Practice

Multiply Decimals by Decimals

Multiply.

1. \(0.3 \times 0.9\)
2. \(2.6 \times 1.7\)

3. \(1.09 \times 5.4\)
4. \(17.2 \times 12.86\)

5. \(0.56 \times 0.03\)
6. \(4.9 \times 0.02\)

7. \(2.07 \times 2.008\)
8. \(26.02 \times 2.006\)

9. \(4.68 \times 0.034\)
10. \(2.9 \times 4.05\)

11. **MINING** A mine produces 42.5 tons of coal per hour. How much coal will the mine produce in 9.5 hours?

12. **SHOPPING** Ms. Morgan bought 3.5 pounds of bananas at $0.51 a pound and 4.5 pounds of pineapple at $1.19 a pound. How much did she pay for the bananas and pineapple?
Lesson 4 Problem-Solving Practice

Multiply Decimals by Decimals

1. **GIFTS** Colin is making soap for gifts. The table shows the cost of the scented oils needed to make each kind of soap. He needs 1.5 ounces of scented oil to make a batch of soap. If he wants to make 2 batches of lavender soap and 2 batches of vanilla soap, how much money will he need for the oils?

<table>
<thead>
<tr>
<th>Oil</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>almond</td>
<td>$1.23 per ounce</td>
</tr>
<tr>
<td>lavender</td>
<td>$1.54 per ounce</td>
</tr>
<tr>
<td>vanilla</td>
<td>$1.65 per ounce</td>
</tr>
<tr>
<td>melon</td>
<td>$1.12 per ounce</td>
</tr>
</tbody>
</table>

2. **GROCERY** Iona’s favorite peaches are $2.50 per pound at the local farmers’ market. She bought 3.5 pounds of the peaches. How much did she spend?

3. **SHOPPING** Jennifer is buying new school clothes. The items she wants to buy add up to $132.50 before sales tax. Sales tax is calculated by multiplying the total amount by 0.08. What is the amount of sales tax for the items?

4. **DRIVING** Ana bought a van that holds 20.75 gallons of gas and gets an average of 15.5 miles per gallon. How many miles can she expect to go on a full tank?

5. **INCOME** Ishi makes $8.50 an hour rolling sushi at a restaurant. His paycheck shows that he worked 20.88 hours over the past two weeks. How much did Ishi make before taxes?

6. **TRAVEL** Manny is on vacation in France. He has rented a car to drive 233.3 kilometers from Paris to Brussels and wants to figure out the distance in miles. Since 1 kilometer is equal to about 0.62 mile, he needs to multiply the total kilometers by 0.62. About how many miles will Manny drive?
Homework Practice

Problem-Solving Investigation: Look for a Pattern

Mixed Problem Solving

Use the look for a pattern strategy to solve Exercises 1–3.

1. **SNOW** Javan built a 4.6-foot tower of snow in his yard. Later in the day, the weather became warmer. After one hour, the tower was 4.4 feet tall, and after two hours, it was 4.2 feet tall. If the pattern continues, how tall will the tower be after 10 hours?

2. **DECORATIONS** Bonita cut out stars for a school program. She first cut out a 4-centimeter star. The she cut out a 3.5-centimeter star, followed by a 3-centimeter star. If she follows this pattern, what size will the next star be?

3. **NUMBER SENSE** Describe the pattern below. Then find the next three numbers.

   \[21, 24.5, 28, 31.5, 35, \ldots\]

Use any strategy to solve Exercises 4–8.

4. **MONEY** Marci found $1.42 in her coat pocket. She had $4.85 in her backpack. Is $5.50, $6.50, or $7.50 a more reasonable estimate for how much money she had altogether?

5. **EXERCISE** At the community center, 9 boys and 9 girls are playing singles table tennis. If each girl plays against each boy exactly once, how many games are played?

6. **RECIPE** A recipe for potato salad calls for one teaspoon of vinegar for every 2 teaspoons of mayonnaise. How many teaspoons of vinegar are needed for 16 teaspoons of mayonnaise?

7. **SEATING** Tobias is having friends over for dinner. The dinner table is 6 feet by 3 feet. If each friend will need about 2 feet of table space to sit comfortably, what is the maximum number of friends Tobias can invite to dinner?

8. **SWIMMING** Heidi can swim one lap in the pool in 36 seconds. How long will it take her to swim 3 laps?
### Problem-Solving Practice

**Problem-Solving Investigation: Look for a Pattern**

1. **SEATING** A rectangular table seats four people on one side and 2 people on each end. How many seats are available if the ends of 5 tables are placed together?

2. **SAVINGS** Melinda started a savings account and plans to save $2 the first week, $4 the second week, and $8 the third week. If her pattern of saving continues, how much will she be saving in the fifth week?

3. **TRACK** A track and field coach plans the number of meters her team will sprint in each practice. The number of meters for the first four practices are 50 meters, 65 meters, 80 meters, and 95 meters. How many meters will be for the fifth practice?

4. **CONCERT** The last row of a balcony has 65 seats. The row in front of it has 62 seats, then the next row has 59 seats. If the balcony has 8 rows, how many seats are in the first row of the balcony?

5. **MARCHING BAND** A marching band formation has 12 rows. Three band members are in the first row, 6 band members in the second row, 9 band members in the third row, and so on. How many band members are in the 12th row?

6. **BREAD** The table shows the cost of loaves of bread. How much will 7 loaves of bread cost?

<table>
<thead>
<tr>
<th>Loaves</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.75</td>
</tr>
<tr>
<td>2</td>
<td>3.50</td>
</tr>
<tr>
<td>3</td>
<td>5.25</td>
</tr>
</tbody>
</table>
Lesson 5 Homework Practice

Divide Multi-Digit Numbers

Find each quotient.

1. $1,241 \div 43$
2. $4,520 \div 17$
3. $846 \div 11$
4. $4,378 \div 6$
5. $3,918 \div 92$
6. $497 \div 13$
7. $4,863 \div 55$
8. $868 \div 19$
9. $556 \div 3$
10. $5,488 \div 32$
11. $8,890 \div 48$
12. $4,415 \div 75$
13. $5,777 \div 15$
14. $353 \div 18$
15. $268 \div 9$

16. READING Keri is reading a novel that has 650 pages. She has 25 days to finish the book. If Keri reads the same number of pages each day, how many pages does she read each day?

17. SEATING The new baseball stadium holds 64,506 people. There are 26 gates where people enter the ballpark. The same number of people entered each gate. How many people entered the first gate?
## Lesson 5 Problem-Solving Practice

### Divide Multi-Digit Numbers

1. **HOMEWORK** Lisa solved 448 math problems for homework over 28 days. If she solved the same number of problems each day, how many problems did she solve per day?

2. **CHARITY** Luis was in charge of collecting money for a group of charities. He collected $979 for 11 charities. If the money was divided evenly, how much was given to each charity?

3. **MEALS** Sandra helped serve meals to 25 families. Each family received the same amount of food. If she served 275 pounds of food, how many pounds of food did each family receive?

4. **SALARY** Joshua works for a computer company and receives an annual salary of $38,480. He receives 26 equal pay checks during the year. How much does he receive in each pay check?

5. **FOOTBALL** The football team is raising money to have a new turf field installed. The cost of the turf field is $48,780. The team has 18 months to raise the money. How much do they need to raise each month?

6. **WINDOWS** A window washing company has a contract to wash 3,082 windows on a 23-story building. If there are the same number of windows on each floor, how many windows are there on each floor?

7. **TRAVEL** Mr. Santiago has a flight from New York to Paris that covers a distance of 3,636 miles. If the plane travels at 520 miles per hour, about how long will it take to get to Paris?

8. **DELIVERIES** Mr. Thomas is delivering bricks to a construction site. His truck holds 387 bricks at one time. The builder has ordered 2,800 bricks. How many trips will Mr. Thomas have to make to deliver all the bricks?
Lesson 6 Homework Practice

Estimate Quotients

Estimate each quotient.

1. \(121.6 \div 43.5\)  
2. \(69.1 \div 10.7\)  
3. \(38.9 \div 13.1\)

4. \(435.8 \div 88.6\)  
5. \(52.7 \div 9.2\)  
6. \(75.6 \div 15.3\)

7. \(43.2 \div 3.9\)  
8. \(88.8 \div 10.1\)  
9. \(93.6 \div 23.5\)

10. \(511.1 \div 247.3\)  
11. \(205.4 \div 48.6\)  
12. \(316.9 \div 327.5\)

13. \(11.5 \div 5.6\)  
14. \(2.8 \div 8.2.3\)  
15. \(9.2 \div 46.8\)

16. MONEY Mr. Briggs paid $582.40 for a set of four tires for his truck. About how much was the cost per tire?

17. CHECKERS Annika bought 9 checker sets for her checkers club. She paid $87.84 before tax. About how much did each checker set cost?

Use estimation to determine whether each answer is reasonable. If the answer is reasonable, write yes. If not, write no and provide a reasonable estimate.

18. \(82.1 \div 7.8 = 19.1\)  
19. \(769.5 \div 142.5 = 5.4\)
# Lesson 6 Problem-Solving Practice

## Estimate Quotients

Estimate each quotient.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. SKATING</strong></td>
<td>Ms. Johnson skates 19.7 miles in 2.8 hours. Estimate her speed in miles per hour.</td>
</tr>
<tr>
<td><strong>2. TELEVISION</strong></td>
<td>Jacob’s bill for cable TV was $65.33 last month. About how much did he pay per day for television service?</td>
</tr>
<tr>
<td><strong>3. COOKIES</strong></td>
<td>Charissa is baking cookies for a bake sale. She sells a box of cookies for $4.80. If each box contains nine cookies, for about how much does she sell each cookie.</td>
</tr>
<tr>
<td><strong>4. DOG FOOD</strong></td>
<td>The local kennel needs to buy dog food. Which dog food will save the kennel the most money?</td>
</tr>
<tr>
<td></td>
<td>Dogs Luv It</td>
</tr>
<tr>
<td></td>
<td>Kibble Chow</td>
</tr>
<tr>
<td><strong>5. RUNNING</strong></td>
<td>Corey ran a total of 22.8 miles over a period of six days. If he ran the same number of miles each day, about how many did he run each day?</td>
</tr>
<tr>
<td><strong>6. SPORTS</strong></td>
<td>Carley is the team manager for the football team and is responsible for supplying them with drinks at the games. At each game, the team drinks 14.2 gallons of sports drink. If Carley has 88.3 gallons of sports drink, will she have enough to get them through their 8-game season? Why or why not?</td>
</tr>
<tr>
<td><strong>7. LAUNDRY</strong></td>
<td>Jim’s bottle of laundry detergent is large enough to do 26 loads of wash, and the bottle contains 3.12 quarts of liquid. About how much detergent does it take to wash one load of laundry?</td>
</tr>
<tr>
<td><strong>8. CARPET</strong></td>
<td>Pete bought 307.12 square feet of carpeting for $1,316. About how much does the carpet cost per square foot?</td>
</tr>
</tbody>
</table>
Lesson 7 Homework Practice

Divide Decimals by Whole Numbers

Divide. Round to the nearest tenth if necessary.

1. $25.2 \div 4$
2. $147.2 \div 8$

3. $5.69 \div 7$
4. $13.28 \div 3$

5. $22.5 \div 15$
6. $65.28 \div 12$

7. $243.83 \div 32$
8. $654.29 \div 19$

9. **WEATHER** What is the average monthly precipitation in Arches National Park? Round to the nearest hundredth if necessary.

<table>
<thead>
<tr>
<th>Month</th>
<th>Precipitation (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>1</td>
</tr>
<tr>
<td>Feb</td>
<td>0.56</td>
</tr>
<tr>
<td>Mar</td>
<td>1.03</td>
</tr>
<tr>
<td>Apr</td>
<td>0.83</td>
</tr>
<tr>
<td>May</td>
<td>1</td>
</tr>
<tr>
<td>Jun</td>
<td>0.35</td>
</tr>
<tr>
<td>Jul</td>
<td>0.77</td>
</tr>
<tr>
<td>Aug</td>
<td>0.88</td>
</tr>
<tr>
<td>Sept</td>
<td>1.02</td>
</tr>
<tr>
<td>Oct</td>
<td>1.23</td>
</tr>
<tr>
<td>Nov</td>
<td>0.68</td>
</tr>
<tr>
<td>Dec</td>
<td>0.62</td>
</tr>
</tbody>
</table>

Lesson 7 Problem-Solving Practice

Divide Decimals by Whole Numbers

1. ENTERTAINMENT Frank, Gina, Judy, and Connie are splitting their dinner bill. After tip, the total is $30.08. How much does each owe if they split the bill four ways?

2. FOOD There are 25 servings in a 12.5-ounce bottle of olive oil. How many ounces are in a serving?

3. RUNNING Isabella has found that she stays the fittest by running various distances and terrains throughout the week. On Mondays she runs 2.5 miles, on Tuesdays 4.6 miles, on Thursdays 6.75 miles, and on Saturdays 4.8 miles. What is the average distance Isabella runs on each of the days that she runs? Round to the nearest hundredth of a mile. (Hint: To find the average, add the values and divide by the number of values.)

4. BUSINESS Katherine spends $1,089.72 each month for rent and supplies to run her hair salon. If she charges $18 for a haircut, how many haircuts must Katherine do to cover her monthly expenses? Round to the nearest whole number.

5. CONSTRUCTION It took Steve and his construction crew 8 months to build a house. After expenses, he was left with $24,872.67 for himself. On average, how much did Steve make per month? Round to the nearest dollar.

6. GRADES Shane wants to figure out what grade he is getting in math. His test scores were 85.6, 78.5, 92.5, 67, and 83.7. What was his average test score? What grade will he receive?

<table>
<thead>
<tr>
<th>Grade</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 – 100</td>
</tr>
<tr>
<td>B</td>
<td>80 – 89</td>
</tr>
<tr>
<td>C</td>
<td>70 – 79</td>
</tr>
<tr>
<td>D</td>
<td>60 – 69</td>
</tr>
<tr>
<td>F</td>
<td>0 – 59</td>
</tr>
</tbody>
</table>
Lesson 8 Homework Practice

Divide Decimals by Decimals

Divide.

1. \(12.92 \div 3.4\)
2. \(22.47 \div 0.7\)
3. \(0.025 \div 0.5\)

4. \(7.224 \div 0.08\)
5. \(0.855 \div 9.5\)
6. \(0.9 \div 0.12\)

7. \(3.0084 \div 0.046\)
8. \(0.0868 \div 0.007\)
9. \(14.43 \div 0.39\)

10. **WHALES** After its first day of life, a baby blue whale started growing. It grew 47.075 inches. If the average baby blue whale grows at a rate of 1.5 inches a day, for how many days did the baby whale grow, to the nearest tenth of a day?

11. **LIZARDS** The two largest lizards in the United States are the Gila Monster and the Chuckwalla. The average Gila Monster is 0.608 meter long. The average Chuckwalla is 0.395 meter long. How many times as long is the Gila Monster as the Chuckwalla, to the nearest hundredth?
Lesson 8 Problem-Solving Practice

Divide Decimals by Decimals

MARATHON For Exercises 1 and 2, use the table that shows course records for the Boston Marathon.

<table>
<thead>
<tr>
<th>Course Records for the Boston Marathon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Men’s Open</td>
</tr>
<tr>
<td>Women’s Open</td>
</tr>
<tr>
<td>Men’s Wheelchair</td>
</tr>
<tr>
<td>Women’s Wheelchair</td>
</tr>
</tbody>
</table>

1. The Boston Marathon is 26.2 miles. Use the times shown in the table to calculate the miles per hour for each division winner. Round to the nearest thousandth.

2. To the nearest hundredth, how many times as great was the men’s open time as the women’s wheelchair time?

3. DRIVING The Martinez family drove 48.7 miles to the river. It took them 1.2 hours to get there. How fast did they drive? Round to the nearest whole number.

4. SHOPPING Nikki is buying some refrigerator magnets for her friends. Her total bill is $16.80. If magnets are $0.80 each, how many magnets is she buying?

5. SCALE MODEL Matt is making a scale model of a building. The model is 3.4 feet tall. The actual building is 41.48 feet tall. How many times as great is the actual building as the model?

6. COOKING Yori has 14.25 cups of cupcake batter. If each cupcake uses 0.75 cup of batter, how many cupcakes can Yori make?
Lesson 1 Homework Practice

Estimate Products of Fractions

Estimate each product.

1. \( \frac{1}{3} \times 28 \)  
2. \( \frac{1}{7} \times 20 \)  
3. \( \frac{1}{9} \) of 83

4. \( \frac{1}{11} \) of 47  
5. \( \frac{5}{8} \times 23 \)  
6. \( \frac{2}{3} \times 76 \)

7. \( \frac{2}{5} \) of 37  
8. \( \frac{6}{7} \) of 51  
9. \( \frac{3}{5} \times \frac{2}{9} \)

10. \( \frac{7}{8} \times \frac{4}{5} \)  
11. \( \frac{10}{19} \times \frac{7}{8} \)  
12. \( \frac{3}{4} \times \frac{3}{7} \)

13. \( 2 \frac{6}{7} \times 3 \frac{1}{4} \)  
14. \( 12 \frac{9}{10} \times 6 \frac{1}{4} \)  
15. \( 4 \frac{3}{8} \times 17 \frac{2}{7} \)

Estimate the area of each rectangle.

16. \[ \text{Area} = 2 \frac{1}{3} \times 6 \frac{5}{8} \text{ ft} \]

17. \[ \text{Area} = 4 \frac{15}{16} \times 5 \frac{1}{8} \text{ in.} \]

18. SCULPTURE  Trevor is using the recipe for sculpture-carving material shown at the right.

a. About how many cups of cement would he need to make \( \frac{4}{9} \) batch of the recipe?

b. About how many cups of sand would he need to make \( 1 \frac{6}{7} \) batches of the recipe?

Girostone Recipe

- 5 cup vermiculite
- 1 \( \frac{1}{4} \) cup cement
- 5 \( \frac{5}{8} \) cup sand
- water to form thick paste
Lesson 1 Problem-Solving Practice

Estimate Products of Fractions

Estimate by using rounding or compatible numbers. Show how you found your estimates.

RECIPES For Exercises 1–3, use the table at the right and the information below.

The table gives some of the ingredients that are needed to make a German chocolate cake.

<table>
<thead>
<tr>
<th>German Chocolate Cake</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4 c boiling water</td>
</tr>
<tr>
<td>1 3/4 c butter</td>
</tr>
<tr>
<td>4 egg yolks</td>
</tr>
<tr>
<td>4 oz chocolate</td>
</tr>
<tr>
<td>4 egg whites, stiffly beaten</td>
</tr>
<tr>
<td>2 c sugar</td>
</tr>
<tr>
<td>1 tsp vanilla</td>
</tr>
<tr>
<td>2 3/4 c flour</td>
</tr>
</tbody>
</table>

1. Rubin needs to make three German chocolate cakes for a fundraiser. About how many cups of flour will he need?

2. Jordana wants to make six German chocolate cakes for a bake sale at her school. About how many cups of boiling water will she need?

3. Dexter needs to make five German chocolate cakes for a surprise party at a recreation center. About how many cups of butter will he need?

4. WATER Marcia is making a habit of drinking at least 7 cups of water a day. About how many cups of water did she drink if she drank 3/4 the number of cups she wanted to drink?

5. TRAVEL Seth has been driving for 4 2/3 hours at 62 miles per hour. About how many miles has he driven?

6. MAIL The U.S. Postal Service delivers about 212 billion pieces of mail each year. Of this mail, 4/5 is sent by big commercial users. About how many pieces of mail are sent by big commercial users each year?
Lesson 2 Homework Practice

Multiply Fractions and Whole Numbers

Multiply. Write in simplest form.

1. $5 \times \frac{1}{5}$
2. $15 \times \frac{1}{3}$
3. $36 \times \frac{1}{9}$

4. $15 \times \frac{2}{3}$
5. $24 \times \frac{3}{8}$
6. $20 \times \frac{3}{4}$

7. $11 \times \frac{9}{10}$
8. $11 \times \frac{3}{4}$
9. $10 \times \frac{6}{7}$

10. $\frac{2}{5} \times 25$
11. $\frac{4}{6} \times 30$
12. $\frac{3}{4} \times 28$

13. $\frac{3}{7} \times 10$
14. $\frac{3}{8} \times 4$
15. $\frac{5}{6} \times 4$

16. CHARITY At a charity bike rally, $\frac{2}{3}$ of the student population of Heartsworth Middle School participated. If there are 1,200 students at Heartsworth, how many participated?

17. ALLIGATORS At a local river, there were 48 alligators laying on the riverbank. If $\frac{5}{6}$ of the alligators were asleep, how many were not asleep?

18. GEOGRAPHY The width of Florida is about $\frac{4}{5}$ of its length. If the length of Florida is about 450 miles, what is its approximate width?
Lesson 2 Problem-Solving Practice

Multiply Fractions and Whole Numbers

RECIPE For Exercises 1–3, use the table.
The table lists the ingredients for a batch of dog biscuits.

<table>
<thead>
<tr>
<th>Dog Biscuit Recipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{3}{4} ) cup</td>
</tr>
<tr>
<td>( \frac{1}{3} ) cup</td>
</tr>
<tr>
<td>( \frac{1}{2} ) cup</td>
</tr>
<tr>
<td>( \frac{1}{2} ) teaspoon</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>3 cups</td>
</tr>
</tbody>
</table>

1. Delroy is going to a dog adoption day at his local animal shelter. He wants to make 4 batches of dog biscuits for the dogs. How many cups of margarine will he need?

2. Nadia will make only half a batch of dog biscuits so she will only need half of each ingredient. How much flour should Nadia use?

3. While Reese was making a batch of biscuits, her dog jumped up on the counter and spilled \( \frac{1}{4} \) of the flour on the floor. How much flour spilled on the floor?

4. ART Shen is making statuettes out of clay. Each statuette needs \( \frac{3}{8} \) pound of clay. If he makes 12 statuettes, how many pounds of clay will he use?

5. SOFTBALL Out of 18 times at bat, Jen got a hit \( \frac{5}{6} \) of the time and Kasa got a hit \( \frac{8}{9} \) of the time. Who got more hits? How many more?

6. CYCLING A bike race is 32 miles long. By noon, Izek had ridden \( \frac{3}{4} \) of the distance. How many more miles did he need to ride to finish the race?
Lesson 3 Homework Practice

Multiply Fractions

Multiply. Write in simplest form.

1. \( \frac{1}{4} \times \frac{3}{5} \)
2. \( \frac{7}{8} \times \frac{1}{3} \)
3. \( \frac{1}{2} \times \frac{3}{4} \)

4. \( \frac{2}{3} \times \frac{2}{9} \)
5. \( \frac{1}{3} \times 11 \)
6. \( \frac{1}{2} \times 12 \)

7. \( \frac{5}{6} \times 21 \)
8. \( \frac{3}{4} \times 10 \)
9. \( \frac{1}{4} \times \frac{4}{5} \)

10. \( \frac{4}{9} \times \frac{3}{8} \)
11. \( \frac{7}{10} \times \frac{4}{21} \)
12. \( \frac{3}{5} \times \frac{5}{12} \)

13. \( \frac{6}{7} \times \frac{1}{8} \)
14. \( \frac{9}{11} \times \frac{4}{15} \)
15. \( \frac{8}{9} \times \frac{9}{10} \)

16. \( \frac{1}{3} \times \frac{1}{4} \times \frac{1}{5} \)
17. \( \frac{3}{4} \times \frac{3}{8} \times \frac{2}{3} \)
18. \( \frac{2}{3} \times \frac{12}{17} \times \frac{1}{4} \)

19. **SPORTS** Of the sixth graders in a school, \( \frac{4}{5} \) play at least one sport. Of those, \( \frac{2}{3} \) play on a team. What fraction of the sixth graders play a sport on a team?

20. **AQUARIUM** A model of the ocean floor takes up \( \frac{2}{5} \) of the space in an aquarium. If \( \frac{3}{8} \) of the model is coral, what fraction of the space in the aquarium is taken up by coral?
Lesson 3 Problem-Solving Practice

Multiply Fractions

COOKING For Exercises 1 and 2, use the recipe for chocolate frosting.

<table>
<thead>
<tr>
<th>Chocolate Frosting Recipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\frac{1}{3}) cup butter</td>
</tr>
<tr>
<td>2 ounces melted unsweetened chocolate</td>
</tr>
<tr>
<td>2 cups powdered sugar</td>
</tr>
<tr>
<td>(\frac{1}{2}) teaspoon vanilla</td>
</tr>
<tr>
<td>2 tablespoons milk</td>
</tr>
</tbody>
</table>

1. Georgia wants to cut the recipe for chocolate frosting in half for a small cake that she is making. How much of each ingredient will she need?

2. Suppose Georgia wanted to double the recipe; what would be the measurements for each ingredient?

3. COMPUTERS One fifth of today’s college students began using computers between the ages of 5 and 8. If a college has 3,500 students, how many of the students began using computers between the ages of 5 and 8?

4. EXERCISE A paper published in a medical journal reported that about \(\frac{11}{25}\) of girls ages 16 to 17 do not exercise at all. The entire study consisted of about 2,500 girls. About how many did not exercise?

5. ANIMALS Catherine walks her dog \(\frac{3}{4}\) mile every day. How far does she walk each week?

6. MUSIC If you practice a musical instrument each day for \(\frac{2}{3}\) of an hour, how many hours of practice will you get in each week?
Lesson 4 Homework Practice

Multiply Mixed Numbers

Multiply. Write in simplest form.

1. \( \frac{4}{5} \times 3\frac{1}{8} \)
2. \( \frac{9}{10} \times 3\frac{1}{3} \)
3. \( 1\frac{3}{5} \times \frac{3}{5} \)

4. \( 2\frac{5}{8} \times \frac{2}{3} \)
5. \( \frac{2}{3} \times 3\frac{1}{4} \)
6. \( \frac{3}{4} \times 2\frac{2}{3} \)

7. \( 1\frac{1}{4} \times 2\frac{2}{3} \)
8. \( 5\frac{1}{3} \times 2\frac{1}{4} \)
9. \( 2\frac{1}{5} \times 1\frac{1}{4} \)

10. \( 6\frac{4}{5} \times 1\frac{2}{3} \)
11. \( 3\frac{3}{7} \times 5\frac{1}{8} \)
12. \( 8\frac{3}{4} \times 4\frac{1}{5} \)

13. \( \frac{2}{9} \times \frac{3}{4} \times 2\frac{1}{4} \)
14. \( 5\frac{1}{2} \times 3\frac{1}{3} \times \frac{1}{6} \)
15. \( 1\frac{1}{2} \times 2\frac{1}{6} \times 1\frac{1}{5} \)

16. LUMBER A lumber yard has a scrap sheet of plywood that is \( 23\frac{3}{4} \) inches by \( 41\frac{1}{5} \) inches. What is the area of the plywood?

17. LANDSCAPING A planter box in the city plaza measures \( 3\frac{2}{3} \) feet by \( 4\frac{1}{8} \) feet by \( 2\frac{1}{2} \) feet. Find the volume of the planter box.
Lesson 4 Problem-Solving Practice

Multiply Mixed Numbers

**FOOD** For Exercises 1–3, use the table. The table shows Keith’s food options for a 7-day outdoor survival course.

<table>
<thead>
<tr>
<th>Food Options for 7-Day Outdoor Survival Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peanut butter</td>
</tr>
<tr>
<td>1 plastic jar = 4 3/5 cups</td>
</tr>
<tr>
<td>Dried noodles/rice</td>
</tr>
<tr>
<td>14 2/3 cups</td>
</tr>
<tr>
<td>Dried fruit/nuts</td>
</tr>
<tr>
<td>6 1/6 cups</td>
</tr>
<tr>
<td>Concentrated juice boxes</td>
</tr>
<tr>
<td>8 boxes = 16 1/4 cups</td>
</tr>
<tr>
<td>Beef jerky</td>
</tr>
<tr>
<td>3 1/3 cups</td>
</tr>
<tr>
<td>Powdered milk</td>
</tr>
<tr>
<td>1 box = 8 4/5 cups</td>
</tr>
<tr>
<td>Dehydrated soup</td>
</tr>
<tr>
<td>5 packages = 15 2/3 cups</td>
</tr>
<tr>
<td>Canned tuna/meat</td>
</tr>
<tr>
<td>4 cans = 5 3/5 cups</td>
</tr>
</tbody>
</table>

1. Keith plans on eating 1 1/4 cups of tuna per day for five days. How much tuna does he need? Is 4 cans enough?

2. Keith would like to bring enough concentrated juice in order to have 2 1/4 cups available per day. How much juice does he need and is 8 boxes of concentrated juice enough?

3. Six other students have been advised to bring the same menu on the course. How many cups of dried fruits and nuts will the students be bringing all together?

4. **MEASUREMENT** Fahad wants to put a large mural on a wall that is 9 1/3 feet long and 8 1/8 feet wide. Find the area of the wall. If the mural is 100 square feet, will it fit on the wall?

5. **PAINTING** Pia is mixing 3 1/5 batches of tempera paint. If one batch calls for 2 3/4 tablespoons of detergent to add to the tempera powder, how many tablespoons of detergent will Pia need?

6. **COOKING** To make a batch of fruit punch, Landon needs 2 2/3 cups of blackberry juice. If he wants to make 2 3/4 batches of punch, how many cups of blackberry juice will he need?
Lesson 5 Homework Practice

Convert Measurement Units

Complete.

1. $4 \text{ c} = \underline{_______} \text{ fl oz}$
2. $5 \text{ c} = \underline{_______} \text{ pt}$
3. $3 \text{ lb} = \underline{_______} \text{ oz}$

4. $24 \text{ ft} = \underline{_______} \text{ yd}$
5. $1\frac{1}{2} \text{ pt} = \underline{_______} \text{ c}$
6. $64 \text{ oz} = \underline{_______} \text{ lb}$

7. $4 \text{ mi} = \underline{_______} \text{ ft}$
8. $2\frac{3}{4} \text{ mi} = \underline{_______} \text{ ft}$
9. $3,000 \text{ lb} = \underline{_______} \text{ T}$

10. $5 \text{ gal} = \underline{_______} \text{ qt}$
11. $3\frac{1}{4} \text{ pt} = \underline{_______} \text{ qt}$
12. $4\frac{5}{8} \text{ T} = \underline{_______} \text{ lb}$

13. $3\frac{1}{2} \text{ gal} = \underline{_______} \text{ qt}$
14. $7 \text{ c} = \underline{_______} \text{ qt}$
15. $40 \text{ fl oz} = \underline{_______} \text{ qt}$

16. $660 \text{ yd} = \underline{_______} \text{ mi}$
17. $1.9 \text{ yd} = \underline{_______} \text{ in.}$
18. $2\frac{1}{4} \text{ T} = \underline{_______} \text{ oz}$

19. **SPORTS** The track surrounding a football field is $\frac{1}{4}$ mile long. How many yards long is the track?

20. **STRAWBERRIES** One quart of strawberries weighs about 2 pounds. About how many quarts of strawberries would weigh $\frac{1}{4}$ ton?

21. **ANALYZE GRAPHS** Use the graph shown.
   
   a. What does an ordered pair from this graph represent?
   
   b. Write two sentences that describe the graph.
   
   c. Explain how you could use the graph to find the length in inches of a 1.5 foot iguana.
Lesson 5 Problem-Solving Practice

**Convert Measurement Units**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. WEIGHT</strong> The average weight of a baby at birth is 7 pounds. How many ounces is the average weight of a baby?</td>
<td><strong>2. WATERFALLS</strong> The height of Niagara Falls is 182 feet. How many yards high is Niagara Falls?</td>
</tr>
<tr>
<td><strong>3. GASOLINE</strong> The gasoline tank of a minivan holds 18 gallons. How many quarts can the tank hold?</td>
<td><strong>4. CELL PHONES</strong> Cell phones can weigh as little as 2 ounces. How many pounds can the cell phone weigh?</td>
</tr>
<tr>
<td><strong>5. RECIPE</strong> A recipe for ice cream calls for 56 fluid ounces of milk. How many cups of milk are in the recipe?</td>
<td><strong>6. STATUE</strong> The Statue of Liberty weighs 450,000 pounds. How many tons does the statue weigh?</td>
</tr>
<tr>
<td><strong>7. TUNNEL</strong> The Ted Williams Tunnel under Boston Harbor is 8,448 feet long. How many yards is the length of the tunnel?</td>
<td><strong>8. COAL</strong> The United States exports over 200 billion pounds of coal. How many tons does the United States export?</td>
</tr>
</tbody>
</table>
Homework Practice

Problem-Solving Investigation: Draw a Diagram

Mixed Problem Solving

Use the draw a diagram strategy to solve Exercises 1 and 2.

1. MOVIES After spending $36 on movie tickets, Juanita still has \( \frac{3}{5} \) of the total amount of money she brought with her. How much money does Juanita still have?

2. WEIGHT Owen and Kenji are monkeys at a zoo. Owen weighs \( \frac{5}{6} \) as much as Kenji. If Owen weighs 90 pounds, how much does Kenji weigh?

Use any strategy to solve Exercises 3–7.

3. PATTERNS Complete the pattern: 2, 3, 5, 9, __, __, __.

4. ANIMALS Jacy is building a fence to create a hexagonal dog pen. Each of the six sides needs four posts. How many posts are needed?

5. FOOD A lunch shop offers 2 kinds of soups, 3 kinds of sandwiches, and 3 kinds of beverages. How many combinations of one soup, one sandwich, and one beverage are possible?

6. GEOMETRY An official doubles tennis court has a length of 78 feet and a width of 36 feet. How many times greater is the length than the width of the court to the nearest tenth?

7. BASKETBALL The table gives the frequency of free-throw shots made by a team over the course of five games. Find the average number of free-throw shots made by the team for games 1–5. (Hint: To find the average, add the values and divide by the number of values.)

<table>
<thead>
<tr>
<th>Game</th>
<th>Tally</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Problem-Solving Practice

Problem-Solving Investigation: Draw a Diagram

For Exercises 1–4, use the table to solve. Use the draw a diagram strategy. The table lists the approximate lengths of trails in a nature preserve.

<table>
<thead>
<tr>
<th>Length of Trails (in miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overlook Trail</td>
</tr>
<tr>
<td>Hickory Creek Canoe Trail</td>
</tr>
<tr>
<td>Riverbend Trail</td>
</tr>
<tr>
<td>Oakridge Trail</td>
</tr>
</tbody>
</table>

1. The Hickory Creek Canoe Trail is $\frac{3}{5}$ the length of the distance Mishon paddled. How far did Mishon paddle?

2. Ian canoed the Overlook Trail. The distance he traveled is $\frac{5}{7}$ the distance Calvin canoed. How far did Calvin canoe?

3. Mahal biked $\frac{2}{3}$ the distance of the Riverbend Trail before getting a flat. How far did she bike before getting a flat?

4. Dean said that the length of the Oakridge Trail is $\frac{1}{4}$ the distance from his house to his grandfather’s house. What is the distance from Dean’s house to his grandfather’s house?

5. **MONEY** A container of quarters is $\frac{3}{7}$ empty. It currently contains 40 quarters. When the container is full, what will be the value of all the quarters?

6. **ART** Jing is making figurines for a craft show. So far, she has made $\frac{4}{5}$ of the figurines she needs. How many figurines has she made if she needs 15 figurines?
Lesson 6 Homework Practice

Divide Whole Numbers by Fractions

Find the reciprocal of each number.
1. \( \frac{2}{7} \)  
2. \( \frac{1}{9} \)  
3. \( \frac{3}{8} \)  
4. \( \frac{1}{2} \)  
5. \( \frac{11}{12} \)

Divide. Write in simplest form.
6. \( 2 \div \frac{1}{6} \)  
7. \( 2 \div \frac{2}{5} \)  
8. \( 3 \div \frac{1}{4} \)  
9. \( 4 \div \frac{1}{10} \)  
10. \( 2 \div \frac{1}{4} \)  
11. \( 8 \div \frac{2}{5} \)  
12. \( 6 \div \frac{4}{5} \)  
13. \( 7 \div \frac{5}{8} \)  
14. \( 13 \div \frac{3}{5} \)  
15. \( 10 \div \frac{4}{5} \)  
16. \( 14 \div \frac{7}{9} \)  
17. \( 14 \div \frac{5}{7} \)

18. PARTY For a party, 20 sandwiches are being made. If each sandwich is cut into thirds, how many sandwich pieces are there?

19. PICNICKING An average ant is \( \frac{1}{4} \) inch long. A picnic blanket is 72 inches long. How many ants long is the picnic blanket?

20. WIRE Carmen cuts a 60-inch-long wire into pieces that are \( \frac{3}{4} \) inch long. How many pieces does she have?
# Lesson 6 Problem-Solving Practice

## Divide Whole Numbers by Fractions

<table>
<thead>
<tr>
<th><strong>1. SEWING</strong> Vanessa has 3 yards of cotton. She needs (\frac{3}{4}) yard for each skirt she makes. How many skirts can she make?</th>
<th><strong>2. CARPENTRY</strong> Laura wants to cut the board into equal pieces so that each piece is (\frac{5}{8})-foot long. How many pieces will she have?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3. SERVINGS</strong> A bottle of juice states that a serving is (\frac{1}{2}) cup. How many servings are in a 2-pint container? (Hint: One pint equals 2 cups.)</td>
<td><strong>4. CATS</strong> A cat eats (\frac{2}{3}) cup of food each day. How many days will a bag containing 16 cups of food last?</td>
</tr>
<tr>
<td><strong>5. GARDENING</strong> Talia has 80 pounds of soil. She wants to divide it into buckets so that each bucket weighs (\frac{4}{5}) pound. How many buckets will she need?</td>
<td><strong>6. PETS</strong> Errol uses (\frac{1}{3}) can of wet dog food for his dog, Muddy, each day. How many servings will he get from 5 cans of dog food?</td>
</tr>
<tr>
<td><strong>7. FOOD</strong> Launa has 30 cupcakes. How many pieces will she have if she divides them into fourths?</td>
<td><strong>8. INTERNET</strong> At the library, there is a four-hour span of time to use a computer. The time slots are (\frac{1}{3}) hour long. How many time slots are there?</td>
</tr>
</tbody>
</table>
Lesson 7 Homework Practice

Divide Fractions

Divide. Write in simplest form.

1. \( \frac{2}{7} \div \frac{1}{7} \)
2. \( \frac{1}{9} \div \frac{2}{3} \)
3. \( \frac{3}{8} \div \frac{1}{2} \)

4. \( \frac{2}{3} \div \frac{1}{6} \)
5. \( \frac{1}{2} \div \frac{2}{5} \)
6. \( \frac{2}{3} \div \frac{1}{4} \)

7. \( \frac{3}{4} \div \frac{1}{10} \)
8. \( \frac{2}{5} \div \frac{1}{4} \)
9. \( \frac{1}{8} \div \frac{2}{5} \)

10. \( \frac{3}{7} \div \frac{4}{5} \)
11. \( \frac{5}{8} \div 2 \)
12. \( \frac{3}{7} \div \frac{3}{7} \)

13. \( \frac{4}{5} \div \frac{7}{10} \)
14. \( \frac{7}{9} \div 14 \)
15. \( \frac{5}{7} \div \frac{4}{9} \)

16. **INSECTS** An average ant is \( \frac{1}{4} \) inch long. An average aphid is \( \frac{3}{32} \) inch long.
   How many times longer is an average ant than an average aphid?

17. **LAND** A field has an area of \( \frac{9}{20} \) square mile. Find the width of the field if the length is \( \frac{9}{10} \) mile long.
Lesson 7 Problem-Solving Practice

Divide Fractions

SHOPPING  For Exercises 1–3, use the table. The table represents the distances from Nashita’s vacation house to the various shops in town.

<table>
<thead>
<tr>
<th>Distance in Miles</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sam’s Surfboards</td>
<td>$\frac{3}{4}$</td>
</tr>
<tr>
<td>Mick’s Riverside Tours</td>
<td>$\frac{3}{8}$</td>
</tr>
<tr>
<td>Pete’s Parasailing</td>
<td>$\frac{3}{5}$</td>
</tr>
<tr>
<td>Beachside Clothiers</td>
<td>$\frac{2}{7}$</td>
</tr>
</tbody>
</table>

1. Nashita walks to Sam’s Surfboards. As she walks, she stops every $\frac{1}{4}$ mile to take a sip from her water bottle. How many times does she stop?

2. On Tuesday, Nashita walks to Pete’s Parasailing. She feels a breeze every $\frac{1}{10}$ of a mile. How many times does she feel a breeze?

3. Nashita walked to Mick’s Riverside Tours. She noticed that the sun went behind a cloud about every $\frac{1}{8}$ of a mile. During her walk, how many times did the sun go behind the clouds?

4. **ICE CREAM** Brenda ate $\frac{1}{2}$ pint of mint chocolate chip ice cream. Mark ate $\frac{3}{4}$ pint of malt ice cream. How many times more ice cream did Mark eat?

5. In a $\frac{3}{4}$-mile relay race, each runner runs $\frac{1}{16}$ mile. How many runners are in the race?

6. **INTERNET** Three fourths of college students use the Internet more than the library. Nine hundredths use the library more. How many times more students use the Internet?
Lesson 8 Homework Practice

Divide Mixed Numbers

Divide. Write in simplest form.

1. \(2 \div 3 \frac{2}{3}\)
2. \(10 \div 1 \frac{1}{4}\)
3. \(4 \frac{3}{4} \div \frac{7}{8}\)
4. \(1 \frac{15}{16} \div \frac{7}{8}\)

5. \(7 \frac{1}{2} \div 1 \frac{1}{4}\)
6. \(3 \frac{3}{8} \div 2 \frac{1}{4}\)
7. \(2 \frac{1}{10} \div 1 \frac{1}{5}\)
8. \(4 \frac{1}{2} \div 2 \frac{7}{10}\)

9. Hurricanes Suppose a hurricane traveled 130 miles from a point in the Atlantic Ocean to the Florida coastline in \(6 \frac{1}{2}\) hours. How many miles per hour did the hurricane travel?

10. Pipes How many \(\frac{3}{4}\)-foot lengths of pipe can be cut from a \(6 \frac{1}{3}\)-foot pipe?

11. Trucking A truck driver drove 300 miles in \(6 \frac{3}{4}\) hours. How many miles per hour did the driver drive?

12. Baking A bag contains \(22 \frac{1}{2}\) cups of flour. A recipe for pancakes uses \(1 \frac{1}{4}\) cups of flour. How many batches of pancakes can be made with one bag of flour?
### Lesson 8 Problem-Solving Practice

#### Divide Mixed Numbers

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. VIDEOTAPES</strong></td>
<td>Lyle is putting his videotapes on a shelf. The shelf is 12 inches long. If each videotape is 1 1/2 inches wide, how many videotapes can he put side-by-side on the shelf?</td>
</tr>
<tr>
<td><strong>2. FOOD</strong></td>
<td>DeLila has 4 1/2 pies to divide equally among 9 people. How much will each person get?</td>
</tr>
<tr>
<td><strong>3. GARDENING</strong></td>
<td>Maurice mows lawns on Saturday. Last week it took him 5 1/2 hours to finish. This week it took only 5 hours. How many times longer did it take last week than this week?</td>
</tr>
<tr>
<td><strong>4. COOKING</strong></td>
<td>Chris is cutting a roll of cookie dough into pieces that are 1/2 inch thick. If the roll is 10 1/2 inches long, how many pieces can he make?</td>
</tr>
<tr>
<td><strong>5. SPORTS</strong></td>
<td>While free-diving in the ocean, Tanya Streeter once set a record by diving 525 feet in 3 1/2 minutes. How many feet per minute did she dive?</td>
</tr>
<tr>
<td><strong>6. GARDENING</strong></td>
<td>Pauline got 9 3/8 pounds of cherries from her tree this year. Last year she only got 6 1/4 pounds. How many times more pounds did she get this year than last year?</td>
</tr>
<tr>
<td><strong>7. SEWING</strong></td>
<td>Jeanne has 3 4/8 yards of fabric. She needs 1 1/4 yards to make a pair of shorts. How many pairs of shorts can she make?</td>
</tr>
<tr>
<td><strong>8. EXERCISE</strong></td>
<td>Del Ray can run 20 1/2 miles in 2 1/4 hours. How many miles per hour can he run?</td>
</tr>
</tbody>
</table>
Lesson 1 Homework Practice

Integers and Graphing

Write an integer for each situation. Explain the meaning of zero in each situation.

1. a drop of 200 feet
2. an expansion of 3 cubic meters
3. earn 10 points
4. reduce by 8 inches
5. gain 2 pounds
6. a drop of 7 degrees

Graph each set of integers on a number line.

7. \{-4, -3, 1, 5\}
8. \{-15, -12, -9, -2\}
9. \{8, 3, -7, -5\}
10. \{-14, -7, 10, -1\}
11. \{-6, -1, 0, 3\}
12. BUSINESS Ms. Solorio’s small business had a profit of $460 on Monday. Write an integer to represent this profit.
13. CAVING The end of a cave is 380 meters below the surface of the earth. Write an integer to represent this depth.
14. TEMPERATURES The low temperatures for three consecutive days were \(-5^\circ F, 3^\circ F,\) and \(4^\circ F\). Graph this set of integers on a number line.
15. ELEVATIONS The lowest elevation in New Orleans, Louisiana, is \(-8\) feet. The lowest elevation in Long Beach, California, is \(-7\) feet. Graph this set of integers on a number line.
Lesson 1 Problem-Solving Practice

Integers and Graphing

SCUBA  For Exercises 1–3, use the table below. The table shows the depths of scuba diving attractions on a certain dive tour.

<table>
<thead>
<tr>
<th>Attractions</th>
<th>Depth (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coral reef</td>
<td>−22</td>
</tr>
<tr>
<td>Modern shipwreck</td>
<td>−98</td>
</tr>
<tr>
<td>Old shipwreck</td>
<td>−108</td>
</tr>
<tr>
<td>Cave</td>
<td>−16</td>
</tr>
</tbody>
</table>

1. Graph the integer representing the depth of the coral reef on a number line.

2. Hiromi took pictures of both shipwrecks. Graph the integers that represent the depths of the shipwrecks on a number line.

3. Sandra swam in the cave and around the coral reef. Graph the integer that represents the depth of the cave on a number line.

4. SCIENCE The liquid in Beaker A has a temperature of −4°C. The liquid in Beaker B has a temperature of 2°C. Graph the integers that represent the temperatures on a number line.

5. STEPS  Catesby ran up 16 flights of stairs. Write an integer to represent this situation.

6. CELL PHONE  Nazir used more minutes on his cell phone than his plan allows. He now owes his parents $15. Write an integer to represent this debt.

7. CAVE  The entrance of a cave is at an elevation of 14 meters. The lowest part of the cave is at an elevation of −86 meters. Write an integer to represent the elevation of the entrance to the cave.

8. MONEY  Larry lost 45 cents when it fell out of his jacket pocket while he was playing. Write an integer to represent this loss.
Lesson 2 Homework Practice

Absolute Value

Find the opposite of each integer.

1. 10  
2. −25

3. 82  
4. −135

Find the opposite of the opposite of each integer.

5. −4  
6. −15

7. 8  
8. −7

Evaluate each expression.

9. |31| + |−5|  
10. |−16| − |4|

11. |−28| − |−1|  
12. |11−2|

13. |44| + |−34|  
14. |−101| − |−1|

15. CHARITY Ms. Malone’s homeroom raised $539 for a local charity. Find the opposite of this integer.

16. GAMES Delaney scored −15 points in a word game. Find the opposite of this integer.

17. STOCKS The net change for a certain stock is the dollar value change in the stock’s closing price from the previous day’s closing price. The net changes of three stocks were −3, 1, and −2. Which net change has the greatest absolute value?

18. POPULATION The population change from one year to the next of a town is −435. What is the absolute value of this population change?
Lesson 2 Problem-Solving Practice

Absolute Value

HIKING For Exercises 1–3, use the table below. The table shows the elevations of different hiking trails.

<table>
<thead>
<tr>
<th>Trail</th>
<th>Elevation (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>-2</td>
</tr>
<tr>
<td>Cactus</td>
<td>15</td>
</tr>
<tr>
<td>Southern</td>
<td>-12</td>
</tr>
<tr>
<td>Rocky</td>
<td>42</td>
</tr>
</tbody>
</table>

1. What is the absolute value of the elevation of Sand Trail?
2. Michael hiked both the Cactus Trail and the Southern Trail. Is the absolute value of the elevation of the Cactus Trail greater than or less than the absolute value of the elevation of the Southern Trail?
3. Chi hiked the Rocky Trail. What is the opposite of the elevation of the Rocky Trail?
4. SCIENCE The freezing point of a certain liquid is -7°F. Another liquid freezes at -12°F. What is the difference between the absolute values of each freezing point?
5. QUIZZES Belinda received a +3 points on a problem on a quiz. What is the absolute value of the number of points she received?
6. MONEY On Tuesday, Franklin deposited $35 into his account. On Wednesday, he withdrew $25. Evaluate the expression |35| - |-25| to find the net change of his account.
7. TEMPERATURE The record low temperature for a town is -13°F. Yesterday, it was 6°F. What is the difference between the absolute values of these two temperatures?
8. SWIMMING Kiley swam 6 feet below sea level and Bryan swam 8 feet below sea level. Find the difference between the absolute values for each depth.
**Lesson 3 Homework Practice**

**Compare and Order Integers**

Replace each ◯ with < or > to make a true sentence.

1. 18 ◯ 23
2. -9 ◯ -1
3. -3 ◯ -5
4. 8 ◯ -2
5. 6 ◯ -3
6. 0 ◯ 8
7. 6 ◯ -7
8. -23 ◯ -16

Order each set of numbers from least to greatest.

9. {10, -5, 3, 16, -1, 0, 1}
10. {-2.5, 4, 23, -1, 5, -3, 0.66}
11. {1, -2.5, 0.75, 3, -0.75}
12. {63, -34, 36, -27, -13, and 12}

Order each set of integers from greatest to least.

13. {8, 43, -25, 12, -14, 3}
14. {-8, 32, 55, -32, -19, -3}
15. {-100, -89, -124, -69, -52}
16. {6, 17, -20, 15, -19, 26}

**ROLLER COASTERS** The table shows how several roller coasters compare to the Mantis. Refer to the table to answer Exercises 17–20.

<table>
<thead>
<tr>
<th>Roller Coaster</th>
<th>Lift Heights (ft)</th>
<th>Vertical Drop (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gemini</td>
<td>-20</td>
<td>-19</td>
</tr>
<tr>
<td>Magnum XL-200</td>
<td>60</td>
<td>58</td>
</tr>
<tr>
<td>Top Thrill Dragster</td>
<td>275</td>
<td>263</td>
</tr>
<tr>
<td>Mantis</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Millenium Force</td>
<td>165</td>
<td>163</td>
</tr>
<tr>
<td>Mean Streak</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>Raptor</td>
<td>-8</td>
<td>-18</td>
</tr>
</tbody>
</table>

17. Which roller coaster has the greatest lift height?

18. Arrange the given roller coasters from least to greatest lift height.

19. Which roller coaster has the lowest vertical drop?

20. Which roller coaster has a lift height closest to the Mantis’s lift height?
Lesson 3 Problem-Solving Practice

Compare and Order Integers

1. **BUSES** Melanie, Byron, and Chin are all waiting at the bus stop. Melanie’s bus leaves at 10 minutes after noon. Byron’s bus leaves at 15 minutes before noon. Chin’s bus leaves at 5 after noon. Arrange the three according to who will leave the bus stop first.

2. **INTERNET** Darnell pays for 500 minutes of Internet use a month. The table indicates his Internet usage over the past 4 months. Positive values indicate the number of minutes he went over his allotted time and negative values indicate the number of minutes he was under. Arrange the months from least to most minutes used.

<table>
<thead>
<tr>
<th>Month</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>June</td>
<td>-20</td>
</tr>
<tr>
<td>July</td>
<td>65</td>
</tr>
<tr>
<td>August</td>
<td>-50</td>
</tr>
<tr>
<td>September</td>
<td>20</td>
</tr>
</tbody>
</table>

3. **GOLF** In a golf match, Jesse scored 5 over par, Neil scored 3 under par, Felipo scored 2 over par, and Dawson scored an even par. Order the players from least to greatest score.

4. **WEATHER** The table shows the average normal January temperature of four cities in Alaska. Compare the temperatures of Barrow and Fairbanks, using < or >.

<table>
<thead>
<tr>
<th>City</th>
<th>Temperature (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchorage</td>
<td>15</td>
</tr>
<tr>
<td>Barrow</td>
<td>-13</td>
</tr>
<tr>
<td>Fairbanks</td>
<td>-10</td>
</tr>
<tr>
<td>Juneau</td>
<td>24</td>
</tr>
</tbody>
</table>

5. **WEATHER** Use the table in Exercise 4. Compare the temperatures of Anchorage and Fairbanks using < or >.

6. **WEATHER** Use the table from Exercise 4. Write the temperatures of the four cities in order from highest to lowest temperature.
Homework Practice

Problem-Solving Investigation: Work Backward

Mixed Problem Solving

For Exercises 1–2, solve using the work backward strategy.

1. NUMBER SENSE A number is multiplied by 4. Next, 3 is added to the product, and then 11 is subtracted. If the result is 24, what is the number?

2. TIME Ichiko has guitar practice at 5:00 P.M. on Wednesday. It takes 20 minutes for him to get to his lesson from school. He spends an hour in the science lab before leaving. If it takes 10 minutes to get ready for the lab, what time does his last class end?

Use any strategy to solve Exercises 3–8.

3. GEOGRAPHY North America has an area of 21,393,762 square kilometers. South America has an area of 17,522,371 square kilometers. What is the combined area of these two continents?

4. FOOD The total cost for a take-out lunch was $20. If four friends share the cost equally, how much will each friend pay?

5. FLIGHT SCHOOL The list shows how many times each of 20 students practiced with a piloting simulator at a flight training school one day.

9 11 12 9 6 12 10 8 13 14
8 9 13 11 10 8 12 9 10 8

How many more students practiced with the simulator 9–11 times than 12–14 times?

6. MONEY Mai had $210 in her checking account at the beginning of the month. She wrote checks for $32 and $9.59. At the end of the month, the bank credited her account with $0.84 interest. How much money did Mai have in the account then?

7. TABLES The rectangular tables in a recreation hall will seat 6 people on each of their longer sides and 2 people on each of their shorter sides. If tables are laid end to end so that the short sides touch each other, how many tables would be needed to seat the 50 people attending an event?

8. SURPRISE Three surprise guests show up for the event held at the recreation hall described in Exercise 7. Will another table be needed? Explain.
### Problem-Solving Practice

**Problem-Solving Investigation: Work Backward**

**AIRBOAT** For Exercises 1–2, use the chart of airboat rates.

<table>
<thead>
<tr>
<th>Alli's Airboat 1-Hour Rentals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult (11+ years)</td>
</tr>
<tr>
<td>Children 3–10 years</td>
</tr>
<tr>
<td>Children 2 years and under</td>
</tr>
</tbody>
</table>

1. Mr. Wagner paid $123 for a tour of the Everglades on an airboat. He brought his wife and two children. What must be true about the ages of the children?

2. Mr. Wong paid $301 for a tour of the Everglades with the members of the nature club, all of whom are 12 years of age or older. How many members are in the nature club?

3. **BASEBALL CARDS** Jamal has 45 baseball cards. He is collecting 5 more cards each month. Leatrice has 30 baseball cards, and she is collecting 10 more cards each month. How many months will it be before Leatrice has more cards than Jamal?

4. **FOOD** Is $9 enough money to buy a loaf of bread for $0.98, one pound of cheese for $3.29, and one pound of lunch meat for $4.29? Explain.

5. **MEASUREMENT** If there are 8 fluid ounces in 1 cup, 2 cups in 1 pint, 2 pints in 1 quart, and 4 quarts in 1 gallon, how many fluid ounces are in 1 gallon?

6. **GIFT GIVING** Alita, Alisa, and Alano are sharing the cost of their mother’s birthday gift, which costs $147. About how much money will each child need to contribute?
Lesson 4 Homework Practice

Terminating and Repeating Decimals

Write each fraction as a decimal. Use bar notation if the decimal is a repeating decimal.

1. \( \frac{5}{8} \)  
2. \( \frac{2}{9} \)  
3. \( \frac{16}{37} \)

4. \( -\frac{1}{9} \)  
5. \( \frac{27}{50} \)  
6. \( -\frac{3}{4} \)

7. \( \frac{5}{6} \)  
8. \( \frac{1}{33} \)  
9. \( -\frac{11}{60} \)

10. \( \frac{2}{3} \)  
11. \( \frac{11}{40} \)  
12. \( \frac{13}{20} \)

13. \( \frac{5}{63} \)  
14. \( -\frac{3}{10} \)  
15. \( -\frac{3}{22} \)

16. \( \frac{3}{7} \)  
17. \( \frac{24}{111} \)  
18. \( \frac{7}{32} \)

Write each decimal as a fraction or mixed number in simplest form.

19. \(-0.4\)  
20. \(-0.83\)  
21. \(-3.75\)

22. \(-2.42\)  
23. \(-0.16\)  
24. \(-0.65\)

25. KILOMETERS One kilometer is approximately \( \frac{31}{50} \) mile. What decimal represents this length?

26. MARATHON Jake won 7 of the 15 races he ran. Write Jake’s fraction of wins as a decimal.
# Lesson 4 Problem-Solving Practice

## Terminating and Repeating Decimals

1. **BOYS AND GIRLS** There were 5 girls and 22 boys in Mrs. Pantoja’s math class. Write the number of girls as a fraction of the number of boys. Then write the fraction as a decimal.

2. **DOGS** In a neighborhood of 75 families, 16 families own one or more dogs. Write the number of families who own one or more dogs as a fraction. Then write the fraction as a decimal.

3. **PHONES** In one town, about 93 of every 100 people use cellular telephones. Write this amount as a fraction. Then write the fraction as a decimal.

4. **PIES** At a reunion, \(14 \frac{5}{8}\) blueberry pies were eaten. Write the amount of pies as a decimal.

5. **RUNNING** Tora ran \(\frac{15}{16}\) mile on Tuesday and \(1 \frac{1}{4}\) miles on Wednesday. Write each distance as a decimal.

6. **VOTING** In a recent school election, 208 of the 325 freshmen voted in their class election. Write the fraction of freshmen who voted. Then write the fraction as a decimal.
Lesson 5 Homework Practice

Compare and Order Rational Numbers

Fill in ♦ with <, >, or = to make a true statement.

1. $-4\frac{4}{25}$ ♦ $-4.12$
2. $7.6$ ♦ $-8.5$
3. $\frac{8}{11}$ ♦ $-\frac{1}{3}$

4. $-\frac{7}{9}$ ♦ $-\frac{5}{8}$
5. $-3.72$ ♦ $-\frac{9}{10}$
6. $-19.3$ ♦ $-19.03$

7. $-2.87$ ♦ $2.93$
8. $-\frac{6}{7}$ ♦ $-6.7$
9. $-24.7$ ♦ $-24\frac{7}{10}$

10. $-12\frac{14}{15}$ ♦ $-13$
11. $-1.4$ ♦ $\frac{3}{4}$
12. $-31\frac{3}{7}$ ♦ $-31.1$

Order the following sets of numbers from least to greatest.

13. \{43.18, $-43\frac{1}{4}$, 43.3, $43\frac{4}{5}$\}
14. \{1$\frac{1}{5}$, $-1.23$, $-1\frac{1}{6}$, 1.14\}

15. \{13.7, 13$\frac{7}{100}$, $-13\frac{17}{100}$, $-13.2$\}
16. \{6$\frac{2}{3}$, $-6\frac{1}{4}$, -6.3, 6.04\}

17. SUBMARINE A submarine’s depth levels are recorded in the table at the right. Order the numbers from least to greatest.

<table>
<thead>
<tr>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>$-4.3$</td>
</tr>
<tr>
<td>$-82.5$</td>
</tr>
<tr>
<td>$-41\frac{4}{5}$</td>
</tr>
<tr>
<td>$-13\frac{1}{8}$</td>
</tr>
</tbody>
</table>

18. GOALS A runner wants to run the 100-meter dash in 13 seconds or less. The table shows the difference between his goal and his actual times. Order the differences from least to greatest.

<table>
<thead>
<tr>
<th>Race</th>
<th>Differences Between Goal and Actual Time (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$-1.2$</td>
</tr>
<tr>
<td>2</td>
<td>$2\frac{1}{8}$</td>
</tr>
<tr>
<td>3</td>
<td>$-\frac{2}{3}$</td>
</tr>
<tr>
<td>4</td>
<td>1.1</td>
</tr>
</tbody>
</table>
Lesson 5 Problem-Solving Practice
Compare and Order Rational Numbers

1. **FLORIST** Paige wants to sell a certain number of roses each month. The difference between her goal and her actual sales is shown. Order the differences from least to greatest.

<table>
<thead>
<tr>
<th>Month</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>$-4\frac{1}{2}$</td>
</tr>
<tr>
<td>February</td>
<td>6.8</td>
</tr>
<tr>
<td>March</td>
<td>$2\frac{5}{8}$</td>
</tr>
<tr>
<td>April</td>
<td>$-1.7$</td>
</tr>
</tbody>
</table>

2. **SCIENCE** A scientist recorded the differences in weights of mice after a change in the diet and exercise routine. The differences were: $-\frac{1}{2}$ ounce, 0.23 ounce, $-0.4$ ounce, and $\frac{1}{3}$ ounce. Order the differences from least to greatest.

3. **PLANTS** In one week, Kateira's plant grew $0.58$ inch, Stefano's plant grew $\frac{1}{2}$ inch, Kayla's plant grew $0.4$ inch, and Mirenda's plant grew $\frac{5}{11}$ inch. Order the amounts from least to greatest.

4. **TIMES** The difference in the runners' goals and their actual times is shown. Order the numbers from least to greatest.

<table>
<thead>
<tr>
<th>Runner</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sean</td>
<td>$-3.2$</td>
</tr>
<tr>
<td>Lacey</td>
<td>$1\frac{4}{10}$</td>
</tr>
<tr>
<td>Maura</td>
<td>$-2\frac{1}{5}$</td>
</tr>
<tr>
<td>Amos</td>
<td>1.43</td>
</tr>
</tbody>
</table>

5. **MOVIE** Each homeroom recorded the difference in costs for making a movie from their budget. Which homeroom exceeded their budget the most?

<table>
<thead>
<tr>
<th>Homeroom</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$104\frac{1}{4}$</td>
</tr>
<tr>
<td>B</td>
<td>$-56.40$</td>
</tr>
<tr>
<td>C</td>
<td>$104\frac{2}{5}$</td>
</tr>
<tr>
<td>D</td>
<td>$-32.50$</td>
</tr>
</tbody>
</table>

6. **PICTURES** A photographer records the amount he changes his shutter speed for each photo he takes. The changes are $-1.5$, $1\frac{1}{8}$, $\frac{3}{5}$, and 1.4. Order the changes from least to greatest.
Lesson 6 Homework Practice

The Coordinate Plane

Use the coordinate plane at the right. Identify the point for each ordered pair.

1. \((-3, 4)\)  
2. \((-4, -3)\)

3. \((-2, -2)\)  
4. \((3, -1)\)

5. \((0, 1)\)  
6. \((-1, -4)\)

Use the coordinate plane above. Write the ordered pair that names each point. Then identify the quadrant where each point is located.

7. \(C\)  
8. \(L\)

9. \(D\)  
10. \(A\)

11. \(G\)  
12. \(I\)

Use the map of the Alger Underwater Preserve in Lake Superior to answer the following questions.

13. In which quadrant is the Stephen M. Selvick located?

14. What is the ordered pair that represents the location of the Bermuda? the Superior?

15. Which quadrant contains Williams Island?

16. Which shipwreck is closest to the origin?
Lesson 6 Problem-Solving Practice

The Coordinate Plane

MAPS For Exercises 1–4, use the map shown below. The X’s indicate buried treasure.

1. What are the coordinates of the northernmost treasure?
2. What are the coordinates of the westernmost treasure?
3. What are the coordinates of the treasure located on its own island?
4. What are the coordinates of the treasure closest to the northernmost treasure?
5. On a map, Luisa placed her school at (0,0) and her home at (−3,4). Which quadrant is the point representing her home located in?
6. On the same map, Luisa placed her friend Manny’s house at (2, −5). Which quadrant is the point representing Manny’s house located in?
Lesson 7 Homework Practice

Graph on the Coordinate Plane

Graph and label each point on the coordinate plane.

1. \( L(-2, 0) \)
2. \( M(5, 2) \)

3. \( N(-4, -3) \)
4. \( P(1, -1) \)

5. \( Q(0, -4) \)
6. \( R(3, -3) \)

7. \( C(0, 0) \)
8. \( S(-2, 3) \)

9. \( D(-1, -3) \)
10. \( A(4, 0) \)

11. \( G(-1, 4) \)
12. \( I(3, 3) \)

13. On the coordinate plane, draw triangle \( ABC \) with vertices \( A(-3, 3), B(-3, -3), C(1, -3) \). Find the area of the triangle in square units.

14. On the coordinate plane, draw rectangle \( WXYZ \) with vertices \( W(-1, 4), X(-1, 1), Y(5, 1), \) and \( Z(5, 4) \). Find the perimeter of the rectangle.
Lesson 7 Problem-Solving Practice

Graph on the Coordinate Plane

MONEY For Exercises 1–4, use the table and the coordinate plane.

School buttons sell for $2 each. When you have completed the table and the graph, both the table and graph will show the costs of purchasing up to 5 school buttons.

<table>
<thead>
<tr>
<th>Number of Buttons Sold</th>
<th>Price ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

1. Complete the second column of the table by writing the cost of each number of buttons.

2. Make a list of ordered pairs from the table.

3. Graph the ordered pairs. Label each point with its ordered pair. Describe the graph of the points.

4. Describe the coordinate plane that you have completed. How is it different from other systems you have used?

5. TRACK If it takes Trixie 8 minutes to run a mile, then \(8m\) represents her total time where \(m\) is the number of miles she has run. List the ordered pairs (number of miles, total time) for 0, 1, 2, and 3 miles.

6. TRACK If you were to graph the ordered pairs from Exercise 5, what would their graph look like?
Lesson 1 Homework Practice

Powers and Exponents

Write each product using an exponent.

1. \(20 \times 20\)  
2. \(4 \times 4 \times 4 \times 4\)  
3. \(2 \times 2 \times 2 \times 2 \times 2 \times 2\)

4. \(3 \times 3 \times 3 \times 3 \times 3\)  
5. \(10 \times 10 \times 10\)

6. \(7 \times 7 \times 7 \times 7 \times 7 \times 7\)

7. \(25 \times 25 \times 25\)

8. \(5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5\)

9. \(6.5 \times 6.5\)

10. SUN The surface temperature of the sun is close to \(10 \times 10 \times 10 \times 10\) degrees Fahrenheit. Write this product using an exponent.

11. BONES There are about \(6 \times 6 \times 6\) bones in the adult human body. Write this product using an exponent.

Write each power as a product of the same factor. Then find the value.

12. \(15^3\)

13. \(6^5\)

14. \(0^4\)

15. \(7^4\)

16. \(5^5\)

17. \(1^8\)

18. \(3.5^2\)

19. \(2.5^3\)

20. NEWSPAPERS Tamika delivered \(50^2\) newspapers last summer. Write \(50^2\) as a product of the same factor. Then find the value.

21. POPULATION One of the world’s smallest countries, Vatican City, has a population less than \(10^5\) people. About how many people live in this country?
Lesson 1 Problem-Solving Practice

Powers and Exponents

1. **OLYMPICS** The first Olympics were held in Greece more than $7 \times 7 \times 7 \times 7$ years ago. Write this product using an exponent. Then find its value.

2. **RIDES** The fastest roller coaster in the world is located in New Jersey. It travels $2^7$ miles per hour. Write $2^7$ as a product of the same factor. Then find the value.

3. **BASEBALL** With a total of more than $3^6$ home runs, Barry Bonds holds the major league record for the most home runs. About how many home runs did Barry Bonds have?

4. **PLANETS** The table shows facts and data about the planets. Write each exponent as a product of the same factor. Then find each value.

<table>
<thead>
<tr>
<th>Diameter of the moon (mi)</th>
<th>$3^7$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter of largest planet, Jupiter (mi)</td>
<td>$17^4$</td>
</tr>
<tr>
<td>Hottest planet, Venus ($^\circ$F)</td>
<td>$29^2$</td>
</tr>
<tr>
<td>Coldest planet, Pluto ($^\circ$F)</td>
<td>$7^3$</td>
</tr>
</tbody>
</table>

5. **STATES** The table shows the approximate area of the largest and smallest states in the United States.

<table>
<thead>
<tr>
<th>State</th>
<th>Area (mi$^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>$87^3$</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>$39^2$</td>
</tr>
</tbody>
</table>

Write each power as a product of the same factor. Then find the value.

6. **PARKS** Yellowstone National Park is known for its $10^4$ hot springs and geysers, which is more than anywhere else in the world. Write $10^4$ as a product of the same factor. How many hot springs and geysers are in Yellowstone National Park?
Lesson 2 Homework Practice

Numerical Expressions

Find the value of each expression.

1. $34 + 17 - 5$
2. $25 - 14 + 3$
3. $42 + 6 \div 2$

4. $39 \times (15 \div 3) - 16$
5. $48 \div 8 + 5 \times (7 - 2)$
6. $64 \div (15 - 7) \times 2 - 9$

7. $(3 + 7) \times 6 + 4$
8. $9 + 8 \times 3 - (5 \times 2)$
9. $7^2 + 6 \times 2$

10. $34 - 8^2 \div 4$
11. $45 \div 3 \times 2^3$
12. $4 \times (5^2 - 12) - 6$

13. $78 - 2^4 \div (14 - 6) \times 2$
14. $9 + 7 \times (15 + 3) \div 3^2$
15. $13 + (4^3 \div 2) \times 5 - 17$

16. ART An art supply store sells posters for $9 each and picture frames for $15 each.
   a. Write an expression for the total cost of 6 posters and 6 frames.

   b. What is the total cost for 6 framed posters?

17. SCIENCE There are 24 students in a science class. Mr. Sato will give each pair of students 3 magnets. So far, Mr. Sato has given 9 pairs of students their 3 magnets. How many more magnets does Mr. Sato need so that each pair of students has exactly 3 magnets?
Lesson 2 Problem-Solving Practice

Numerical Expressions

MONEY For Exercises 1–3, use the table that shows the price of admission to a movie theater.

<table>
<thead>
<tr>
<th>Movie Theater Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults: $8</td>
</tr>
<tr>
<td>Children (under 13): $5</td>
</tr>
<tr>
<td>Matinee (before 6 P.M.): $3</td>
</tr>
</tbody>
</table>

1. Janelle (age 12) and her cousin, Marquita (age 14), go to a 7:00 P.M. show. Write an expression for the total cost of admission. What is the total cost?

2. Jan takes her three children and two neighbor’s children to a matinee. All of the children are under age 13. Write an expression for the total cost of admission. How much in all did Jan pay for admission?

3. Connor (age 13), his sister (age 7), and Connor’s parents go to a movie on Saturday night. Write an expression for the total cost. What is the total cost?

4. SOCCER Eduardo is 16 years old. Eduardo’s dad takes him and his younger sister to a soccer match. Tickets are $17 for adults and $13 for children (18 and under). Write an expression for the total cost of the tickets. What is the total cost of the tickets?

5. MONEY Frankie orders two hamburgers and a soda for lunch. A hamburger is $3 and a soda is $1. Write an expression to show how much he paid for lunch. Then find the value of the expression.

6. MONEY A store sells barrettes for $2 each and combs for $1. Shelby buys 3 barrettes and a comb. Ashley buys 2 barrettes and 4 combs. Write an expression for the amount the two girls spent all together. Find the total amount spent.
Lesson 3 Homework Practice

Algebra: Variables and Expressions

Evaluate each expression if \( m = 6 \) and \( n = 12 \).

1. \( m + 5 \)  
2. \( n - 7 \)  
3. \( m \cdot 4 \)  
4. \( m + n \)

5. \( n - m \)  
6. \( 12 \div n \)  
7. \( 9 \cdot n \)  
8. \( n \div m \)

9. \( 2m + 5 \)  
10. \( 4m - 17 \)  
11. \( 36 - 6m \)  
12. \( 3n + 8 \)

Evaluate each expression if \( a = 9 \), \( b = 3 \), and \( c = \frac{1}{3} \).

13. \( a^2 \div 3 \)  
14. \( 15b + a^2 \)  
15. \( b^2 + 4 \cdot 6 \)

16. \( a^2 - 2b^2 \)  
17. \( a^2 + 30 - 18 \)  
18. \( b^2 + 5a - 20 \)

19. \( b^3 + c \)  
20. \( 19 + 6a \div 2 \)  
21. \( 4b^2 \cdot 3 \)

22. \( 3c \div (2b^2) \)  
23. \( a^2 - (3c) \)  
24. \( ac \div (2b) \)

25. ANIMALS A Gentoo penguin can swim at a rate of 17 miles per hour. How many miles can a penguin swim in 4 hours? Use the expression \( rt \), where \( r \) represents rate and \( t \) represents time.

26. CLOTHING A company charges $6 to make a pattern for an order of T-shirts and $11 for each T-shirt it produces from the pattern. The expression \( $11n + $6 \) represents the cost of \( n \) T-shirts with the same pattern. Find the total cost for 5 T-shirts with the same pattern.
Lesson 3 Problem-Solving Practice

Algebra: Variables and Expressions

TRAVEL For Exercises 1 and 2, use the table that shows the distances between several cities.

<table>
<thead>
<tr>
<th>Mileage Chart</th>
<th>Greenville</th>
<th>Clinton</th>
<th>Franklin</th>
<th>Springfield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinton</td>
<td>124 miles</td>
<td></td>
<td>197 miles</td>
<td>533 miles</td>
</tr>
<tr>
<td>Franklin</td>
<td>279 miles</td>
<td>197 miles</td>
<td></td>
<td>395 miles</td>
</tr>
<tr>
<td>Springfield</td>
<td>527 miles</td>
<td>533 miles</td>
<td>395 miles</td>
<td></td>
</tr>
</tbody>
</table>

1. To find the speed of a car, use the expression \( d \div t \), where \( d \) represents the distance and \( t \) represents time. Find the speed of a car that travels from Clinton to Greenville in 2 hours.

2. To find the time it will take for a train to travel from Springfield to Franklin, use the expression \( \frac{d}{s} \), where \( d \) represents distance and \( s \) represents speed. Find the time if the train travels at a speed of 79 miles per hour.

3. PERIMETER The perimeter of a rectangle can be found using the expression \( 2\ell + 2w \), where \( \ell \) represents the length and \( w \) represents the width. Find the perimeter if \( \ell = 6 \) units and \( w = 3 \) units.

4. PERIMETER Another expression for perimeter is \( 2(\ell + w) \). Find the perimeter of the rectangle in Exercise 3 using this expression. How do the answers compare? Explain how you used order of operations using this expression.

5. SHOPPING The expression \( 3j + 10 \) shows the total cost with shipping for 3 pairs of jeans. Find the total cost if each pair of jeans costs $25.

6. SHOPPING The expression \( 15p + 12r \) shows the total cost of buying \( p \) printed shirts and \( r \) plain shirts. Find the total cost if you buy two printed shirts and three plain shirts.
Lesson 4 Homework Practice

Algebra: Write Expressions

Define a variable. Then write each phrase as an algebraic expression.

1. nine less than a number

2. five times the number of books in the library

3. three more pancakes than his brother ate

4. two more than seven times Lynn’s age

5. 9 minutes less than Frances’ time

6. SPORTS The distance around a basketball, or circumference, is about three times the circumference of a softball. Define a variable and write an expression to represent the circumference of a basketball.

7. PLUMBING A plumber charges $50 to visit a house plus $40 for every hour of work. Define a variable and write an expression to represent the total cost of hiring a plumber.

8. CAMPING A camp leader figures that she needs one tent for every three campers, plus a tent for herself. Define a variable and write an expression to represent the number of tents needed.
Lesson 4 Problem-Solving Practice

Algebra: Write Expressions

OLYMPICS For Exercises 1–4, use the table that shows the number of medals won by each country in the 2008 Summer Olympics.

<table>
<thead>
<tr>
<th>Country</th>
<th>Medals</th>
<th>Country</th>
<th>Medals</th>
<th>Country</th>
<th>Medals</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>m</td>
<td>Great Britain</td>
<td>47</td>
<td>France</td>
<td>40</td>
</tr>
<tr>
<td>China</td>
<td>100</td>
<td>Australia</td>
<td>a</td>
<td>South Korea</td>
<td>31</td>
</tr>
<tr>
<td>Russia</td>
<td>72</td>
<td>Germany</td>
<td>41</td>
<td>Italy</td>
<td>i</td>
</tr>
</tbody>
</table>

1. Write an expression to show how many more medals the USA won than Germany.

2. Write an expression to show how many fewer medals Australia won than Great Britain.

3. Write an expression to show how many medals were won by the USA, Australia, and France combined.

4. The number of medals won by the United States is 26 more than three times the number of medals won by Italy. Write an algebraic expression to represent this statement.

5. TRAVEL Mrs. Guang purchased four airline tickets to Florida. She will also pay a fee of $55 for an extra piece of luggage. Define a variable and write an expression to represent her total cost of flying to Florida.

6. MEASUREMENT There are about 1.6 kilometers in every mile. Write an expression to represent the approximate number of kilometers in \( m \) miles. Then use the expression to find the approximate number of kilometers in 5 miles.
Homework Practice

Problem-Solving Investigation: Act It Out

Mixed Problem Solving

Use the act it out strategy to solve Exercises 1 and 2.

1. FITNESS Brad jumps 4 feet forward and then 2 feet backward. How many full sets must he jump to reach 16 feet?

2. SEWING Dion’s grandmother is making a quilt using four small squares put together to form one large square block. How many different blocks can she make using one each of red, green, blue, and yellow small squares? Show the possible arrangements.

Use any strategy to solve Exercises 3–6.

3. ANIMALS Nine birds are sitting on a power line. Three more birds arrive at the same time five of the birds fly off. How many birds are sitting on the power line now?

4. MONEY Clarence bought a pair of running shoes for $7 less than the regular price. If he paid $29, what was the regular price?

5. FOOD Elena bought three bags of dried fruit that weighed $1 \frac{7}{10}$ pounds, $3 \frac{1}{4}$ pounds, and $2 \frac{3}{5}$ pounds. About how much fruit did she buy?

6. PATTERNS What number is missing in the pattern below?

   . . . , 654, 533, □, 291, . . .

7. PARTIES Fourteen friends are at a party. Five more friends arrive at the same time that three friends leave. How many friends are at the party now?
Problem-Solving Practice

Problem-Solving Investigation: Act It Out

1. EVENTS Jonah is arranging students around square tables that are lined up in a row, end to end. Three students can fit on the side of one table. How many people can he seat with 3 tables?

2. FOOD About how much more money is spent on strawberry and grape jelly than the other types of jelly?

<table>
<thead>
<tr>
<th>Yearly Jelly Sales (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strawberry and Grape jelly</td>
</tr>
<tr>
<td>All others</td>
</tr>
</tbody>
</table>

3. SHOPPING Jen-Li has $95 to spend on athletic shoes. The shoes she wants to buy cost $59.99. If you buy one pair, you get a second pair for half price. About how much money will she have left over if she purchases two pairs of the shoes?

4. FIELD TRIP Mrs. Samuelson had $350 to spend on a field trip for herself and 18 students. Admission was $12.50 per person and lunch cost about $5.00 per person. How much money was left after the trip?

5. MONEY The table gives admission costs for a home improvement fair. A group of twelve people paid a total of $50 for admission. If 8 of them were children, how many people in the group were adults and how many were senior citizens?

<table>
<thead>
<tr>
<th>Home Improvement Admission Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
</tr>
<tr>
<td>Children</td>
</tr>
<tr>
<td>Senior Citizens</td>
</tr>
</tbody>
</table>

6. GEOMETRY If the pattern shown below is continued, find the number of dots in Figure 5.
Lesson 5 Homework Practice

Algebra: Properties

Determine whether the two expressions are equivalent. If so, tell what property is applied. If not, explain why.

1. \(7 \cdot (6 \cdot t)\) and \((7 \cdot 6) \cdot t\)

2. \(23 + 15\) and \(15 + 23\)

3. \(18 - (7 - 3)\) and \((18 - 7) - 3\)

4. \(8 \cdot 1\) and \(8\)

5. \(x \cdot 1\) and \(1 \cdot x\)

6. \(10 \div 5\) and \(5 \div 10\)

Use one or more properties to rewrite each expression as an expression that does not use parentheses.

7. \((b + 3) + 6\)

8. \(7 + (3 + t)\)

9. \(9 \cdot (k \cdot 5)\)

10. \(1 + (h + 2)\)

11. GROCERY A grocery store sells an imported specialty cheese for \$11\) and its own store-brand cheese for \$5\). Write two equivalent expressions for buying one of each cheese and an unknown amount of other groceries.

12. CHECKING ACCOUNT Mr. Kenrick made three deposits to his account in this order: \$460, \$185,\) and \$240. Show how to use the Commutative Property to find the sum of the deposits mentally.

13. PETS Luzon has 8 fish, 3 cats, and 2 dogs. Write two equivalent expressions using the Associative Property that can be used to find the total number of pets.
Lesson 5 Problem-Solving Practice

**Algebra: Properties**

1. **MUSIC** Mr. Escalante and Mrs. Turner plan to take their music classes to a musical revue. Tickets cost $6 each. They need a total of 48 tickets. Use the Commutative Property to write two equivalent expressions that could be used to find the total cost.

2. **SAVINGS** Mrs. Perez was looking at her bank account statement. She noticed that her beginning balance was $500, and she had added nothing to her account. What was the ending balance on her statement? What property did you apply?

3. **ADDITION** Mr. Brooks was working on addition using dominos with a group of 1st graders. When picking the domino with 3 dots on one end and 5 dots on the other, some students read, “3 plus 5 equals 8” while others read it as, “5 plus 3 equals 8.” What property were these children using? Explain.

4. **AREA** Taylor noticed that for the rectangle below she could multiply 2 times 3 to get its area of 6 square inches. How else could she find the area?

```
3 in.     2 in.
```

5. **NUMBER CUBES** Students in Mr. Rivas’ class were practicing their multiplication skills by rolling three 6-sided number cubes. Wapi rolled a 2, a 3, and a 5. He multiplied the three numbers as follows using the order of operations: \((2 \times 3) \times 5 = 30\). Write another way Wapi could have performed the multiplication without changing the order of the numbers. State the property you used.

6. **FACTS** Bik was working on memorizing her multiplication facts. She noticed that anytime she multiplied a number by 1, she got the same number she started with. What property allows this to be true?
Lesson 6 Homework Practice

The Distributive Property

Find each product mentally. Show the steps you used.

1. $8 \times 34$

2. $5 \times 47$

3. $12 \times 4\frac{3}{4}$

4. $8 \times 3\frac{3}{4}$

5. $6 \times 4.4$

6. $7 \times 2.9$

Use the Distributive Property to rewrite each algebraic expression.

7. $6(n + 4)$

8. $15(2 + r)$

9. $8(s + 5)$

10. $3(b + 8)$

11. $5(6 + b)$

12. $9(3 + v)$

13. $7(r - 7)$

14. $12(4 - v)$

15. $11(3 - s)$

16. MOVIES Use the table that shows the prices of tickets and various food items at the movie theater.

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ticket</td>
<td>$8.50</td>
</tr>
<tr>
<td>Popcorn</td>
<td>$5.25</td>
</tr>
<tr>
<td>Soda</td>
<td>$4.00</td>
</tr>
<tr>
<td>Candy</td>
<td>$3.75</td>
</tr>
<tr>
<td>Nachos</td>
<td>$6.50</td>
</tr>
</tbody>
</table>

a. Four friends each bought a ticket and a bag of popcorn. How much total money did they spend?

b. How much money will the movie theater make if a birthday party of 12 kids each buys a box of candy and a soda but does not go see a movie?

c. How much more money will a person spend who buys three orders of nachos than a person who buys three bags of popcorn?
Lesson 6 Problem-Solving Practice

The Distributive Property

For Exercises 1 and 2, use the table that shows the number of seats available on various types of aircrafts.

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Seats</th>
</tr>
</thead>
<tbody>
<tr>
<td>737</td>
<td>150</td>
</tr>
<tr>
<td>757</td>
<td>183</td>
</tr>
<tr>
<td>767</td>
<td>250</td>
</tr>
<tr>
<td>MD-88</td>
<td>142</td>
</tr>
<tr>
<td>777</td>
<td>268</td>
</tr>
</tbody>
</table>

1. **SEATS** How many total seats will the airline gain by purchasing three more of both the 737 aircrafts and MD-88 aircrafts?

2. **PASSENGERS** How many more passengers can sit on four 777 aircrafts than on four 767 aircrafts?

3. **SEATING** The Valley High School Auditorium is able to seat 8 elementary school groups of 65 students each. Use the Distributive Property to determine how many students they can seat.

4. **SHOPPING** Five friends each buy a shirt that costs $x dollars and a pair of shoes that cost $24.00. Write an expression to show how much total money they spent. Then rewrite the expression using the Distributive Property.

5. **CARS** A rental company buys 7 compact cars for $8,500 each and 7 midsize cars for $12,500 each. How much total money will they spend?

6. **BAKING** A baking company charges $1.75 per slice of cake for baking and $0.35 per slice for decorating. How much would a decorated cake cost containing 150 slices?
Lesson 7 Homework Practice

Equivalent Expressions

Simplify each expression.

1. \((7 + x) + 7x\)
2. \(5 \cdot (4 \cdot x)\)
3. \(15y + (x + 9y)\)

4. \((6x + 21) + 14\)
5. \(3x + 2 + 11x\)
6. \((x + 13y) + 8y\)

7. \((12y + 2x) + 4y\)
8. \(8 \cdot (x \cdot 4)\)
9. \(3(5x)\)

10. \(3x + (7x + 10)\)
11. \(5x + (2 + x)\)
12. \(4 \cdot x \cdot 10\)

13. \((x \cdot 12) \cdot 3\)
14. \(14x + 9y + 6x\)
15. \(5x + (24 + 14x)\)

ALGEBRA For Exercises 16 through 21, translate each verbal expression into an algebraic expression. Then, simplify the expression.

16. The sum of three and a number is added to twenty-four.

17. The product of six and a number is multiplied by nine.

18. The sum of 10 times a number and fifteen is added to eleven times the same number.

19. Two sets of the sum of a number and eight are added to five times the same number.

20. Three sets of a sum of a number and four are added to the sum of seven times the same number and thirteen.

21. Five friends went to a baseball game. Three of the friends each bought a ticket for \(x\) dollars and a soda for $6.00. The other two friends each bought only tickets. Write and simplify an expression that represents the amount of money spent.
Lesson 7 Problem-Solving Practice

Equivalent Expressions

1. **AMUSEMENT PARKS**  Four friends went to a local amusement park. Three of the friends bought ride tickets for $x$ dollars, plus a game pass for $10. The other friend bought just a ride ticket. Write and simplify an expression showing the amount of total money spent.

2. **ALGEBRA**  Translate and simplify the expression: the sum of fifteen and a number plus twelve.

3. **AGE**  Julianna is $x$ years old. Her sister is 2 years older than her. Her mother is 3 times as old as her sister. Her Uncle Rich is 5 years older than her mother. Write and simplify an expression representing Rich’s age.

ICE CREAM  For Exercises 5 and 6, use the following information provided in the table.

<table>
<thead>
<tr>
<th>Toppings</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ice Cream (Scoop)</td>
<td>$x$ dollars</td>
</tr>
<tr>
<td>Sprinkles</td>
<td>$0.25</td>
</tr>
<tr>
<td>Hot Fudge</td>
<td>$0.75</td>
</tr>
<tr>
<td>Whipped Cream</td>
<td>$0.50</td>
</tr>
<tr>
<td>Nuts</td>
<td>$0.35</td>
</tr>
</tbody>
</table>

4. **REASONING**  In the expression $30 + 40 + 70$, Jillian added 30 and 40 and then 70, while Samuel added 30 and 70 and then 40. Who is correct? Explain your reasoning.

5. Ten kids each order a scoop of ice cream. Five of the kids add sprinkles, 3 add nuts, and 2 add nothing extra. Write and simplify an expression that represents the total cost.

6. Write and simplify an expression that represents the total cost of ordering nuts on a scoop of ice cream and then adding hot fudge.
Lesson 1 Homework Practice

Equations

Identify the solution of each equation from the list given.

1. \( h + 9 = 21; 10, 11, 12 \)
2. \( 34 + p = 52; 18, 19, 20 \)
3. \( 45 - k = 27; 17, 18, 19 \)

4. \( y - 13 = 24; 37, 38, 39 \)
5. \( 28 = r - 12; 40, 41, 42 \)
6. \( 56 = 7q; 7, 8, 9 \)

7. \( 9w = 45; 3, 4, 5 \)
8. \( 30 \div w = 5; 4, 5, 6 \)
9. \( t \div 6 = 9; 52, 53, 54 \)

Solve each equation mentally.

10. \( a + 6 = 11 \)
11. \( 7 + n = 18 \)
12. \( 17 = 9 + e \)

13. \( 24 = 34 - j \)
14. \( k - 12 = 4 \)
15. \( 25 - c = 15 \)

16. \( 9b = 36 \)
17. \( 11w = 66 \)
18. \( 80 = 10d \)

19. \( 45 \div m = 5 \)
20. \( g \div 4 = 12 \)
21. \( 26 \div k = 2 \)

22. ANIMALS A whiptail lizard has a tail that is twice as long as its body. The equation \( 2b = 6 \) describes the length of a certain whiptail lizard’s tail in inches. If \( b \) is the length of the whiptail lizard’s body, use mental math or the guess, check, and revise strategy to find the length of this whiptail lizard’s body. What is the total length of the lizard?

23. SPORTS CAMP There are 475 campers returning to sports camp this year. Last year, 525 campers attended sports camp. The equation \( 475 = 525 - c \) shows the decrease in the number of campers returning to camp from one year to the next. Use mental math or the guess, check, and revise strategy to find the number of campers who did not return to camp this year.
Lesson 1 Problem-Solving Practice

Equations

INSECTS For Exercises 1–3, use the table that gives the average lengths of several unusual insects in centimeters. Use mental math or the guess, check, and revise strategy.

<table>
<thead>
<tr>
<th>Insect</th>
<th>Length (cm)</th>
<th>Insect</th>
<th>Length (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking stick</td>
<td>15</td>
<td>Giant water bug</td>
<td>6</td>
</tr>
<tr>
<td>Goliath beetle</td>
<td>15</td>
<td>Katydid</td>
<td>5</td>
</tr>
<tr>
<td>Giant weta</td>
<td>10</td>
<td>Silkworm moth</td>
<td>4</td>
</tr>
<tr>
<td>Harlequin beetle</td>
<td>7</td>
<td>Flower mantis</td>
<td>3</td>
</tr>
</tbody>
</table>

1. The equation $15 - x = 12$ gives the difference in length between a walking stick and one other insect. If $x$ is the other insect, which insect is it?

2. The equation $7 + y = 13$ gives the length of a harlequin beetle and one other insect. If $y$ is the other insect, which insect makes the equation a true sentence?

3. Bradley found a silkworm moth that was 2 centimeters longer than average. The equation $m - 4 = 2$ represents this situation. Find the length of the silkworm moth that Bradley found.

4. BUTTERFLIES A Monarch butterfly flies about 80 miles per day. So far it has flown 60 miles. In the equation $80 - m = 60$, $m$ represents the number of miles it has yet to fly that day. Find the solution to the equation.

5. CICADAS The nymphs of some cicada can live among tree roots for 17 years before they develop into adults. One nymph developed into an adult after only 13 years. The equation $17 - x = 13$ describes the number of years less than 17 that it lived as a nymph. Find the value of $x$ in the equation to tell how many years less than 17 years it lived as a nymph.

6. BEETLES A harlequin beetle lays eggs in trees. She can lay up to 20 eggs over 2 or 3 days. After the first day, the beetle has laid 9 eggs. Solve the equation $9 + e = 20$ to find $e$, the number of eggs she will lay during the second and third days.
Lesson 2 Homework Practice

Solve and Write Addition Equations

Solve each equation. Check your solution.

1. \(9 + b = 14\)  
2. \(7 + g = 14\)  
3. \(t + 4 = 12\)

4. \(r + 9 = 16\)  
5. \(18 = r + 8\)  
6. \(16 = 11 + f\)

7. \(t + 1.2 = 3.4\)  
8. \(1.9 + y = 4.8\)  
9. \(7.8 = 3.5 + a\)

10. \(\frac{1}{4} + b = \frac{3}{4}\)  
11. \(w + \frac{2}{7} = \frac{5}{14}\)  
12. \(\frac{2}{5} = \frac{2}{10} + k\)

13. ALGEBRA What is the value of \(n\) if \(15 + n = 27\)?

RETAIL STORES The table shows the monthly earnings of some of the retail stores in a city. Use the table to answer Exercises 14 and 15.

<table>
<thead>
<tr>
<th>MONTHLY RETAIL EARNINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Store</strong></td>
</tr>
<tr>
<td>Sunny Spot</td>
</tr>
<tr>
<td>Griffin’s Web</td>
</tr>
<tr>
<td>Kaylee’s Magic</td>
</tr>
<tr>
<td>Gift’s Galore</td>
</tr>
<tr>
<td>Silver Sky</td>
</tr>
<tr>
<td>Huntley’s Creek</td>
</tr>
</tbody>
</table>

14. Sunny Spot’s earnings were $8,329 more than that of Silver Sky. Write and solve an addition equation to find Silver Sky’s earnings.

15. Write and solve an addition equation to find Huntley’s Creek’s earnings if the total monthly earnings for all the stores is $354,386.
Lesson 2 Problem-Solving Practice

Solve and Write Addition Equations

For Exercises 1–3, use the table of waterslide lengths.

<table>
<thead>
<tr>
<th>Lengths of Waterslides (ft)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The Cobra</td>
<td>63</td>
</tr>
<tr>
<td>Sea Snake</td>
<td>52</td>
</tr>
<tr>
<td>Slime Slip</td>
<td></td>
</tr>
<tr>
<td>Water Whip</td>
<td>75</td>
</tr>
<tr>
<td>Wave Maker</td>
<td>104</td>
</tr>
</tbody>
</table>

1. The Water Whip is 7 feet longer than the Slime Slip. Write and solve an addition equation to find the length of the Slime Slip.

2. If a certain slide was 12 feet longer, it would be the same length as the Water Whip. Write and solve an addition equation to find the name of this waterslide.

3. A new slide that is still under construction will be 156 feet long. This is the same length as two of the existing slides put together. One of the slides is the Sea Snake. Write and solve an addition equation to find the name of the other water slide.

4. STUNT FLYER A stunt airplane is flying at 150 feet. It ascends to 325 feet. Write and solve an equation to find the change in altitude of the airplane.

5. SAVINGS Cornelius is saving money to buy a jacket that costs $47. He has already saved $25. Write and solve an equation to find how much more money Cornelius needs to save.

6. RECYCLING Bonnie has 27 more cans than Jackie. If she has 56 cans, write and solve an equation to find how many cans Jackie has.
Lesson 3 Homework Practice

Solve and Write Subtraction Equations

Solve each equation. Check your solution.

1. \( h - 5 = 4 \)  
2. \( x - 2 = 5 \)  
3. \( g - 6 = 2 \)

4. \( 6 = c - 5 \)  
5. \( t - 7 = 19 \)  
6. \( 5 = j - 8 \)

7. \( y - 1.2 = 4.8 \)  
8. \( a - 3.2 = 5.5 \)  
9. \( 6.6 = w - 1.2 \)

10. \( d - \frac{1}{12} = \frac{5}{12} \)  
11. \( m - \frac{3}{18} = \frac{11}{18} \)  
12. \( b - \frac{3}{15} = 1 \)

13. **PARASAILING** A parasailor is attached by a cable to a boat and towed so that the parachute she is wearing catches air and raises her into the air. When the boat slows down to turn back toward the beach, the parasailor’s chute catches less air and dips 25 meters. She must descend another 45 meters to return to the boat. Write and solve a subtraction equation to find her original height above the boat before the turn.

14. **ALGEBRA** What is the value of \( k \) if \( 16 = k - 9 \)?

15. **PARKS** The Petrified Forest National Park in Arizona recently expanded their boundaries by 93,533 acres. The original acreage was 125,000. Write and solve a subtraction equation to find the new acreage of the park.

16. **AREA** The total land area of the United States is about 3,483,511 square miles more than the total land area of Tennessee, which is about 53,927 square miles. Write and solve an equation to find the total land area of the United States.
Lesson 3 Problem-Solving Practice

Solve and Write Subtraction Equations

For Exercises 1–3, use the article about Florida middle school students breaking a world record.

Florida Students Break World Record
Florida students have broken the record for “The most people reading aloud simultaneously in multiple locations.” The old record, which took place about 2 years earlier, involved 156,628 students. This number was 30,526 less than the new record.

1. The old record mentioned took place in 2004. Write and solve a subtraction equation to find which year this record-breaking event took place.

2. Write and solve a subtraction equation to find this new record number of students.

3. If a future record has a difference of 50,000 students from this record, what subtraction equation could be used to find it? Use it to find the new record.

4. MARBLES Virginia’s mother gave her marbles for her birthday. Virginia lost 13 of them. If she has 24 marbles left, write and solve an equation to find how many her mother gave her.

5. MONEY Claudio went for a walk. While he was walking, $1.35 fell out of his pocket. When he returned home, he counted his money and had $2.55 left. Write and solve an equation to find how much money was in Claudio’s pocket when he started his walk.

6. HANG GLIDING Aida was hang gliding. After losing 35 feet in altitude, she was gliding at 125 feet. Write and solve an equation to find her height when she started hang gliding.
Homework Practice

Problem-Solving Investigation: Guess, Check, and Revise

Mixed Problem Solving

Use the guess, check, and revise strategy to solve Exercises 1 and 2.

1. MOVIES Tickets for the movies are $7 for adults and $4 for children. Fourteen people paid a total of $68 for tickets. How many were adults and how many were children?

2. AGES Mei’s mother is 4 times as old as Mei. Mei’s grandmother is twice as old as Mei’s mother. The sum of the three ages is 117. How old are Mei, her mother, and her grandmother?

Use any strategy to solve Exercises 3–6.

3. SWIMMING Fuad is preparing for a swim meet. The table shows the number of laps he swam in the first four days of practice. If the pattern continues, how many laps will Fuad swim on Friday?

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Laps</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

4. ORDER OF OPERATIONS Use the symbols +, −, ×, and ÷ to make the following math sentence true. Write each symbol only once. 

\[ 8 \_\_\_ 2 \_\_\_ 1 \_\_\_ 3 \_\_\_ 4 = 5 \]

5. PATTERNS Draw the next figure in the pattern.

6. MONEY Gary has $1.56 in change in his pocket. If there is a total of 19 coins, how many quarters, dimes, nickels, and pennies does he have?
Problem-Solving Practice

Problem-Solving Investigation: Guess, Check, and Revise

1. AGES The sum of Cooper’s, Dante’s, and Carla’s ages is 31. Dante is twice as old as Cooper. Carla is one year older than Dante. How old are Cooper, Dante, and Carla?

2. ELEVATION The table shows the highest point of elevation for 5 different states. How much higher is the highest point of elevation in Colorado than Georgia?

<table>
<thead>
<tr>
<th>State</th>
<th>Highest Point of Elevation (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>12,633</td>
</tr>
<tr>
<td>Colorado</td>
<td>14,433</td>
</tr>
<tr>
<td>Georgia</td>
<td>4,784</td>
</tr>
<tr>
<td>North Carolina</td>
<td>6,684</td>
</tr>
<tr>
<td>Texas</td>
<td>8,749</td>
</tr>
</tbody>
</table>

3. FOOTBALL The junior varsity football team scored 23 points in last Saturday’s game. They scored a combination of 7-point touchdowns and 3-point field goals. How many touchdowns and how many field goals did they score?

4. MONEY Willow purchased a new car. Her loan, including interest, is $12,720. How much are her monthly payments if she has 60 monthly payments to make?

5. PATTERNS Draw the next figure in the pattern.

6. FUNDRAISER The school band is having a car wash to raise money. Their goal is to collect $150. So far they have earned $10 each from three families and $5 each from 15 families. How much more money do they have to earn to reach their goal?
Lesson 4 Homework Practice

Solve and Write Multiplication Equations

Solve each equation. Check your solution.

1. \(7a = 63\)  
2. \(14k = 0\)  
3. \(13w = 39\)  
4. \(55 = 11x\)

5. \(3v = 42\)  
6. \(96 = 12f\)  
7. \(14u = 70\)  
8. \(3c = 3\)

9. \(15s = 120\)  
10. \(35q = 5\)  
11. \(\frac{5}{6}k = \frac{1}{6}\)  
12. \(1\frac{2}{3}j = 15\)

13. \(72 = 0.6r\)  
14. \(0.8b = 1.12\)  
15. \(2.3g = 7.13\)  
16. \(40 = 1.6m\)

17. **TIME** The Russian ice breaker *Yamal* can move forward through 2.3-meter-thick ice at a speed of 5.5 kilometers per hour. Write and solve a multiplication equation to find the number of hours it will take to travel 82.5 kilometers through the ice.

**FUNDRAISING** A school is raising money by selling calendars for $20 each. Mrs. Hawkins promised a party to whichever of her English classes sold the most calendars over the course of four weeks. Use the table to answer Exercises 18–20.

<table>
<thead>
<tr>
<th>Class</th>
<th>Number of Calendars Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Period</td>
<td>60</td>
</tr>
<tr>
<td>2nd Period</td>
<td>123</td>
</tr>
<tr>
<td>3rd Period</td>
<td>89</td>
</tr>
<tr>
<td>4th Period</td>
<td>126</td>
</tr>
</tbody>
</table>

18. Write and solve an equation to show the average number of calendars her 3rd period class sold per week during the four-week challenge.

19. How many calendars did the 1st and 2nd period classes sell on average per week? Write and solve a multiplication equation.

20. What was the average number of calendars sold in a week by all of her classes?
Lesson 4 Problem-Solving Practice

Solve and Write Multiplication Equations

For Exercises 1–3, use the table below. The table shows the amount of each kind of marine life in Bunito’s saltwater aquarium.

<table>
<thead>
<tr>
<th>Bunito’s Saltwater Aquarium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clown fish</td>
</tr>
<tr>
<td>Sea urchins</td>
</tr>
<tr>
<td>Seahorses</td>
</tr>
<tr>
<td>Starfish</td>
</tr>
</tbody>
</table>

1. The number of starfish is 3 times the number of clown fish. Write and solve an equation to find how many clown fish are in the aquarium.

2. The number of seahorses is 4 times the number of sea urchins. Write and solve an equation to find how many sea urchins are in the aquarium.

3. The total cost of the starfish was $7.20. Write and solve an equation to find how much one starfish cost.

4. MONEY Paz has $18 in her wallet. This is 3 times the money in her pocket. Write and solve an equation to find how much money Paz has in her pocket.

5. PAGES Marquis read 230 pages of a novel in 5 hours. Write and solve an equation to find how many pages he read in one hour.

6. EXPRESS An express delivery company charges by the pound. A package that weighed 5 pounds cost $24.50 to overnight. Write and solve an equation to find how much the delivery company would charge to overnight a package that weighed 1 pound.
Lesson 5 Homework Practice

Solve and Write Division Equations

Solve each equation. Check your solution.

1. \( 5 = \frac{r}{7} \)  

2. \( 6 = \frac{j}{8} \)  

3. \( 7 = \frac{k}{7} \)  

4. \( \frac{p}{4} = 12 \)  

5. \( \frac{h}{6} = 8 \)  

6. \( \frac{s}{7} = 12 \)  

7. \( 11 = \frac{r}{13} \)  

8. \( 14 = \frac{a}{30} \)  

9. \( 12 = \frac{q}{14} \)  

10. \( \frac{p}{15} = 9 \)  

11. \( \frac{y}{17} = 10 \)  

12. \( \frac{b}{12} = 15 \)  

13. \( 4.7 = \frac{r}{5} \)  

14. \( 0.3 = \frac{d}{11} \)  

15. \( 1.9 = \frac{r}{0.3} \)  

16. \( \frac{b}{15} = 0.9 \)  

17. \( 1.4 = \frac{c}{1.4} \)  

18. \( 5.3 = \frac{d}{9.2} \)  

Write and solve a division equation.

19. POTTERY Dr. Anthro has a piece of Roman pottery that is 954 years old. This is one third as old as a piece of his Grecian pottery. How old is his piece of Grecian pottery?

20. BREAD Mrs. Dinh is dividing a loaf of bread into equal sections for herself, her husband, and their four children. If each person’s serving has 210 Calories, how many Calories are in the loaf?
Lesson 5 Problem-Solving Practice

Solve and Write Division Equations

GOLF  For Exercises 1–3, use the table below. The table shows the price list of golf balls.

<table>
<thead>
<tr>
<th>Brand</th>
<th>Dozen</th>
<th>3-Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinners</td>
<td>$10</td>
<td>$3</td>
</tr>
<tr>
<td>Fly-Boys</td>
<td>?</td>
<td>$4</td>
</tr>
<tr>
<td>Max Flight</td>
<td>$12</td>
<td>?</td>
</tr>
</tbody>
</table>

1. The cost of a dozen Spinners is one sixth the amount of money Ibon brought to the golf course. Write and solve a division equation to find the amount of money Ibon brought to the golf course.

2. The price of a 3-pack of Spinners is one third the price of a dozen Fly-Boys. Write and solve a division equation to find the price of a dozen Fly-Boys.

3. Three golfers decide to split the cost of a 3-pack of Max Flight. Each golfer’s cost is $1.50. Write and solve a division equation to find the price of a 3-pack of Max Flight.

4. GIFT CERTIFICATE At the end of a soccer season, four families decide to buy the coach a gift certificate to a sporting goods store. Each family contributes $35 towards the gift certificate. Write and solve a division equation to find how much the gift certificate is worth.

5. DISTANCE Shawna noticed that the distance from her house to the ocean, which is 40 miles, was one fifth the distance from her house to the mountains. Write and solve a division equation to find the distance from Shawna’s house to the mountains.

6. DOG FOOD A bag of Super Dog dog food, at $12.85, is one third the price of a bag of Power Dog dog food. Write and solve a division equation to find the price of a bag of Power Dog dog food.
Lesson 1 Homework Practice

Function Tables

Complete each function table.

1. | Input (x) | x + 6 | Output (y) |
   | 0        |       |            |
   | 3        |       |            |
   | 7        |       |            |

2. | Input (x) | x − 1 | Output (y) |
   | 1        |       |            |
   | 4        |       |            |
   | 8        |       |            |

3. | Input (x) | 3x + 2 | Output (y) |
   | 0        |        |            |
   | 2        |        |            |
   | 4        |        |            |

4. | Input (x) | x ÷ 2 | Output (y) |
   | 4        |        |            |
   | 8        |        |            |
   | 10       |        |            |

Find the input for each function table.

5. | Input (x) | x ÷ 4 | Output (y) |
   | 1        |        |            |
   | 2        |        |            |
   | 4        |        |            |

6. | Input (x) | x ÷ 2 | Output (y) |
   | 1        |        |            |
   | 3        |        |            |
   | 5        |        |            |

7. | Input (x) | x − 3 | Output (y) |
   | 0        |        |            |
   | 2        |        |            |
   | 3        |        |            |
   | 5        |        |            |
   | 8        |        |            |

8. | Input (x) | 3x + 3 | Output (y) |
   | 3        |        |            |
   | 6        |        |            |
   | 9        |        |            |
   | 12       |        |            |
   | 15       |        |            |

9. FOOD A pizza place sells pizzas for $7 each plus a $4 delivery charge per order. If Pat orders 3 pizzas to be delivered, what will be his total cost?

10. MOVIES A store sells used DVDs for $8 each and used videotapes for $6 each. The function rule 8d + 6v can be used to represent the total selling price of DVDs d and videotapes v. Then use the function rule to find the price of 5 DVDs and 3 videotapes.
Lesson 1 Problem-Solving Practice

Function Tables

1. **DRAGONS** The Luck Dragons that live in the Enchanted Forest weigh 4x pounds when they are x years old. Make a table of values to show the weights of 6-year-old, 8-year-old, and 10-year-old Luck Dragons.

2. **ROLLER COASTER** Twelve people are able to ride the Serpent of Fire roller coaster at one time. The rule 12x is the total number of people that ride after x rides. Make a table of values to show the total number of people that have been on the roller coaster after 1, 2, 3, and 4 rides.

3. **MOVIES** At a local movie theater, it costs each student $5 to see a movie. The rule 5x represents the total amount of money the theater collects from x students. Make a table of values to show the total amount of money the theater collects from 2, 5, and 6 students.

4. **RABBITS** The Friendly Critters Pet Store keeps 3 rabbits in each cage. The rule 3x represents the number of rabbits that x cages can hold. Make a table of values to show how many cages it takes to hold 9, 15, and 18 rabbits.

5. **BEADS** A bead shop sells glass beads for $7 each minus a $2 discount. The rule 7x - 2, where x is the number of glass beads, can be used to find the total cost of x beads. Make a table of values to show how much it costs to buy 5, 6, and 9 glass beads.

6. Use the rule given in Exercise 5 to find the selling price of 15 glass beads.
Lesson 2 Homework Practice

Function Rules

Use words and symbols to describe the value of each term as a function of its position. Then find the value of the sixteenth term in the sequence.

1. Position | 2 | 3 | 4 | 5 | n
Value of Term | 8 | 12 | 16 | 20 | □

2. Position | 8 | 9 | 10 | 11 | n
Value of Term | 14 | 15 | 16 | 17 | □

3. Position | 11 | 12 | 13 | 14 | n
Value of Term | 4 | 5 | 6 | 7 | □

4. Position | 21 | 22 | 23 | 24 | n
Value of Term | 12 | 13 | 14 | 15 | □

Determine how the next term in each sequence can be found. Then find the next two terms in the sequence.

5. 3, 16, 29, 42, …
6. 21, 25, 29, 33, …
7. 1.2, 3.5, 5.8, 8.1, …

Find the missing number in each sequence.

8. 5, □, 10, 12 \( \frac{1}{2} \), …
9. 11.5, 9.4, □, 5.2, …
10. 40, □, 37 \( \frac{1}{3} \), 36, …

11. MEASUREMENT There are 52 weeks in 1 year. In the space at the right, make a table and write a function rule relating the number of weeks to the number of years for 1, 2, 3, and \( n \) years. Then find Hana’s age in weeks if she is 11 years old.

12. SCIENCE A bacteria population increases every hour. At 12 P.M., there are 5 cells. At 1 P.M., there are 10 cells. At 2 P.M., there are 20 cells. At 3 P.M., there are 40 cells. If this pattern continues, how many cells will there be at 7 P.M.? Explain.
Lesson 2 Problem-Solving Practice

**Function Rules**

1. **AGE** There are 12 months in 1 year. If Carrick is 11 years old, how many months old is he? Make a table. Then write a function rule relating the number of months to the number of years.

2. **MEASUREMENT** There are 12 inches in 1 foot. The height of Rachel’s door is 7 feet. Find the height in inches. Make a table. Then write a function rule relating the number of feet to inches.

3. **RUNNING** There are 60 seconds in 1 minute. Costas can run all the way around the track in 180 seconds. Find how long it takes Costas to run around the track in minutes. Make a table. Then write a function rule relating the number of seconds to the number of minutes.

4. **FRUIT** There are 16 ounces in 1 pound. Chanda picked 9 pounds of cherries from her tree this year. Find the number of ounces of cherries Chanda picked. Make a table. Then write a function rule relating the number of ounces to the number of pounds.

5. **SAVINGS** Mikhail saved $1 of his paycheck the first week. He saved $2 the second week. He saved $4 the third week. He saved $8 the fourth week. If this pattern continues, how much will he save the sixth week? Explain.

6. **NUMBER SENSE** The first four numbers of a sequence are 3, 9, 27, and 81. If this sequence continues, what are the next two numbers? Explain.
Lesson 3 Homework Practice

Functions and Equations

Write an equation to represent each function.

1. | Input, $x$ | 1 | 2 | 3 | 4 | 5 |
   | Output, $y$ | 7 | 14 | 21 | 28 | 35 |

2. | Input, $x$ | 0 | 1 | 2 | 3 | 4 |
   | Output, $y$ | 0 | 9 | 18 | 27 | 36 |

3. | Input, $x$ | 1 | 2 | 3 | 4 | 5 |
   | Output, $y$ | 13 | 26 | 39 | 52 | 65 |

4. | Input, $x$ | 10 | 20 | 30 | 40 | 50 |
   | Output, $y$ | 1 | 2 | 3 | 4 | 5 |

5. | Input, $x$ | 0 | 1 | 2 | 3 | 4 |
   | Output, $y$ | 1 | 6 | 11 | 16 | 21 |

6. | Input, $x$ | 4 | 8 | 12 | 16 | 20 |
   | Output, $y$ | 21 | 37 | 53 | 69 | 85 |

Graph each equation.

7. $y = 5x + 1$

8. $y = x + 2$

9. $y = 3x + 3$

10. TELEPHONE A cell phone company charges $40 per month plus $2 for each minute of time used out of the service area. Write the equation that describes the amount $y$ that a cell phone user would pay if they used the phone for $x$ minutes out of the service area. Graph the function.
Lesson 3 Problem-Solving Practice

Functions and Equations

1. **FISHING** A lake owner charges $80 for a day’s guided fishing trip, plus $5 for each pound of fish caught. Write the equation that describes the total charge \( c \) for the number of pounds \( p \) of fish. Make a function table for the input-output values.

   - \( p \) | \( 80 + 5p \) | \( c \)
   - 0 |           |       
   - 1 |           |       
   - 2 |           |       
   - 3 |           |       

2. Graph the function from Exercise 1.

3. **MAGAZINE** A writer’s magazine subscription costs $24 per year plus $4 for each writing contest the subscriber enters. Write the equation that describes the total charge \( c \) for the number of contest entries \( w \). Make a function table for the input-output values.

   - \( w \) | \( 24 + 4w \) | \( c \)
   - 0 |           |       
   - 1 |           |       
   - 2 |           |       
   - 3 |           |       

4. Graph the function from Exercise 3.

5. **DAY CARE** A day care center charges $75 per week for one child, plus $30 per sibling. Write the equation that describes the total charge \( t \) for the number of siblings \( s \). Make a function table for the input-output values.

   - \( s \) | \( 75 + 30s \) | \( t \)
   - 0 |           |       
   - 1 |           |       
   - 2 |           |       
   - 3 |           |       

6. Graph the function from Exercise 5.
Lesson 4 Homework Practice

Multiple Representations of Functions

WATER  One water filter will clean 40 gallons of water.

1. Write an equation to find \( g \), the total number of gallons cleaned by any number of filters \( f \).

2. Make a function table to show the relationship between the number of filters \( f \) and the total number of gallons \( g \).

<table>
<thead>
<tr>
<th>Filters ( f )</th>
<th>Gallons ( g )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Graph the ordered pairs. Analyze the graph.

CHAIRS  Furniture Fanatics is selling dining chairs for $45 each. Chairs R Us charges $52 per chair.

4. Write an equation to represent the total cost \( t \) of any number of chairs \( c \) at each place.

5. Use the equations of the functions to determine which line is steeper. Explain your reasoning.
Lesson 4 Problem-Solving Practice

Multiple Representations of Functions

FITNESS For Exercises 1–3, use the following information.
Rosalia burns 250 Calories for each hour she does aerobics.

1. Write an equation to find \( c \), the number of Calories Rosalia burns in \( h \) hours.

2. Make a table to show the relationship between the number of Calories \( c \) Rosalia burns doing aerobics for \( h \) hours.

3. Graph the ordered pairs for the function in Exercise 1.

4. MUSICALS The table below shows the admission price to the school musical. Write a sentence and an equation to describe the data.

<table>
<thead>
<tr>
<th>Number of People (( n ))</th>
<th>Total Admission (( t ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$6</td>
</tr>
<tr>
<td>2</td>
<td>$12</td>
</tr>
<tr>
<td>3</td>
<td>$18</td>
</tr>
</tbody>
</table>

5. Graph the ordered pairs for the function in Exercise 4. Analyze the graph.

6. VIDEO GAMES The table below shows the number of points earned for catching bugs in a video game. Write a sentence and an equation to describe the data.

<table>
<thead>
<tr>
<th>Number of Bugs Caught (( b ))</th>
<th>Total Points (( t ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>75</td>
</tr>
</tbody>
</table>
Homework Practice

Problem-Solving Investigation: Make a Table

Mixed Problem Solving

Use the make a table strategy to solve Exercises 1.

1. BASKETBALL The winning scores for teams in the National Wheelchair Basketball Association junior division for a recent season are shown. How many winning scores were between 21 and 25?

<table>
<thead>
<tr>
<th>NWBA Jr. Div. Winning Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 26 34 16 33 18</td>
</tr>
<tr>
<td>34 26 24 33 12 23</td>
</tr>
</tbody>
</table>

2. BRACELETS The homemade bracelets that Emilia makes are sold in packages at a local gift store. Each week, the store sells four more packages. If this pattern continues, how many packages were sold at the end of the 25th week?

3. SCIENCE A biologist counted the birds she tagged and released each day for 20 days. Her counts were: 13, 14, 9, 16, 21, 8, 28, 25, 9, 13, 23, 16, 14, 9, 21, 25, 8, 10, 21, and 29. On how many days did she count between 6 and 10 birds or between 26 and 30 birds?

4. TRAFFIC The table shows the types of vehicles seen passing a street corner. Make a frequency table of the data. How many fewer motorcycles than cars were seen?

<table>
<thead>
<tr>
<th>Types of Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>C M M B T T C T</td>
</tr>
<tr>
<td>B R T C R C R C</td>
</tr>
<tr>
<td>M C C M C R C T</td>
</tr>
</tbody>
</table>

C = car  B = bicycle  T = truck  M = motorcycle  R = recreational vehicle
Problem-Solving Practice

Problem-Solving Investigation: Make a Table

1. **SPORTS** The table shows the result of Shante’s survey of her classmates’ favorite sports. How many more students chose softball/baseball than football?

<table>
<thead>
<tr>
<th>Favorite Sports</th>
</tr>
</thead>
<tbody>
<tr>
<td>B V V S B SB SB</td>
</tr>
<tr>
<td>F SB B S V F B</td>
</tr>
<tr>
<td>B SB V SB SB S V</td>
</tr>
</tbody>
</table>

B = basketball  F = football  S = soccer  SB = softball/baseball  V = volleyball

2. **BASEBALL** The table shows the national league home run leaders in the 2002-2006 seasons. How many more home runs did Ryan Howard hit in 2006 than Jim Thome in 2003?

<table>
<thead>
<tr>
<th>Year</th>
<th>Home Run Leader</th>
<th>Number of Home Runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>Sammy Sosa</td>
<td>49</td>
</tr>
<tr>
<td>2003</td>
<td>Jim Thome</td>
<td>47</td>
</tr>
<tr>
<td>2004</td>
<td>Adrian Beltre</td>
<td>48</td>
</tr>
<tr>
<td>2005</td>
<td>Andruw Jones</td>
<td>51</td>
</tr>
<tr>
<td>2006</td>
<td>Ryan Howard</td>
<td>58</td>
</tr>
</tbody>
</table>

3. **TRAINING** Trista is training for a marathon and is running 2 miles the first week. She plans to add 2 miles each week to her training. If the pattern continues, after how many weeks will she run 26 miles?

4. **ORDER OF OPERATIONS** Use each of the symbols +, −, ×, and ÷ to make the following math sentence true.

\[
12 \quad 3 \quad 7 \quad 1 \quad 11 \quad 0
\]

5. **GEOMETRY** Find the difference in the area of the rectangle and the area of the square.

![Rectangle and Square Diagram]

6. **BICYCLES** Kenji is saving money to buy a new bicycle that costs $125. So far he has saved his weekly allowance of $5 for the past 8 weeks. He also saved $35 from his birthday money. How much more money does Kenji need to save?
Lesson 5 Homework Practice

Inequalities

Determine which number is a solution of the inequality.

1. \(32 + a > 44; 11, 12, 13\)  
2. \(15 - x \leq 6; 9, 8, 7\)

3. \(28 + r \geq 60; 32, 31, 30\)  
4. \(49 - h > 8; 40, 41, 42\)

5. \(16 - n \leq 1; 13, 14, 15\)  
6. \(9 + j \geq 36; 25, 26, 27\)

Is the given value a solution of the inequality?

7. \(9 - g \geq 3; g = 5\)  
8. \(42 + h < 53; h = 10\)

9. \(k - 22 \geq 20; k = 38\)  
10. \(t + 12 > 70; t = 55\)

11. \(88 + m > 100; m = 11\)  
12. \(12p \leq 76; p = 6\)

13. RAFFLE The local Lions Club sold raffle tickets for a new golf cart. The sales for each week are given in the table. If more than 250 tickets are sold, then the Lions Club raised enough for the golf cart. Use the inequality \(t > 250\), where \(t\) represents the number of tickets sold, to determine the weeks in which they raised enough money.

<table>
<thead>
<tr>
<th>Week</th>
<th>Tickets Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>248</td>
</tr>
<tr>
<td>2</td>
<td>315</td>
</tr>
<tr>
<td>3</td>
<td>296</td>
</tr>
<tr>
<td>4</td>
<td>210</td>
</tr>
</tbody>
</table>

14. LAPS The track coach records the number of laps the team runs each day for a week in the table to the right. If the team runs at most 10 laps each day, then they have to practice Saturday. Use the inequality \(\ell \leq 10\), where \(\ell\) represents the number of laps the team runs, to determine which days they did not run the required number of laps.

<table>
<thead>
<tr>
<th>Day</th>
<th>Laps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>8</td>
</tr>
<tr>
<td>Tuesday</td>
<td>10</td>
</tr>
<tr>
<td>Wednesday</td>
<td>12</td>
</tr>
<tr>
<td>Thursday</td>
<td>13</td>
</tr>
<tr>
<td>Friday</td>
<td>9</td>
</tr>
</tbody>
</table>
Lesson 5 Problem-Solving Practice

Inequalities

1. SAFETY The speed limit on some Georgia Interstates is 70 miles per hour. If a driver travels faster than 70 miles per hour, he or she receives a ticket. Use the inequality \( s > 70 \), where \( s \) represents the speed of cars on the interstate to determine which cars get a ticket.

<table>
<thead>
<tr>
<th>Car</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>68</td>
</tr>
<tr>
<td>2</td>
<td>76</td>
</tr>
<tr>
<td>3</td>
<td>72</td>
</tr>
<tr>
<td>4</td>
<td>65</td>
</tr>
</tbody>
</table>

2. CAMERAS The cost of a camera at different stores is shown in the table. Kayla doesn’t want to spend more than $400 on a camera. Use the inequality \( c < 400 \), where \( c \) represents the cost of a camera to determine which stores she could buy from.

<table>
<thead>
<tr>
<th>Store</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera Castle</td>
<td>$389.50</td>
</tr>
<tr>
<td>Digital Dreams</td>
<td>$401.75</td>
</tr>
<tr>
<td>Photo Palace</td>
<td>$422.85</td>
</tr>
</tbody>
</table>

3. CONCERT The number of people who attended each theater show at the local arts club is shown in the table. If less than 175 people attend, then the arts club did not make enough to cover costs. Use the inequality \( p < 175 \), where \( p \) represents the number of people present, to determine for which show they did not make enough money.

<table>
<thead>
<tr>
<th>Show</th>
<th>People Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Romeo and Juliet</td>
<td>176</td>
</tr>
<tr>
<td>Hamlet</td>
<td>164</td>
</tr>
<tr>
<td>Macbeth</td>
<td>208</td>
</tr>
</tbody>
</table>

4. FLOWERS The florist kept track of the flowers she sold on Valentine’s Day. If she sells at least 50 flowers, she receives a bonus. Use the inequality \( f \geq 50 \), where \( f \) represents the number of flowers sold to determine which flowers she sold enough of.

<table>
<thead>
<tr>
<th>Flower</th>
<th>Number Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roses</td>
<td>112</td>
</tr>
<tr>
<td>Tulips</td>
<td>68</td>
</tr>
<tr>
<td>Carnations</td>
<td>43</td>
</tr>
</tbody>
</table>

5. RIDES The roller coasters at the theme park require children to be over 48 inches tall to ride. Use the inequality \( h \leq 48 \), where \( h \) represents each child’s height to determine which children can not ride roller coasters.

<table>
<thead>
<tr>
<th>Child</th>
<th>Height (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jolon</td>
<td>47</td>
</tr>
<tr>
<td>Tandy</td>
<td>49</td>
</tr>
<tr>
<td>Cruz</td>
<td>48</td>
</tr>
<tr>
<td>Flo</td>
<td>50</td>
</tr>
</tbody>
</table>

6. BAKE SALE The school bake sale results are given in the table. If more than 20 of a baked good are sold, then more baked goods are made. Use the inequality \( b > 20 \), where \( b \) represents the number of goods sold to determine which baked goods need to be made.

<table>
<thead>
<tr>
<th>Baked Goods</th>
<th>Number Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cakes</td>
<td>10</td>
</tr>
<tr>
<td>Cookies</td>
<td>45</td>
</tr>
<tr>
<td>Cupcakes</td>
<td>38</td>
</tr>
<tr>
<td>Pies</td>
<td>15</td>
</tr>
</tbody>
</table>
Lesson 6 Homework Practice

Write and Graph Inequalities

Write an inequality for each sentence.

1. More than 2,500 people attended the convention.

2. Her earnings were no more than $64.

3. The winning 5K race time was less than 22 minutes.

4. A checking-account balance is no more than $500.

5. A maximum ceiling height of 8 feet was required in the new buildings.

6. A minimum number of 12 participants is required to hold a bike rally.

Graph each inequality on a number line.

7. \(x > 15\)

8. \(s < 6\)

9. \(b \geq 13\)

10. \(x < 23\)

11. \(r > 18\)

12. \(r \geq 5\)

13. \(x > 30\)

14. \(b \leq 4\)

15. \(a \geq 9\)

16. DONATIONS Total donations at the Fireman’s Ball failed to reach $940. Write and graph an inequality that represents the amount raised.
Lesson 6 Problem-Solving Practice

Write and Graph Inequalities

1. ROLLER COASTER In order to ride a roller coaster at the theme park, riders must be at least 52 inches tall. Write and graph an inequality to show the safe heights for riders.

2. FARMING One forklift can raise a maximum of 2,000 kilograms. Write and graph an inequality to describe the number of kilograms the forklift can raise.

3. INTERSTATES On interstate highways, the minimum allowable lane width is 12 feet. Write and graph an inequality to show the possible width of a lane.

4. TRAVEL Traveling salespeople for a book company are paid at least $250 for each trip they take to sell books. Write and graph an inequality to describe the amount salespeople are paid per trip.

5. SPEED LIMIT The speed limit on most state roads is 55 miles per hour. Write and graph an inequality to describe the legal speed on state roads.

6. TRIP Seniors who want to go on the group trip to the mountains have to pay at least $400 of their total bill before the payment deadline. Write and graph an inequality to describe the acceptable payment.
Lesson 7 Homework Practice

Solve One-Step Inequalities

Solve each inequality. Graph the solution on a number line.

1. \(6x > 12\)
   \[
   \begin{array}{cccc}
   0 & 1 & 2 & 3 & 4 \\
   \end{array}
   \]

2. \(h - 4 > 9\)
   \[
   \begin{array}{cccc}
   11 & 12 & 13 & 14 & 15 \\
   \end{array}
   \]

3. \(s + 5 \leq 14\)
   \[
   \begin{array}{cccc}
   7 & 8 & 9 & 10 & 11 \\
   \end{array}
   \]

4. \(\frac{n}{4} \geq 3\)
   \[
   \begin{array}{cccc}
   10 & 11 & 12 & 13 & 14 \\
   \end{array}
   \]

5. \(m + 9 < 13\)
   \[
   \begin{array}{cccc}
   2 & 3 & 4 & 5 & 6 \\
   \end{array}
   \]

6. \(2q < 26\)
   \[
   \begin{array}{cccc}
   11 & 12 & 13 & 14 & 15 \\
   \end{array}
   \]

7. \(\frac{b}{2} < 13\)
   \[
   \begin{array}{cccc}
   24 & 25 & 26 & 27 & 28 \\
   \end{array}
   \]

8. \(\frac{p}{6} < 5\)
   \[
   \begin{array}{cccc}
   28 & 29 & 30 & 31 & 32 \\
   \end{array}
   \]

9. \(13b \leq 39\)
   \[
   \begin{array}{cccc}
   1 & 2 & 3 & 4 & 5 \\
   \end{array}
   \]

10. \(w + 18 \geq 30\)
    \[
    \begin{array}{cccc}
    0 & 10 & 11 & 12 & 13 & 14 \\
    \end{array}
    \]

11. \(\frac{z}{8} \geq 3\)
    \[
    \begin{array}{cccc}
    22 & 23 & 24 & 25 & 26 \\
    \end{array}
    \]

12. \(y - 5 < 12\)
    \[
    \begin{array}{cccc}
    15 & 16 & 17 & 18 & 19 \\
    \end{array}
    \]

13. \(k + 14 \geq 22\)
    \[
    \begin{array}{cccc}
    6 & 7 & 8 & 9 & 10 \\
    \end{array}
    \]

14. \(3v < 21\)
    \[
    \begin{array}{cccc}
    5 & 6 & 7 & 8 & 9 \\
    \end{array}
    \]

15. \(14n \geq 56\)
    \[
    \begin{array}{cccc}
    2 & 3 & 4 & 5 & 6 \\
    \end{array}
    \]

16. \(\frac{s}{2} < 16\)
    \[
    \begin{array}{cccc}
    30 & 31 & 32 & 33 & 34 \\
    \end{array}
    \]

17. TRANSPORTATION A certain minivan has a maximum carrying capacity of 1,200 pounds. The luggage weighs 150 pounds. Write and solve an inequality to find the maximum weight allowable for passengers.

18. DISCOUNTS To qualify for a store discount, Clay’s soccer team must spend at least $560 for new jerseys. The team needs 20 jerseys. Write and solve an inequality to represent how much the team should spend on each jersey to qualify for the discount.
Lesson 7 Problem-Solving Practice

Solve One-Step Inequalities

1. **ENTERTAINMENT** Gabe went to the amusement park with $40 to spend. His ticket cost $26.50. Write and solve an inequality to show how much he might spend on souvenirs and snacks.

2. **AQUARIUM** Leeza’s aquarium holds 55 gallons of water. She is filling the tank and has already put in 22 gallons. Write and solve an inequality to find out how many more gallons she might put in the tank.

3. **CARS** Many mechanics advise people not to drive their cars more than 5,000 miles between oil changes. Kaci has driven her car 3,450 miles since the last oil change. Write and solve an inequality to find out how many more miles she might drive before having her oil changed again.

4. **FURNITURE** Dan builds furniture. The table shows his minimum production times.

<table>
<thead>
<tr>
<th>Furniture</th>
<th>Minimum Production Times (hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child’s table</td>
<td>2</td>
</tr>
<tr>
<td>Bench</td>
<td>1</td>
</tr>
<tr>
<td>Dining table</td>
<td>4</td>
</tr>
<tr>
<td>China cabinet</td>
<td>7</td>
</tr>
</tbody>
</table>

   Dan builds children’s tables on Tuesday. He works 10 hours. Write and solve an inequality to determine how many children’s tables Dan can build that day.

5. **PIANO** Drew practices piano at least 45 minutes per day. He has already practiced 18 minutes. Write and solve an inequality to determine how much longer he will be practicing.

6. **SPORTS** At baseball spring training, the coach throws at least 30 ground balls to each outfielder. He has thrown 16 ground balls to the right fielder. Write and solve an inequality to determine how many more balls he can be expected to throw to the right fielder.
Lesson 1 Homework Practice

Area of Parallelograms

Find the area of each parallelogram.

1. 

2. 

3. 

4. 

5. 

6. 

Find the area of the shaded region in each figure.

7. 

8. 

9. Find the base of a parallelogram with height $6\frac{5}{8}$ feet and area $26\frac{1}{2}$ square feet.

10. Find the height of a parallelogram with base 9.44 meters and area 70.8 square meters.

11. **FLAGS** Find the area of the shaded region of the flag of the Republic of the Congo.

12. **GARDENING** Liam is preparing a 78 square foot plot for a garden. The plot will be in the shape of a parallelogram that has a height of 6 feet. What will be the length of the base of the parallelogram? Explain your reasoning.
Lesson 1 Problem-Solving Practice

Area of Parallelograms

1. **SUNFLOWERS** Manu is a sunflower farmer. His farm is in the shape of a parallelogram with a height measuring 3.5 kilometers and a base measuring 4.25 kilometers. What is the total land area Manu uses?

2. **VOLLEYBALL** Tara and Veronica are in charge of making a banner for the volleyball game this Saturday. How much poster paper will they need for a parallelogram-shaped banner with height $3\frac{1}{2}$ feet and base $6\frac{1}{4}$ feet?

3. **FLAGS** Joseph is painting the flag of Brunei (a country in Southeast Asia) for a geography project at school. How many square inches will he cover with white paint?

4. **FLAGS** Use the flag from Exercise 3. How many square inches will Joseph cover with black paint?

5. **QUILTING** The pattern shows the dimensions of a quilting square that Nakida will use to make a quilt. How much blue fabric will she need? Explain how you found your answer.

6. **QUILTING** Use the quilting pattern from Exercise 5. There are 18 square inches of pink fabric. Find the height and base of the parallelogram labeled pink.
Lesson 2 Homework Practice

Area of Triangles

Find the area of each triangle.

1. 

2. 

3. 

4. 

5. 

6. 

Find the missing dimension.

7. height: 15 ft  
   area: 285 ft²

8. base: 17 cm  
   area: 18.7 cm²

9. height: 12 1/4 in.  
   area: 128 5/8 in²

10. PENNANT  Tameeka is in charge of designing a school pennant for spirit week. She wants the base to be 3 1/2 feet and the height to be 6 1/2 feet. She has 20 square feet of paper available. Does she have enough paper? Explain.

11. FLAGS  What is the area of the triangle on the flag of Bosnia and Herzegovina?

12. MURALS  Aubrey is painting a mural of an ocean scene. The triangular sail on a sailboat has a base of 4 feet and a height of 6 feet. Aubrey will paint the sail using a special white paint. A can of this paint covers 10 square feet. How many cans of white paint will Aubrey need?
### Lesson 2 Problem-Solving Practice

**Area of Triangles**

<table>
<thead>
<tr>
<th>1. CARPETING</th>
<th>Courtney wants to carpet part of her bedroom that is shaped like a right triangle with base 4.8 meters and height 5.2 meters. How much carpet will she need?</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. LAWN</td>
<td>Mrs. Giuntini’s lawn is triangle-shaped with a base of 25 feet and a height of 10 feet. What is the area of Mrs. Giuntini’s lawn? Explain how you found your answer.</td>
</tr>
<tr>
<td>3. BUILDING</td>
<td>Norma has an A-frame cabin. The back is shown below. How many square feet of paint will she need to cover the back of the cabin?</td>
</tr>
<tr>
<td>4. SNACKS</td>
<td>The dough that will be used to make a crescent roll is shown below. What is the area of the dough? Explain how you found your answer.</td>
</tr>
<tr>
<td>5. SAILING</td>
<td>Ahmad just bought a used sailboat with two sails that need replacing. How much sail fabric will Ahmad need if he replaces sail A?</td>
</tr>
<tr>
<td>6. SAILING</td>
<td>Use the picture from Exercise 5. The previous owner recalled that the area of sail B was 108 square feet. What is the length of the base of sail B?</td>
</tr>
</tbody>
</table>
Lesson 3 Homework Practice

Area of Trapezoids

Find the area of each figure. Round to the nearest tenth if necessary.

1. \( \text{Area} = \frac{1}{2} \times (7 + 11) \times 7 \)  
\( = \frac{1}{2} \times 18 \times 7 \)  
\( = 63 \) ft²

2. \( \text{Area} = \frac{1}{2} \times (6 + 7.5) \times 5 \)  
\( = \frac{1}{2} \times 13.5 \times 5 \)  
\( = 33.75 \) in²

3. \( \text{Area} = \frac{1}{2} \times (4 + 6.3) \times 3.6 \)  
\( = \frac{1}{2} \times 10.3 \times 3.6 \)  
\( = 18.54 \) m²

4. \( \text{Area} = \frac{1}{2} \times (14.3 + 12) \times 18.4 \)  
\( = \frac{1}{2} \times 26.3 \times 18.4 \)  
\( = 242.14 \) cm²

5. \( \text{Area} = \frac{1}{2} \times (3 \frac{1}{2} + 5) \times 9 \)  
\( = \frac{1}{2} \times 8.5 \times 9 \)  
\( = 38.25 \) yd²

6. \( \text{Area} = \frac{1}{2} \times (9.8 + 7) \times 10.1 \)  
\( = \frac{1}{2} \times 16.8 \times 10.1 \)  
\( = 84.72 \) mm²

7. GEOGRAPHY The shape of Arkansas is roughly trapezoidal with bases of 475 kilometers and 300 kilometers and a height of 400 kilometers. What is the approximate area of Arkansas?

8. Find the area of the figure. It is formed by two congruent trapezoids.

Draw and label each figure. Then find the area.

9. a trapezoid with a right angle and an area greater than 50 square feet

10. a trapezoid with no right angles and an area greater than 75 square meters
Lesson 3 Problem-Solving Practice

**Area of Trapezoids**

1. **GEOGRAPHY** Missouri has a shape that is similar to a trapezoid with bases of about 198 miles and 276 miles and a height of about 270 miles. Estimate the area of the state.

2. **PATIOS** Greta is making a patio with the dimensions given in the figure. What is the area of the patio?

3. **FLAGS** Malila wants to make the International Marine Signal flag shown. What is the area of the flag?

4. **SIGNS** Ciro made a sign in the shape of a trapezoid. The parallel sides measured 18 inches and 35 inches. The distance between these sides was 19 inches. What was the area of Ciro’s sign?

5. **TRAY** A tray in a school cafeteria has the dimensions shown. Find the area of the tray.

6. **GARDENING** Kinu wants to buy topsoil for a section of her garden that has the dimensions shown in the figure. Each bag covers 2 square yards. How many bags of topsoil should Kinu buy?
Homework Practice

Problem-Solving Investigation: Draw a Diagram

Use the *draw a diagram* strategy to solve Exercises 1 and 2.

1. **QUILTING** Ms. Mosely is sewing together blocks of fabric in a pattern of small squares and triangles to make a quilt that is 3 feet square. How many small squares will she need? How many small triangles will she need?

2. **DISPLAY** Anaba is stacking cereal boxes in a pyramid-shaped display. The bottom layer has 10 boxes. There are two fewer boxes in each layer than the layer below. How many boxes are in the display?

Use any strategy to solve Exercises 3–6.

3. **PATTERNS** Draw the next figure.

4. **ART** Kris folded a piece of construction paper into thirds and then in half. He punched a hole through all layers. How many holes will there be when he unfolds the paper?

5. **LOANS** Mr. Kartini bought a boat on credit. His loan, including interest, is $9,860. If he makes monthly payments of $85, how many years will it take him to pay off the loan?

6. **MUSIC** Refer to the graph. How many fewer girls took band class in 2010 than in 2009?
Problem-Solving Practice

Problem-Solving Investigation: Draw a Diagram

1. VIDEO GAMES The table shows the prices of 4 different video games. If Jaleesa got $50 for her birthday and she wants to buy 2 video games with the money, what are two possible games she can buy?

<table>
<thead>
<tr>
<th>Video Game Prices</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Super Hero</td>
<td>$24.60</td>
</tr>
<tr>
<td>Princess Castle</td>
<td>$32.20</td>
</tr>
<tr>
<td>Batter-Up Baseball</td>
<td>$18.75</td>
</tr>
<tr>
<td>Money for Nothing</td>
<td>$28.50</td>
</tr>
</tbody>
</table>

2. ROLLER COASTERS The list below shows how many roller coaster rides 20 kids rode at an amusement park.

5 10 0 12 8 7 2 6 4 1
0 6 3 11 5 9 13 8 14 3

How many more kids rode roller coasters 5 to 9 times than 10 to 14 times?

3. SHOPPING How many hats can be purchased with $90 if the hats can only be bought in pairs?

4. MONEY Lorenzo bought a CD player for $9 less than the regular price. If he paid $32, what was the regular price?

5. MONEY Brady collected $2 from each student to buy a gift for their teacher. If 27 people contributed, how much money was collected?

6. GEOMETRY Hai’s math problem requires her to draw a rectangle with an area of 60 square units and a perimeter between 30 and 40 units. List three possibilities Hai can use for the dimensions.
Lesson 4 Homework Practice

Changes in Dimension

Refer to the figures at the right for Exercises 1–4. Justify your answers.

1. Describe the change in the perimeter from Figure A to Figure B.

2. Describe the change in the area from Figure A to Figure B.

3. Describe the change in the perimeter from Figure C to Figure D.

4. Describe the change in the area from Figure C to Figure D.

5. A photo album contains small and large photographs. Each large photograph has side lengths that are twice the side lengths of each small photograph. The area of each small photograph is 24 square inches. What is the area of each large photograph? Explain.
Lesson 4 Problem-Solving Practice

Changes in Dimension

Solve.

1. A classroom bulletin board in the shape of a regular hexagon is shown below. The dimensions of a hallway bulletin board are tripled. What is the perimeter of the hallway bulletin board?

![Hexagon Diagram]

2. Refer to Exercise 1. Suppose the classroom bulletin board has an area of about 10.75 square feet. What is the approximate area of the hallway bulletin board?

3. Mrs. Willis is making a dress from fabric with two different sizes of squares. A side of the larger square is twice the length of a side of the smaller square. What is the perimeter of the larger square if the perimeter of the smaller square is 32 centimeters?

4. Refer to Exercise 3. Suppose the area of the larger square is 100 square centimeters. What is the area of the smaller square?

5. A design for a triangular-shaped T-shirt logo has dimensions \(\frac{1}{3}\) the size of the T-shirt logo. The sides of the T-shirt logo are 6 inches, 12 inches, and 15 inches. What is the perimeter of the design?

6. Refer to Exercise 5. Suppose the area of the T-shirt logo is about 34.2 square inches. What is the approximate area of the design?
Lesson 5 Homework Practice

Polygons on the Coordinate Plane

Graph each figure and classify it. Then find the area.

1. \(A(3, 6), B(9, 3), C(5, 3)\)

2. \(D(-1, -1), E(-1, 3), F(2, 4), G(2, -3)\)

Graph each rectangle with the given vertices. Then find the perimeter of each rectangle.

3. \(H(3, 0), I(3, 7), J(6, 7), K(6, 0)\)

4. \(L(-3, -2), M(-3, 2), N(2, 2), O(2, -2)\)

5. PARKS Anika is hiking on a rectangular trail at the national park. There are four resting spots along the corners of the trail. On the map, they are marked with coordinates of \((-2, 2), (1, 2), (1, -2), \) and \((-2, -2)\). If each unit represents 1 mile, find the perimeter of the trail in miles, using the coordinates.
## Lesson 5 Problem-Solving Practice

### Polygons on the Coordinate Plane

**Solve.**

1. Mrs. Palmer is placing a retaining wall around a garden. The coordinates of the vertices of the garden are (1, 1), (1, 5), (6, 5), and (1, 6). If each grid square has a length of 2 feet, find the perimeter of the garden.

2. Melinda is building a rectangular border around her bedroom window. The coordinates of the vertices of the border are (2, 3), (4, 3), (4, 7), and (2, 7). Each grid square has a length of 12 inches. Find the perimeter of the rectangle.

3. David is spreading mulch on a triangular area of his flower bed. The coordinates of the vertices of the area are (1, 3), (9, 3), and (4, 6). What is the area of the triangle if each square has an area of 3 square feet?

4. The Clayton family’s pool has vertices at the coordinates (0, 2), (0, 5), (2, 5), (2, 6), (5, 6), (5, 1), (2, 1), and (2, 2). If each grid square has an area of 9 square feet, what is the area of the pool?

5. Janice is creating a scrapbook page with vertices (2, 1), (7, 1), (7, 7), and (2, 7). What is the area of the page she will be covering if each grid represents 4 square inches?

6. Refer to Exercise 5. What is the perimeter of the page she is creating if each grid square has a length of 2 inches?
Lesson 6 Homework Practice

Area of Composite Figures

Find the area of each figure. Round to the nearest tenth if necessary.

1. \[ \text{Area} = \frac{1}{2} \times (4 \text{ in.}) \times (3 \text{ in.}) + 6 \text{ in.} \times 4 \text{ in.} \]

2. \[ \text{Area} = \frac{1}{2} \times (6 \text{ ft}) \times (5.5 \text{ ft}) + 8 \text{ ft} \times 6 \text{ ft} \]

3. \[ \text{Area} = \frac{1}{2} \times (9.3 \text{ mm}) \times (3 \text{ mm}) + 7.8 \text{ mm} \times 9.3 \text{ mm} \]

4. \[ \text{Area} = 12 \text{ yd} \times 10 \text{ yd} + 5 \text{ yd} \times 12 \text{ yd} \]

5. \[ \text{Area} = \frac{1}{2} \times (12 \text{ cm}) \times (8 \text{ cm}) + 9 \text{ cm} \times 12 \text{ cm} \]

6. \[ \text{Area} = \frac{1}{2} \times (3.2 \text{ m}) \times (1.8 \text{ m}) + 4.5 \text{ m} \times (6.5 \text{ m} + 4.5 \text{ m}) \]

In each diagram below, one square unit represents 5 square meters. Find the area of each figure.

7. \[ \text{Area} = 3 \times 5 \times 5 \text{ sq. m} = 75 \text{ sq. m} \]

8. \[ \text{Area} = 2 \times 6 \times 5 \text{ sq. m} = 60 \text{ sq. m} \]

9. AUDITORIUM The diagram at the right gives the dimensions of an auditorium. If new carpet is needed for the auditorium, what will be the area of the carpet? Round to the nearest square yard.

10. SIDING Use the diagram that shows one end of a cottage.
   a. Each end of the cottage needs new siding. Find the total area that needs new siding.
   b. The siding material costs $75 for a bundle of siding that covers an area of 100 square feet. What will be the total cost to put siding on both ends of the cottage? Justify your answer.
Lesson 6 Problem-Solving Practice

Area of Composite Figures

ARCHITECTURE For Exercises 1–6 use Jaco’s preliminary design of his vacation house at the right. Round to the nearest tenth if necessary.

1. What type of figure is bedroom 1? Find the area of bedroom 1.

2. What is the area of the bedroom 2? What figures did you use to find the area?

3. What is the area of the bathroom? What are the dimensions of the figures you used to find this area?

4. What is the area of the living room? How many figures did you use to find this area?

5. What would the area of the den be if the semicircular window were removed and replaced with a flat window?

6. What is the area of the kitchen? If Jaco adds a rectangular cooking island in the middle of the kitchen with dimensions 6 feet by 4 feet, how many square feet of space will be left?
Lesson 1 Homework Practice

Volume of Rectangular Prisms

Find the volume of each prism.

1. 

2. 

3.

4. 

5. 

6. 

7. MUSIC Find the volume of the CD box shown at the right.

8. TOYS Geneva’s younger brother has a toy box that is 3.6 feet long, 2.4 feet wide, and 1.5 feet high. What is the volume of the toy box?

9. What is the volume of a rectangular prism with a length of 11 meters, width of 26 meters, and height of 38 meters?

10. BAKING The bread loaf pan shown is filled to a height of 2 inches with banana bread batter. How much more batter could the pan hold before it overflowed?
## Lesson 1 Problem-Solving Practice

### Volume of Rectangular Prisms

1. **OLYMPICS** Olympic gold medal winner Michael Phelps competes in a pool with required dimensions 25 meters by 50 meters by 2 meters. What is the volume of the Olympic-sized pool? Explain how you found your answer.

2. **DUMP TRUCKS** Raphael drives a standard-sized dump truck. The dimensions of the bed of the truck are length 15 feet, width 8 feet, and height 6 feet. What is the volume of the bed of the dump truck?

3. **GIFTS** William has some antique bottles. He is going to fill the bottles with bath soap and give them away as gifts. Use the figure to find the volume up to the fill line of a bottle.

![Fill Line](image)

4. **JEWELRY** Janine keeps her jewelry in a jewelry box like the figure below. Find the volume of Janine’s jewelry box.

![Jewelry Box](image)

5. **RECYCLING** The town of Riverview provides a rectangular recycling bin for newspapers to each household. If the volume is 3,840 cubic inches, what is the height of the recycling bin?

![Recycling Bin](image)

6. **CANDLE MAKING** Kyle fills the candle mold with liquid candle wax. If the candle has a volume of 99 cubic inches, what is the width of the mold?

![Candle Mold](image)
Lesson 2 Homework Practice
Volume of Triangular Prisms

Find the volume of each prism. Round to the nearest tenth if necessary.

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9. 

10. WEDGE The base of a triangular door wedge has an area of 55 square centimeters. The height of the wedge is 5 centimeters. Find the volume of the door wedge.

11. GAME A wooden peg game in the shape of a triangular prism is 2 inches tall. The triangle has a base of 12 inches and a height of 9 inches. Find the volume of the game.
Lesson 2 Problem-Solving Practice

Volume of Triangular Prisms

1. **TOY BLOCKS** A set of wooden blocks includes a triangular prism like the one shown below. Find the volume of the block.

![Triangular Prism Diagram]

2. **RAMP** The base of a bicycle ramp has an area of 4 square feet. The ramp is a triangular prism. If the ramp has a height of $2 \frac{1}{2}$ feet, what is the volume of the ramp?

3. **CLAY** A potter crafts a triangular prism out of clay. The height of the clay prism is 9 centimeters. Each triangle has a base of 12 centimeters and a height of 4 centimeters. What is the volume of the clay piece?

4. **CABIN** An A-frame cabin is built in the shape of a triangular prism, as shown. The front wall of the cabin has a length of 9 meters and a height of 7 meters. The cabin is 13 meters deep. Find the volume of the cabin.

5. **PAPERWEIGHT** A novelty paperweight has a triangular base with an area of 15 square centimeters. If the height of the paperweight is 1.5 centimeters, what is the volume of the paperweight?

6. **SANDBOX** Mr. Riojas is building his children a sandbox that is shaped like a triangular prism. He uses 7-foot-long wooden beams for each side of the base. He measures the height of the triangular base to be 6.1 feet. If he makes the sandbox 1 foot tall, how much sand will he need to fill it? Round to the nearest cubic foot.
Homework Practice

Problem-Solving Investigation: Make a Model

Use the make a model strategy to solve Exercises 1–2.

1. WRAPPING PAPER A plastic container used to store wrapping paper is 28 inches tall by 8 inches wide by 12 inches long. Find the surface area of the container, including the lid.

2. CABINET A carpenter wants to build a small cabinet to hold his tools. The cabinet will be 16 inches long by 10 inches wide by 22 inches tall. Find the amount of wood it will take to cover the frame of the cabinet.

Use any strategy to solve Exercises 3–5.

3. PATTERNS Draw the fourteenth figure in the pattern.

4. CLOTHES Sondra bought 4 times as many shirts as she did pants. If she bought 3 pairs of pants, how many pieces of clothing did she buy?

5. WORK Dija wraps presents at a department store. She records the number of gifts she wraps each day in the chart below. Dija is paid $2.50 for each gift that she wraps. How much money will she earn at the end of six days?

<table>
<thead>
<tr>
<th>Day</th>
<th>Gifts Wrapped</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>
Problem-Solving Practice

Problem-Solving Investigation: Make a Model

Use any strategy to solve Exercises 1–6.

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. BOX TOPS</td>
<td>A company donates 5 cents to a local school for every box top brought in from the company’s products. Write an equation to find ( m ), the amount of money donated to the school for bringing in ( b ) box tops. How much would a school receive if 150 box tops were brought in?</td>
</tr>
<tr>
<td>2. FRAMES</td>
<td>The table below shows the number of picture frames sold each week for one month. If sales increase at the same rate each week, find the number of frames that will be sold in the sixth week.</td>
</tr>
<tr>
<td></td>
<td><strong>Week</strong></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>3. PACKAGE</td>
<td>Anil received a package in the mail. The box was 2 inches tall by 12 inches long by 9 inches wide. Find the surface area of the package.</td>
</tr>
<tr>
<td>4. NUMBER SENSE</td>
<td>A number is divided by 8, and then 26 is subtracted from the quotient. The result is 41. What is the number?</td>
</tr>
<tr>
<td>5. PRISMS</td>
<td>A rectangular prism is built using 20 blocks. How many different prisms can be built?</td>
</tr>
<tr>
<td>6. TABLES</td>
<td>Seven square tables that can seat 4 people along each side are placed end to end in a row. How many people can be seated with this arrangement?</td>
</tr>
</tbody>
</table>
Lesson 3 Homework Practice

Surface Area of Rectangular Prisms

Find the surface area of each rectangular prism.

1. 

2. 

3. 

4. 

5. 

6. 

7. **GIFTS** Minh is covering a necklace box with gift wrap. The necklace box is 15 centimeters long, 8 centimeters wide, and 2 centimeters high. What is the minimum surface area of the paper that will cover the necklace box?

8. **ESTIMATION** Alicia estimates that the surface area of a rectangular prism with a length of 11 meters, a width of 5.6 meters, and a height of 7.2 meters is about 334 cubic meters. Is her estimate reasonable? Explain your reasoning.

9. **BLOCKS** Find the surface area of each block. Which block has the greater surface area? Does the same block have a greater volume? Explain.
Lesson 3 Problem-Solving Practice

Surface Area of Rectangular Prisms

1. **GIFTS** Fatima is wrapping a gift box for her nephew’s birthday. The box’s dimensions are 16 inches long by 10 inches wide by 5 inches high. What is the surface area of the box?

2. **FOOD** Antoine is wrapping a block of cheese that is 22 centimeters long by 6 centimeters high by 10 centimeters wide with plastic wrap. What is the surface area of the cheese block?

3. **PAINTING** Cody is painting the front door of his house. The dimensions of the door are 80 inches by 36 inches by 2 inches. If he paints all of the surfaces, how much area will he paint? Explain.

4. **CARPENTRY** Bryan is sanding a set of speaker boxes that he built for his room. What is the surface area of each box?

5. **CARPENTRY** Jing is putting oak veneer (thin wood covering) on the entire surface of her hope chest. How much veneer will she need?

6. **TOY MAKING** Trey is covering blocks of wood with wallpaper to make building blocks for his little sister. If he covers all the surfaces, how much wallpaper will he need? Think of a short way to solve this problem and explain.
Lesson 4 Homework Practice

Surface Area of Triangular Prisms

Find the surface area of each triangular prism. Round to the nearest tenth if necessary.

1. 

2. 

3. 

4. 

5. One foam block on the playground at Teeny Tots Preschool is a triangular prism. About how much material is used to cover the block?

6. The box for the jungle animal figurines is in the shape of a triangular prism. What is the surface area of the box?

7. The storage box for a flag is in the shape of a triangular prism. What is the surface area of the box?
Lesson 4 Problem-Solving Practice

Surface Area of Triangular Prisms

1. **PIZZA** Find the amount of cardboard needed to make a box for a single slice of pizza. The box is in the shape of a triangular prism as shown.

```
12 in.
7 in.
2 in.
12.5 in.
```

2. **RAMPS** Sturdy Steel Construction is building a steel ramp in the shape of a triangular prism. The dimensions are shown below. What is the surface area of the ramp?

```
85 ft
12 ft
84 ft
```

3. **CAMPING** The Canvas Camping Company makes canvas tents like the one shown. How much material is needed to make the tent?

```
5.1 ft
6 ft
6 ft
9 ft
3 ft
3 ft
```

4. **DISPLAY CASES** Find the surface area of Anna’s glass doll display case. The case is in the shape of a triangular prism as shown.

```
10 \frac{1}{4} in.
10 \frac{1}{4} in.
10 in.
7 in.
```

5. **GIFTS** Mariska purchased a gift box in the shape of a triangular prism. The dimensions are shown below. What is the surface area of the gift box?

```
35 cm
30 cm
```

6. **PACKAGING** Pascal’s Peanut Company packages dry-roasted peanuts in a box in the shape of a triangular prism. The dimensions are shown below. What is the surface area of the box?

```
18.2 cm
7.8 cm
13 cm
```

---

**Course 1 • Chapter 10 Volume and Surface Area**
Lesson 5 Homework Practice

Surface Area of Pyramids

Find the surface area of each pyramid.

1.

2.

3.

4.

5.

6.

7. **GOLF** Marshall purchased a pyramid-shaped golf ball display case with the dimensions shown. What is the surface area of the case? Round to the nearest hundredth.

8. **PUZZLES** Potter’s Puzzles sells a wooden pyramid puzzle. The base is a square with side lengths of 6 inches. The slant height is 10 inches. What is the surface area of the puzzle?

9. **ART** Mariah is painting the surface of a sculpture in the shape of a square pyramid. The base has side lengths of 32 centimeters. The slant height is 25 centimeters. What is the surface area of the sculpture?
Lesson 5 Problem-Solving Practice

Surface Area of Pyramids

1. **FOUNTAINS** A sculpture in the water fountain at Casey Creek Park is in the shape of a square pyramid. The base of the sculpture is 2 feet long and 2 feet wide. The slant height is 5 feet. What is the surface area of the sculpture?

2. **TENTS** Tent Potential, Inc. makes a tent in the shape of a square pyramid. The base of the tent is 3.4 meters long and 3.4 meters wide. The slant height of the tent is 2 meters. What is the surface area of the tent?

3. **STAGE SET** Rock It Out builds stage sets for rock concerts in the shape of a square pyramid. One set has a base that is 12 feet long and 12 feet wide. The slant height of the set is 13.4 feet. What is the surface area of the stage set?

4. **TOYS** Toddler Builders makes a toy block in the shape of a triangular pyramid. The base of the block is an equilateral triangle with dimensions of 6 inches. The height of the base is 5.2 inches and the slant height of the block is 8 inches. What is the surface area of the pyramid block?

5. **PARACHUTES** Marcus’s science class is testing a toy parachute in the shape of a square pyramid. The opening at the base is 20 centimeters long and 20 centimeters wide. The slant height of the parachute is 14.1 centimeters. What is the surface area of the parachute? *(Hint: The surface area of the parachute does not include the base.)*

6. **ARCHITECTURE** Glass skylights on the roof of Jezebelle’s apartment building are in the shape of a square pyramid. The base of each skylight is 8 feet long and 8 feet wide. The slant height is 6.4 feet. How much glass is used to make each skylight? *(Hint: The skylight does not have a glass base.)*
Lesson 1 Homework Practice

Mean

Find the mean for each set of data.

1. **Number of Toys Collected**

<table>
<thead>
<tr>
<th>Number of Toys Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brian</td>
</tr>
<tr>
<td>Kathy</td>
</tr>
<tr>
<td>Lucita</td>
</tr>
<tr>
<td>Terrell</td>
</tr>
</tbody>
</table>

   **Key:** 1 toy

2. **Ages of Dance Instructors**

<table>
<thead>
<tr>
<th>Age (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>26</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>21</td>
</tr>
</tbody>
</table>

3. **Falls Height (ft)**

<table>
<thead>
<tr>
<th>Falls</th>
<th>Height (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridal Veil</td>
<td>153</td>
</tr>
<tr>
<td>Horsetail</td>
<td>176</td>
</tr>
<tr>
<td>Latourell</td>
<td>249</td>
</tr>
<tr>
<td>Metlako</td>
<td>150</td>
</tr>
<tr>
<td>Multnomah</td>
<td>620</td>
</tr>
<tr>
<td>Wahkeena</td>
<td>242</td>
</tr>
</tbody>
</table>

4. **GARDENING** Alan earned $23, $26, $25, $24, $23, $24, $6, $24, and $23 gardening. What is the mean of the amounts he earned?

Find the mean for number of cans collected. Explain the method you used.

5. 57, 59, 60, 58, 58, 56
Lesson 1 Problem-Solving Practice

Mean

ANIMALS For Exercises 1 and 2, use the table about bears.

<table>
<thead>
<tr>
<th>Bear</th>
<th>Average Height (ft)</th>
<th>Average Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaskan Brown</td>
<td>8</td>
<td>1,500</td>
</tr>
<tr>
<td>Black</td>
<td>6</td>
<td>338</td>
</tr>
<tr>
<td>Grizzly</td>
<td>7</td>
<td>588</td>
</tr>
<tr>
<td>Polar</td>
<td>7</td>
<td>850</td>
</tr>
</tbody>
</table>

1. Find the mean of the bear height data.
2. Find the mean of the bear weight data.

3. SALES Andre sold 43 magazines at his mom’s work, 32 at his dad’s work, 18 around his neighborhood, and 3 at home. What is the mean of the magazines he sold?

4. WORK Carlos earned $23, $29, $25, $16, and $17 working at an ice cream shop after school. What is the mean amount he earned?

5. CARS The cost of the same quantity of gasoline at nine different gas stations is shown below. What is the mean cost of this amount of gas?

   Cost of Gas: $17, $18, $22, $15, $17, $16, $25, $21, and $20

6. SCHOOL Sally received scores on math quizzes as shown below. Find her mean score.

   Quiz Scores: 84, 85, 91, 81, 52, 92, 99, 91, and 45
Lesson 2 Homework Practice

Median and Mode

Find the median and mode for each set of data.

1. minutes spent practicing the violin: 25, 15, 30, 25, 20, 15, 24
2. snow in inches: 40, 28, 24, 37, 43, 26, 30, 36

Find the mean, median, and mode of the data represented in each set of data.

3. Quiz Scores (out of 50)

<table>
<thead>
<tr>
<th>Score</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>34</td>
<td>2</td>
</tr>
<tr>
<td>37</td>
<td>1</td>
</tr>
<tr>
<td>39</td>
<td>1</td>
</tr>
<tr>
<td>45</td>
<td>3</td>
</tr>
<tr>
<td>55</td>
<td>1</td>
</tr>
</tbody>
</table>

4. Basketball Points

<table>
<thead>
<tr>
<th>Points</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>1</td>
</tr>
<tr>
<td>42</td>
<td>1</td>
</tr>
<tr>
<td>44</td>
<td>2</td>
</tr>
<tr>
<td>45</td>
<td>2</td>
</tr>
<tr>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>52</td>
<td>1</td>
</tr>
<tr>
<td>54</td>
<td>1</td>
</tr>
<tr>
<td>61</td>
<td>1</td>
</tr>
<tr>
<td>63</td>
<td>1</td>
</tr>
<tr>
<td>64</td>
<td>1</td>
</tr>
<tr>
<td>67</td>
<td>3</td>
</tr>
<tr>
<td>68</td>
<td>1</td>
</tr>
<tr>
<td>72</td>
<td>2</td>
</tr>
<tr>
<td>73</td>
<td>1</td>
</tr>
<tr>
<td>80</td>
<td>1</td>
</tr>
<tr>
<td>81</td>
<td>1</td>
</tr>
<tr>
<td>82</td>
<td>1</td>
</tr>
<tr>
<td>84</td>
<td>1</td>
</tr>
<tr>
<td>85</td>
<td>1</td>
</tr>
<tr>
<td>86</td>
<td>1</td>
</tr>
</tbody>
</table>

5. Kai-Yo’s Swimming Schedule

6. Student’s Favorite Music

7. WEATHER Refer to the table at the right.
   a. Compare the median low temperatures.
      Daily Low Temperatures (°F)
      | Charleston | Atlanta |
      |------------|---------|
      | 33 34 33 35| 48 41 43 40|
      | 36 35 34  | 45 35 37  |
Lesson 2 Problem-Solving Practice

Median and Mode

SCIENCE For Exercises 1–3, use Table A. For Exercises 4–6, use Table B. Table A shows the number of days it took for some seeds to germinate after planting. Table B shows how tall the plants were after 60 days.

<table>
<thead>
<tr>
<th>Table A</th>
<th>Table B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Days for Seeds to Germinate</td>
<td>Height (in.) of Plants After 60 Days</td>
</tr>
<tr>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>30</td>
<td>13</td>
</tr>
<tr>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>21</td>
<td>17</td>
</tr>
<tr>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>15</td>
<td>14</td>
</tr>
</tbody>
</table>

1. Refer to Table A. You are doing some experiments with germinating seeds. You are preparing a report on your findings to a seed company. What are the median and mode of the data?

2. What is the mean number of days for the seeds to germinate?

3. Compare the median and mode for the number of days for seeds to germinate.

4. What are the median and mode of the plant height data?

5. What is the mean plant height after 60 days?

6. Is the value 17 a good value to describe the measures of center of the heights of plants after 60 days? Explain.
Homework Practice

Problem-Solving Investigation: Use Logical Reasoning

Mixed Problem Solving

Use a Venn diagram to solve Exercises 1 and 2.

1. **SPORTS** Of the 25 baseball players on the Baltimore Orioles 2005 roster, 17 threw right handed, 12 were over 30 years old, and 9 both threw right handed and were over 30 years old. How many players on the team neither threw right handed nor were over 30 years old?

2. **GRADES** The principal noticed that 45 students earned As in English, 49 students earned As in math, and 53 students earned As in science. Of those who earned As in exactly two of the subjects, 8 earned As in English and math, 12 earned As in English and science, and 18 earned As in math and science. Seventeen earned As in all three subjects. How many earned As in English only?

Use any strategy to solve Exercises 3–6.

3. **NUMBERS** What are the next two numbers in the pattern?

   486, 162, 54, 18, ____, ____

4. **GEOGRAPHY** Of the 50 U.S. states, 30 states border a major body of water and 14 states border a foreign country. Seven states border both a major body of water and a foreign country. How many states border on just a major body of water and how many border on just a foreign country?

5. **LANDSCAPING** Three different landscaping companies treat lawns for weeds. Company A charges $35 per treatment and requires 3 treatments to get rid of weeds. Company B charges $30 per treatment and requires 4 treatments. Company C charges $50 per treatment and requires only two treatments to eliminate weeds. If you want to use the company that charges the least, which company should you choose?

6. **RECEIVING** Marc unloaded 7,200 bottles of water from delivery trucks today. If each truck contained 50 cases and each case contained 24 bottles of water, how many trucks did he unload?
Problem-Solving Practice

Problem-Solving Investigation: Use Logical Reasoning

Use a Venn diagram to solve each problem.

NATIONAL PARKS  For Exercises 1 and 2, use the information in the box. It shows the number of people who visited two National Parks in one year.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4,250,000</td>
<td>1,420,000</td>
<td>2,560,000</td>
<td>770,000</td>
</tr>
</tbody>
</table>

1. How many yearly pass holders visited ONLY Yellowstone Park?
2. How many yearly pass holders did not visit either Yosemite Park or Yellowstone Park?

3. PIZZA  At a skating party, 10 skaters said they like pepperoni on their pizza, 12 said they like sausage. Seven skaters said they like both, and the rest like plain cheese. If there were 20 skaters having pizza, how many like plain cheese?

4. FIELD TRIP  Of the 24 students on a field trip to the local ski hill, 13 ski and 11 snowboard. Four of the students ski and snowboard. How many students do not ski or snowboard?

5. BOOKS  Of the 420 people who visited the library, 140 people checked out a nonfiction book, 270 checked out a fiction book. Ninety-five of the visitors checked out both fiction and nonfiction. How many visitors did not check out a book?

6. SIBLINGS  Of the 18 girls on a soccer team, 10 have a sister, 14 have a brother, and 8 have both a brother and a sister. How many of the girls do not have a brother or a sister?
Lesson 3 Homework Practice

Measures of Variation

1. Use the data in the table.

<table>
<thead>
<tr>
<th>Weights of Black Bears (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>277 448 279 334 132 599 237 251 183 191</td>
</tr>
</tbody>
</table>

a. Find the range of the data.

b. Find the median and the first and third quartiles.

c. Find the interquartile range.

d. Name any outliers in the data.

2. Use the data of average monthly precipitation in Johnstown shown in the table.

<table>
<thead>
<tr>
<th>Monthly Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches</td>
</tr>
</tbody>
</table>

a. Find the range of the data.

b. Find the median and the first and third quartiles.

c. Find the interquartile range.

d. Find any outliers in the data and name them.

3. TRAIN The table shows the number of riders on the train each day for two weeks. Compare and contrast the measures of variation for both weeks.

<table>
<thead>
<tr>
<th>Number of Riders on the Train</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
</tr>
<tr>
<td>Monday</td>
</tr>
<tr>
<td>Tuesday</td>
</tr>
<tr>
<td>Wednesday</td>
</tr>
<tr>
<td>Thursday</td>
</tr>
<tr>
<td>Friday</td>
</tr>
</tbody>
</table>
Lesson 3 Problem-Solving Practice

Measures of Variation

Use the table below that shows the winning scores in the Super Bowl.

<table>
<thead>
<tr>
<th>Winning Super Bowl Scores, 1997–2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
</tr>
</tbody>
</table>

1. Explain how to find the range of the data. Then find the range.

2. Find the median, the first and third quartiles, and the interquartile range of the winning scores.

3. Describe how to find the limits for outliers. Then find the limits.

4. Are there any outliers among the winning Super Bowl scores? If so, what are they? Explain your reasoning.

Use the table showing the scores on a U.S. History test.

<table>
<thead>
<tr>
<th>Scores on a U.S. History Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>84</td>
</tr>
<tr>
<td>94</td>
</tr>
<tr>
<td>91</td>
</tr>
</tbody>
</table>

5. Find the range, median, first and third quartiles, and the interquartile range of the test scores.

6. Are there any outliers in this data? Explain your reasoning.
Lesson 4 Homework Practice

Mean Absolute Deviation

Find the mean absolute deviation for each set of data. Round to the nearest hundredth if necessary. Then describe what the mean absolute deviation represents.

1. Cost of Video Games ($)

| 40 | 55 | 60 | 48 | 57 |
| 33 | 57 | 20 | 80 | 47 |

2. Number of Sunny Days in Various Cities Last Month

| 27 | 15 | 10 | 19 |
| 24 | 21 | 28 | 16 |

3. The table shows the number of wins of each school baseball team over the last six years. Find the mean absolute deviation for each set of data. Round to the nearest hundredth if necessary. Then write a few sentences comparing their variation.

| Number of Wins Per Season |
| Bears | 7 | 10 | 13 | 12 | 9 |
| Saints | 12 | 15 | 10 | 14 | 13 |

For Exercise 4–7, refer to the table that shows the highway fuel economy of various popular vehicles.

| Fuel Economy (Miles per Gallon) |
| 34 | 48 | 25 | 35 | 33 |
| 37 | 32 | 34 | 23 | 30 |

4. Find the mean absolute deviation. Round to the nearest hundredth.

5. How many data values are closer than one mean absolute deviation away from the mean?

6. Which data value is farthest from the mean? How far is this value from the mean? Round to the nearest hundredth.

7. Are there any data values that are more than twice the mean absolute deviation from the mean? Explain.
Lesson 4 Problem-Solving Practice

Mean Absolute Deviation

1. CLUB MEMBERSHIP  The table shows the number of members in Spanish club for the last six years. Find the mean absolute deviation. Round to the nearest hundredth if necessary. Then describe what the mean absolute deviation represents.

<table>
<thead>
<tr>
<th>Spanish Club Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>61</td>
</tr>
<tr>
<td>27</td>
</tr>
</tbody>
</table>

2. AMUSEMENT PARKS  The table shows the one-day ticket price for admission to eight popular theme parks. Find the mean absolute deviation. Round to the nearest hundredth if necessary. Then describe what the mean absolute deviation represents.

<table>
<thead>
<tr>
<th>Admission Price ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
</tr>
<tr>
<td>42</td>
</tr>
</tbody>
</table>

AGES  For Exercises 3–6, refer to the table that shows the ages of students in evening art classes at the community center.

<table>
<thead>
<tr>
<th>Ages of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pottery</td>
</tr>
<tr>
<td>18</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>37</td>
</tr>
<tr>
<td>42</td>
</tr>
<tr>
<td>51</td>
</tr>
<tr>
<td>22</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>Painting</td>
</tr>
<tr>
<td>46</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>19</td>
</tr>
<tr>
<td>26</td>
</tr>
<tr>
<td>34</td>
</tr>
<tr>
<td>29</td>
</tr>
<tr>
<td>20</td>
</tr>
</tbody>
</table>

3. Find the mean absolute deviation for each set of data. Round to the nearest hundredth if necessary. Then write a few sentences comparing their variation.

4. How many data values from the painting class are closer than one mean absolute deviation away from the mean?

5. Which age is the farthest from the mean of the data values in the painting class?

6. How far away is the value in Exercise 5 from the mean?
Lesson 5 Homework Practice

Appropriate Measures

Find the measure of center that best represents each set of data. Round to the nearest tenth if necessary.

1. number of parking spaces used: 46, 39, 40, 45, 44, 68, 51

2. prices of plants: $10, $8, $20, $25, $14, $48, $10, $10, $8, $16

3. points scored during football season: 14, 20, 3, 9, 18, 35, 21, 24, 31, 12, 7

4. golf scores over par: 3, 2, 0, 1, 3, 6, 4, 5

5. percent increase: 3.3, 4.1, 3.9, 5.0, 3.5, 2.9, 3.9

6. Dollars Spent Shopping

<table>
<thead>
<tr>
<th></th>
<th>36</th>
<th>36</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>44</td>
<td></td>
</tr>
</tbody>
</table>

7. CHILDREN The table shows the number of children living at home in a neighborhood of 24 homes. Which measure best describes the data: mean, median, or mode? Explain.

<table>
<thead>
<tr>
<th>Children at Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>
Lesson 5 Problem-Solving Practice

**Appropriate Measures**

**ANIMALS** For Exercises 1–4, use the information in the table below that shows the lifespan of selected mammals. Round to the nearest tenth if necessary.

<table>
<thead>
<tr>
<th>Mammal</th>
<th>Average Lifespan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baboon</td>
<td>20 yr</td>
</tr>
<tr>
<td>Camel</td>
<td>12 yr</td>
</tr>
<tr>
<td>Chimpanzee</td>
<td>20 yr</td>
</tr>
<tr>
<td>Cow</td>
<td>15 yr</td>
</tr>
<tr>
<td>Goat</td>
<td>8 yr</td>
</tr>
<tr>
<td>Gorilla</td>
<td>20 yr</td>
</tr>
<tr>
<td>Moose</td>
<td>12 yr</td>
</tr>
<tr>
<td>Pig</td>
<td>10 yr</td>
</tr>
</tbody>
</table>

**FOOTBALL** For Exercises 5 and 6, use the information in the table below. Round to the nearest tenth if necessary.

**2007 NFL Season, Games Won**

<table>
<thead>
<tr>
<th>Team</th>
<th>Games Won</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
<td>4</td>
</tr>
<tr>
<td>Carolina</td>
<td>7</td>
</tr>
<tr>
<td>Denver</td>
<td>7</td>
</tr>
<tr>
<td>Kansas City</td>
<td>4</td>
</tr>
<tr>
<td>New Orleans</td>
<td>7</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>10</td>
</tr>
<tr>
<td>St. Louis</td>
<td>3</td>
</tr>
<tr>
<td>San Diego</td>
<td>11</td>
</tr>
<tr>
<td>San Francisco</td>
<td>5</td>
</tr>
<tr>
<td>Seattle</td>
<td>10</td>
</tr>
</tbody>
</table>

1. Explain how to find the mean of the lifespans listed in the table. Then find the mean.

2. Explain how to find the median of the set of data. Then find the median.

3. Explain how to find the mode of the set of data. Then find the mode.

4. Which measure of center is most representative of the data? Explain.

5. What are the mean, median, and mode of the number of games won by the teams in the table?

6. Which measure of center is most representative of the data? Explain.
Lesson 1 Homework Practice

Line Plots

The line plot below represents the total number of runs scored in each game by Tatiana’s softball team this year. Use the information on the line plot to answer the questions.

1. How many times did the team score 6 runs?

2. What is the median number of runs scored?

3. What is the mode of the data?

4. Find the range and any outliers of the data.

For Exercises 5 and 6, make a line plot for each set of data. Find the median, mode, range, and any outliers of the data shown in the line plot. Then describe the data using them.

5. golf scores: 39, 46, 48, 48, 39, 51, 44, 42, 48, 45

6. number of cans of food donated:
   28, 20, 20, 22, 21, 22, 20, 21, 21, 21, 21
### Lesson 1 Problem-Solving Practice

#### Line Plots

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Kyle surveyed his friends and found that 7 of them listen regularly to rock music, 5 listen to rap music, and 2 listen to country music. Which type of music would have the highest number on a line plot?</td>
<td><strong>2.</strong> Sean found that 6 of his classmates wore a size 5 shoe, 12 wore a size 6, 10 wore a size 7, and 2 wore an 8. On a line plot, which value is the mode of the data?</td>
</tr>
<tr>
<td><strong>3.</strong> Deanna measured the length of a piece of wood three times. The measurements were 25.67 cm, 25.79 cm, and 25.71 cm. List the measurements in the order they would appear on a line plot.</td>
<td><strong>4.</strong> Scott found that 12 of his classmates wore a size 5 ring, 9 wore a size 6, and 3 wore a size 7. On a line plot of this data, is the number of students or the ring size located by a number on the number line?</td>
</tr>
<tr>
<td><strong>5.</strong> Laura kept a table of the daily temperatures during January in Minnesota. What changes might she have to make in a number line that starts at zero and goes to 20, so that it could be used to make a line plot of the temperatures?</td>
<td><strong>6.</strong> Tyler planted 25 seedlings. One grew to 6 inches in height, 13 grew to 5 inches, 10 grew to 4 inches, and 1 grew to 3 inches. On a line plot of Tyler’s data, what is the median height?</td>
</tr>
</tbody>
</table>
Lesson 2 Homework Practice

Histograms

For Exercises 1–4, use the histogram shown at the right.

1. Which interval represents the most number of students?

2. Which interval has three students?

3. How many students went to a pool at least ten times last summer?

4. How many students went to a pool less than ten times last summer?

Draw a histogram to represent each set of data.

5. Weights of Pumpkins

<table>
<thead>
<tr>
<th>Weight (lb)</th>
<th>Tally</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5–9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10–14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15–19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25–29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Lengths of Snakes

<table>
<thead>
<tr>
<th>Length (in.)</th>
<th>Tally</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>12–23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24–35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36–47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48–59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60–71</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. number of points scored in each basketball game: 28, 16, 38, 44, 21, 38, 35, 48, 33, 29, 37, 39, 18, 38, 42, 37, 32

8. speeds of roller coasters (mph): 62, 64, 72, 75, 71, 68, 55, 58, 68, 72, 70, 60, 72
Lesson 2 Problem-Solving Practice

Histograms

1. **DATA** Give a set of data that could be represented by the histogram below.

   ![Histogram of Number of Books for Each Student]

   - Number of Books for Each Student
   - Frequency: 0, 2, 4, 6, 8
   - Number of Books: 20–29, 30–39, 40–49, 50–59, 60–69

2. **FAMILY** Refer to the histogram below. In one or two sentences, write a conclusion you can make about the data.

   ![Histogram of Number of Siblings for Each Student]

   - Number of Siblings for Each Student
   - Frequency: 0, 5, 10, 15, 20
   - Number of Siblings: 0–1, 2–3, 4–5, 6–7

3. **SALES** Create a histogram to represent the set of data below.

   **Number of Candy Bars Sold**
   
<table>
<thead>
<tr>
<th>Bars</th>
<th>Tally</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>50–69</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>70–89</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>90–109</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>110–129</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>130–149</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

4. **JOBS** The table shows the amount Jayden earned each week at his part-time job. Create a histogram to represent the set of data.

   **Weekly Earnings ($)**
   
<table>
<thead>
<tr>
<th>95</th>
<th>120</th>
<th>96</th>
<th>100</th>
<th>90</th>
<th>105</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>185</td>
<td>160</td>
<td>98</td>
<td>104</td>
<td>130</td>
</tr>
<tr>
<td>115</td>
<td>106</td>
<td>97</td>
<td>118</td>
<td>125</td>
<td>134</td>
</tr>
</tbody>
</table>

5. **RESEARCH** Use the Internet or other resource to find the average monthly high temperature for the previous two years in your town or city. Create a histogram of the data.

6. **DATA** Create a set of data. Include at least 10 pieces of data. Create a frequency table and histogram to represent your data.
Lesson 3 Homework Practice

Box Plots

Draw a box plot for each set of data.

1. ages of children taking dance classes: 10, 8, 9, 7, 10, 12, 14, 14, 10, 16

2. prices, in dollars, of bicycles: 150, 134, 136, 120, 145, 170, 125, 130, 145, 190, 140

3. PRODUCTS Use the box plot that shows the average prices in cents per pound farmers received for eggs and wool.

   Prices per pound received (c)
   
   wool
   
   eggs

   a. How do the median egg prices and the median wool prices compare?

   b. How do the range in egg prices and the range in wool prices compare?

   c. In the wool prices, which quartile shows the greatest spread of data?

   d. About what percent of the data for the wool prices is above the third quartile for the egg prices?

   e. In general, do farmers get higher prices for eggs or wool? Justify your reasoning.
Lesson 3 Problem-Solving Practice

Box Plots

U.S. VICE PRESIDENTS Use the box plot that shows the ages of U.S. vice presidents when they took office.

Ages of U.S. Vice Presidents

1. Describe the distribution of the data. What can you say about the ages of U.S. vice presidents?

2. What percent of U.S. vice presidents were at least 60 years old when they took office? Explain how you found your answer.

3. What percent of U.S. vice presidents were between the ages of 49 and 60 when they took office? Explain how you found your answer.

4. Can you determine from the box plot whether there are any U.S. vice presidents who took office at exactly age 55 years of age? Explain.

FIELD HOCKEY Use the box plot that shows the number of goals made by members of the field hockey team during the season.

Field Hockey Goals

5. Describe the distribution of the data. What can you say about the number of goals made by the members of the field hockey team?

6. What percent of team members scored between 1 and 3 goals this season? Explain.
Homework Practice

Problem-Solving Investigation: Use a Graph

Mixed Problem Solving

For Exercises 1 and 2, use the histogram showing the number of hamburgers served.

1. How many times were 61–70 hamburgers served.

2. How many times were more than 60 hamburgers sold?

The set of data shown is about the number of deliveries made by a pizza shop. Use the data for Exercises 3 and 4.

3. Create a line plot of the data.

4. Find the median number of pizzas delivered.

The box plot below shows the depth of various lakes in one county. Use the box plot to solve Exercises 5 and 6.

5. What is the deepest depth shown on the box plot?

6. Write a sentence explaining what the length of the box plot means.

Use any strategy to solve Exercises 7 and 8.

7. ALGEBRA What are the next two numbers in the pattern? 543, 503, 463, 423, ■, ■, ...

8. MONEY Brian has $160 in his savings account. He deposits $25 every week and withdraws $30 every 3 weeks. What will his balance be in 4 weeks?
Problem-Solving Practice

Problem-Solving Investigation: Use a Graph

For Exercises 1–6, use the table that shows the number of cars sold on different days at a car dealership.

<table>
<thead>
<tr>
<th>Cars Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 8 9 7</td>
</tr>
<tr>
<td>7 8 5 15</td>
</tr>
<tr>
<td>13 12 12 15</td>
</tr>
<tr>
<td>3 10 8 10</td>
</tr>
</tbody>
</table>

1. What would be good intervals to use to represent the data in the table using a histogram? Explain your reasoning.

2. Create a histogram of the data.

3. Create a line plot of the data.

4. Use the line plot you created in Exercise 3 to determine the mean of the data. Round your answer to the nearest tenth.

5. Use the line plot you created in Exercise 3 to determine the median of the data.

6. Create a box plot of the data.
Lesson 4 Homework Practice

Shape of Data Distributions

For Exercises 1 and 2, describe the shape of each distribution.

1. The line plot shows the number of television sets owned by the families of various sixth grade students.

   Number of Television Sets

   a. Choose the appropriate measures to describe the center and spread of distribution. Justify your response based on the shape of the distribution.

   b. Write a few sentences describing the center and spread of the distribution using the appropriate measures.
Lesson 4 Problem-Solving Practice

Shape of Data Distributions

The line plot at the right shows the number of minutes José practiced the piano each day for two weeks.

1. Describe the shape of the distribution.

2. Choose the appropriate measures to describe the center and spread of the distribution. Justify your response.

The box plot at the right shows the amount of money, in dollars, Olivia saved during various months.

3. Describe the shape of the distribution.

4. Choose the appropriate measures to describe the center and spread of the distribution. Justify your response.

5. Describe the center and spread of the distribution using the appropriate measures.

6. Is the distribution skewed left or right? Explain.
Lesson 5 Homework Practice

Interpret Line Graphs

SPORTS For Exercises 1–3, use the graph at the right.

1. Describe the change in the number of swimsuits sold.

2. Predict the number of swimsuits sold in December. Explain your reasoning.

3. Predict the number of swimsuits sold in May. How did you reach this conclusion?

WEATHER For Exercises 4–7, use the graph at the right.

4. Predict the average temperature for Juneau in February.

5. Predict the average temperature for Mobile in October.

6. What do you think is the average temperature for San Francisco in October?

7. How much colder would you expect it to be in Juneau than in Mobile in October?

BASEBALL For Exercises 8–9, use the table that shows the number of games won by the Florida Gators men’s baseball team from 2002 to 2007.

<table>
<thead>
<tr>
<th>Florida Gators Baseball Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>Games Won</td>
</tr>
</tbody>
</table>

8. Make a line graph of the data.

9. In what year did the team have the greatest increase in the number of games won?
Lesson 5 Problem-Solving Practice

Interpret Line Graphs

FITNESS For Exercises 1–3, use Graph A. For Exercises 4–6, use Graph B.

1. Refer to Graph A. Describe the change in the number of students taking the aerobics class.

2. Predict how many students will be in the aerobics class in week 6 if the trend continues.

3. Predict how many students will be in the aerobics class in week 8.

4. Describe the change in the number of situps Cara can do.

5. Predict how many sit-ups Cara will be able to do in week 6 if the trend continues.

6. Predict the week in which Cara will be able to do 80 sit-ups if the trend continues.
Lesson 6 Homework Practice
Select an Appropriate Display

1. FOOD Which display makes it easier to see the median spent on food in a state from 2007 to 2012?

   Amount Spent on Food (billion dollars)
   15 16 17 18 19 20 21 22 23 24 25
   X X X X X

Select an appropriate type of display for data gathered about each situation.

2. heights of buildings in town
3. number of cars a dealer sold each month over the past year
4. number of scores made by each team member in a basketball season

5. OLYMPICS Select an appropriate type of display for the data. Then make a display.

<table>
<thead>
<tr>
<th>Year</th>
<th>Distance (m)</th>
<th>Year</th>
<th>Distance (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>73</td>
<td>1988</td>
<td>85</td>
</tr>
<tr>
<td>1972</td>
<td>76</td>
<td>1992</td>
<td>83</td>
</tr>
<tr>
<td>1976</td>
<td>78</td>
<td>1996</td>
<td>81</td>
</tr>
<tr>
<td>1980</td>
<td>82</td>
<td>2000</td>
<td>80</td>
</tr>
<tr>
<td>1984</td>
<td>78</td>
<td>2004</td>
<td>83</td>
</tr>
</tbody>
</table>

6. GEOGRAPHY Display the data in the bar graph using another type of display. Compare the displays.
Lesson 6 Problem-Solving Practice

Select an Appropriate Display

VIDEOS For Exercises 1–4, use the three graphs on DVD sales shown below.

1. Which display makes it easiest to see what number of DVDs were sold the most often?

2. Which display makes it easiest to find the range of the data?

3. Which display makes it easiest to see how the number of DVDs sold changed from January to August?

4. Which display makes it easiest to compare the number of DVDs sold in April to the number of DVDs sold in August?

5. MUSIC What type of display would be best to show the different price of a music CD at five different stores?

6. ROLLER COASTERS Select and make an appropriate type of display for the following data.

<table>
<thead>
<tr>
<th>Steepness of Wooden Roller Coasters</th>
<th>70°</th>
<th>63°</th>
<th>61°</th>
</tr>
</thead>
<tbody>
<tr>
<td>70°</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>59°</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>55°</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>55°</td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>