Additional Exercises 5.1

Write each decimal in words.

1. 2.95
2. 3.621
3. 0.01
4. 36.401

Write each decimal number in standard form.

5. Fifteen and five thousandths
6. Four hundred seven and seventeen hundredths
7. Nine and two hundred two thousandths
8. Thirty-five ten thousandths
9. Twelve and two hundred five ten thousandths

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

10. 0.08
11. 0.205
12. 10.5
13. 4.25
14. 50.05

Insert <, >, or = between each set of numbers to form a true statement.

15. 0.036 0.094
16. 0.16 0.156
17. −0.23 −0.31
18. −7.01 −7.1

19. A new dining room set cost $1295.86 and is financed for one year. Find the monthly payments rounded to the nearest cent.

20. Susan is attending a college that is 785.89 miles away from home. Round this distance to the nearest mile.
Additional Exercises 5.2

Perform the following operations.

1. $3.6 + 2.98$

2. $8.14 + 3.16$

3. $0.0006 + 1.134$

4. $31 + 0.165 + 2.63$

5. $57.4 + 6.95 + 0.084$

6. $9.3 - 4.71$

7. $6 - 4.12$

8. $3.25 + 7.62 - 10.38$

9. $17.35 - 15$

10. Subtract 3.5 from 5.8.

11. Subtract 7.6 from 12.35

12. Subtract 12.9 from 15.9
Additional Exercises 5.2 (cont.)

13. Compute the total monthly cost of utilities given the information shown:
   Combined cost of water, sewage and electricity per month: $45.38
   Average cost of telephone per month: $68.20
   Average cost of natural gas per month: $38.25
   Monthly cost of cable television: $42.60

14. A bottle of shampoo costs $2.50 plus $0.15 tax. What is the total cost?

15. How much fencing is needed to enclose the field with the dimensions shown?

12.5 yds.  
6.2 yds.  
14.6 yds.  
10.5 yds.

16. Louis bought $38.09 worth of groceries. If he paid with two $20 bills, what was his change?

17. Simplify by combining like terms: $1.04x + 1.3x$

18. Evaluate $x + y$ if $x = 1.37$ and $y = 0.32$.

19. Evaluate $x - y$ if $x = 3.2$ and $y = 0.85$.

20. Simplify by combining like terms: $0.5x - 3.2x + 5.57x$
Additional Exercises 5.3

Multiply.
1. \(4.9 \times 0.7\)
2. \(3.7 \times 0.5\)
3. \(0.78 \times 0.22\)
4. \(-3.7 \times 5.3\)
5. \(-4.2 \times 0.7\)
6. \(1.021 \times 0.025\)
7. \(3.89 \times 10\)
8. \(1.02 \times 100\)
9. \(5.013 \times 100\)
10. \(3.5 \times 0.001\)
11. \((3.2)(0.2)(0.5)\)
12. \((7.29)(0.5)\)
13. \((-0.2)(-0.38)\)
14. Find the circumference of a circle with diameter of 20 cm. Use 3.14 as an approximation of \(\pi\). \((C = \pi d)\).
15. One cracker has 0.75 grams of fat. How much fat is in 8 crackers?
16. A meter is approximately equal to 39.37 inches. Susie is 1.2 meters tall. Find her approximate height in inches.
17. Evaluate \(xy\) if \(x = 3.25\) and \(y = 0.7\)
18. Evaluate \(3x\) if \(x = 1.2\)
19. Find the perimeter of a square with sides of length 3.2 yards.
20. Find the area of a rectangle with width 2.35 ft. and length 4.8 ft.
Additional Exercises 5.4

Divide.
1. \( \frac{0.8}{0.48} \)

2. \( \frac{5}{2.55} \)

3. \( \frac{0.07}{21} \)

4. \( \frac{0.6}{24.12} \)

5. \( \frac{7}{4.97} \)

6. \( 6.25 \times 3.5 \) (Round to the nearest thousandth.)

7. \( 12 \div 1.02 \) (Round to the nearest thousandth.)

8. \( 54 \div 0.09 \)

9. \( \frac{3.95}{0.05} \)

10. Divide 529.35 by 1.8. (Round to the nearest hundredth.)

11. Divide 49.5 by 0.3. (Round to the nearest hundredth.)

12. Divide 4.54 by 0.07. (Round to the nearest hundredth.)

13. \( \frac{36.52}{100} \)

14. \( \frac{8.36}{1000} \)

15. \( \frac{16.28}{10} \)

16. \( \frac{0.73}{0.001} \)

17. The total cost of a loan is \$11,287.64. How many monthly payments of \$217.07 would it take to pay off the loan?

18. A high school basketball player scored 386 points in 16 games. What was her average number of points per game? Round to the nearest tenth.

19. Evaluate \( x + y \) if \( x = 2.5 \) and \( y = 0.02 \).

20. Evaluate \( 2x + y \) if \( x = 5.025 \) and \( y = 2.5 \).
Additional Exercises 5.5

Write each fraction as a decimal.

1. \( \frac{1}{8} \)

2. \( \frac{1}{5} \)

3. \( \frac{1}{4} \)

Write each fraction as a decimal. Round to the nearest hundredth.

4. \( \frac{2}{3} \)

5. \( \frac{1}{7} \)

6. \( \frac{3}{7} \)

7. \( \frac{3}{13} \)

8. \( \frac{5}{17} \)

Write as a decimal rounded to the nearest thousandth place.

9. A basketball player made \( \frac{12}{17} \) of his shots for the season.

10. In a recent election for the U.S. Senate, one candidate got about \( \frac{65}{109} \) of the votes.
Additional Exercises 5.5 (cont.)

Insert <, >, or = to form a true statement.

11. 0.0438  0.0435

12. \( \frac{2}{7} \)  \( \frac{4}{15} \)

13. \( \frac{7}{8} \)  0.9167

Write the numbers in order from smallest to largest.

14. 0.725  0.7252  0.72152

Simplify each expression.

15. \((0.05)^2\)

16. \(200 - 58 \times 2.76\)

17. \(9.4(7.5 - 1.9)\)

18. \(\frac{2.75 + 1.25}{10}\)

Find the area of each triangle. Use the formula \(A = \frac{1}{2}bh\).

19. 

![Triangle with sides 5.3 in. and 4.2 in.]

20. 

![Triangle with sides 1.6 m and 2.8 m]
Additional Exercises 5.6

Solve and check. (Round answers to the nearest thousandth if needed.)

1. \( x + 1.6 = 3.4 \)
2. \(-3.9 \times y = 8.65\)
3. \(1.1x = 6.6\)
4. \(\frac{x}{5} = 3.285\)
5. \(0.50 = 4x\)
6. \(3(x - 2.1) = 2x - 6.9\)
7. \(2x + 3x = 3.6\)
8. \(x - 0.5x = -18.5\)
9. \(3(x + 2) = -12.6\)
10. \(1.5x - 9.72 = 0.5x + 8.65\)
11. \(2(x - 1.5) = 8.352\)
12. \(4x + 7.12 = 2(3x - 5.8)\)
13. \(0.75x = 15.35\)
14. \(\frac{x}{1.5} = 3.80\)
15. \(x - 4.59 = 6.85\)
16. \(2x + 0.5x = -125\)
17. \(-1.1x = -99\)

Solve. Round to the nearest cent.

18. Four friends went to lunch. The total bill was $38.65. Find the average cost for each of the four friends.
19. Five books cost $237.59. What is the average cost of each book?
20. An order for two pizzas is $23.04. Find the cost of one pizza.
Additional Exercises 5.7

Find the mean, median, and mode. If necessary, round each mean to one decimal place.

1. 15, 19, 24, 17, 31
2. 7.5, 8.9, 4.6, 9.5, 8.6, 8.9
3. 392, 476, 831, 956, 371, 429, 531, 476
4. 17, 21, 36, 48, 59, 61
5. 0.3, 0.4, 0.7, 1.2, 1.4, 0.8, 0.7
6. 98, 97, 54, 79, 38, 88
7. 36, 37, 32, 41, 38
8. 32, 78, 95, 84, 96
9. 329, 378, 294, 199, 329, 360
10. 6.3, 7.5, 8.2, 8.6, 7.4, 6.3
11. Find the GPA. Round to two decimal places.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
</tr>
<tr>
<td>A</td>
<td>3</td>
</tr>
</tbody>
</table>

11. ____________________
Use the following table for problems 12 - 20.

<table>
<thead>
<tr>
<th>Tallest Buildings in New York City</th>
<th>Height in Feet</th>
<th>Height in Meters</th>
<th>Floors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empire State Building</td>
<td>1250</td>
<td>381</td>
<td>102</td>
</tr>
<tr>
<td>Chrysler Building</td>
<td>1046</td>
<td>319</td>
<td>77</td>
</tr>
<tr>
<td>New York Times Tower</td>
<td>1046</td>
<td>319</td>
<td>52</td>
</tr>
<tr>
<td>American International Building</td>
<td>952</td>
<td>290</td>
<td>66</td>
</tr>
<tr>
<td>40 Wall Street</td>
<td>927</td>
<td>283</td>
<td>70</td>
</tr>
<tr>
<td>Citigroup Center</td>
<td>915</td>
<td>279</td>
<td>59</td>
</tr>
<tr>
<td>Trump World Tower</td>
<td>861</td>
<td>262</td>
<td>72</td>
</tr>
<tr>
<td>GE Building</td>
<td>850</td>
<td>259</td>
<td>69</td>
</tr>
<tr>
<td>CitySpire Center</td>
<td>814</td>
<td>248</td>
<td>75</td>
</tr>
<tr>
<td>One Chase Manhattan Plaza</td>
<td>813</td>
<td>248</td>
<td>60</td>
</tr>
</tbody>
</table>

12. Find the mean height in feet.
13. Find the mean height in meters.
14. Find the mean number of floors.
15. Find the median for the height in feet.
16. Find the median for the height in meters.
17. Find the median for the number of floors.
18. Find the mode for the height in feet.
19. Find the mode for the height in meters.
20. Find the mode for the number of floors.
Additional Exercises 6.1

Write each ratio using fractional notation in simplest form.

1. 6 to 17
2. 8 to 24
3. \( \frac{3}{5} \) to \( \frac{4}{8} \)
4. 0.2 to 3.1
5. 12 to 18
6. 2.8 to 5.6
7. 60 miles to 15 miles
8. 280 acres to 120 acres
9. 78 gallons to 86 gallons
10. \( \frac{1}{2} \) cup to \( \frac{1}{6} \) cup
11. 0.6 meters to 3 meters

A rectangular storage building is 20 feet long and 15 feet wide.

12. Find the ratio of the width to the length in simplest terms.
13. Find the ratio of the length to the perimeter of the building.
14. Find the ratio of the width to the perimeter of the building.

A math class has 18 women and 10 men.

15. Find the ratio of men to women.
16. Find the ratio of men to total students.

Write each rate as a unit rate.

17. 480 calories in 8 ounces
18. 520 miles in 8 hours

Find each unit price and decide which is a better buy.

19. Treated lumber: $3.79 for an 8-foot board or $6.18 for a 12-foot board.
20. 50 aspirin tablets for $3.79 or 100 aspirin tablets for $5.85.
Additional Exercises 6.2

Write each sentence as a proportion.

1. 3 eggs is to 6 cups of flour as 12 eggs is to 24 cups of flour.
2. 0.5 meters is to 5 kilometers as 3 meters is to 30 kilometers.
3. \(\frac{1}{3}\) page is to 20 minutes as 1 page is to 60 minutes.

Determine whether each proportion is a true proportion.

4. \(\frac{15}{9} = \frac{5}{3}\)
5. \(\frac{7}{8} = \frac{49}{56}\)
6. \(\frac{3}{4} = \frac{7}{16}\)
7. \(\frac{7}{32} = \frac{1}{4}\)
8. \(\frac{4}{5} = \frac{28}{35}\)
9. \(\frac{1}{2} = \frac{1.5}{3}\)
Additional Exercises 6.2 (cont.)

For each proportion, find the unknown number $x$. 

10. \( \frac{18}{30} = \frac{x}{5} \) 

11. \( \frac{5}{x} = \frac{7.5}{9} \) 

12. \( \frac{x}{30} = \frac{15}{25} \) 

13. \( \frac{16}{8} = \frac{4}{x} \) 

14. \( \frac{1}{2} = \frac{10}{x} \) 

15. \( \frac{x}{6} = \frac{5}{4} \) 

16. \( \frac{x}{20} = \frac{15}{25} \) 

17. \( \frac{1.5}{2.5} = \frac{x}{15} \) 

18. \( \frac{x}{16} = \frac{6}{4.8} \) 

19. \( \frac{x}{9} = \frac{1.2}{1.8} \) 

20. \( \frac{5}{8} = \frac{x}{15} \)
Additional Exercises 6.3

Solve.

Amanda's car averages 588 miles on a 21 gallon tank of gas.

1. How far can she drive on 6 gallons of gas?

2. How many gallons of gas would she use on a 975 mile trip? Round to the nearest tenth.

An 80-pound bag of ready to use concrete mix fills 8 cubic feet.

3. Joe needs 280 cubic feet of concrete, how many bags does he need?

4. If Sue buys 10 bags, how many cubic feet will that fill?

A animal shelter allows 150 square feet of yards space per dog.

5. Find the minimum yard space for 5 dogs.

6. They plan to fence a rectangular area that is 30 by 10. Find the maximum number of dogs the new yard can accommodate.

On a road map, 1 inch corresponds to 30 miles.

7. Find the distance represented by a line segment 2\(\frac{1}{4}\) inches long.

8. If two cities are 150 miles apart, find the measurement on the map.

Local sales tax is $6.25 for every $100 purchase.

9. If sales tax on a sofa is $18.75, what was the purchase price of the sofa?

10. Find the sales tax on a refrigerator priced at $550. (Round to the nearest cent.)
Additional Exercises 6.3 (cont.)

A survey revealed that 4 out of 5 people prefer vanilla ice cream to chocolate.

11. In a class of 30, how many students are likely to prefer chocolate ice cream?

12. If 12 people in a room prefer chocolate, how many people are likely to be in the room?

If a family drinks 2 gallons of milk every 3 days,

13. How many gallons of milk do they drink in a month (30 days)?

14. How many gallons do they drink each week?

15. If Hilda can word process and spell check 5 pages in 30 minutes, how long will it take her to finish her research paper which is 25 pages long?

16. If a recipe calls for $2 \frac{1}{2}$ cups of sugar for 2 dozen cookies, how much sugar is needed to make 6 dozen cookies?

17. If $\frac{1}{2}$ inch represents 50 miles on a road map, what is the distance represented by $2 \frac{1}{4}$ inches?

18. A mix uses three eggs to make 12 pancakes. How many eggs are needed to make 36 pancakes?

19. You burn about 200 calories while jogging for 45 minutes. How long would you have to jog to burn 600 calories?

20. Judy reads 8 pages in 15 minutes. How many pages can she read in an hour?
**Additional Exercises 6.4**

Find the square root of each.

1. \( \sqrt{9} \)

2. \( \sqrt{100} \)

3. \( \sqrt{25} \)

4. \( \sqrt{16} \)

5. \( \sqrt{\frac{49}{64}} \)

6. \( \sqrt{\frac{1}{16}} \)

7. \( \sqrt{169} \)

8. \( \sqrt{121} \)

9. \( \sqrt{225} \)

10. \( \sqrt{\frac{169}{100}} \)
Additional Exercises 6.4 (cont.)

11. \( \sqrt{\frac{25}{49}} \)
12. \( \sqrt{81} \)

Use Appendix E or a calculator to approximate each square root to the nearest thousandth.

13. \( \sqrt{8} \)
14. \( \sqrt{20} \)
15. \( \sqrt{18} \)
16. \( \sqrt{178} \)

Find the unknown length of each right triangle. Approximate to the nearest thousandth.

17. \( \frac{5 \text{ ft.}}{7 \text{ ft.}} \)

18. \( \frac{16 \text{ cm}}{8 \text{ cm}} \)

19. Find the height of a building if a 10 foot ladder is placed 4 feet from a wall.

20. Find the length of a guy-wire attached to a 12 foot pole if it is tied 5 feet from the pole.
Additional Exercises 6.5

Find each ratio of the corresponding sides of the similar triangles.

1. \[
\frac{8}{6} : \frac{4}{3}
\]

2. \[
\frac{5}{3} : \frac{15}{9}
\]

3. \[
\frac{3}{5} : \frac{12}{20}
\]

4. \[
\frac{0.5}{1.5} : \frac{2.5}{7.5}
\]

5. \[
\frac{x}{3} : \frac{5x}{15}
\]

6. \[
\frac{2}{4} : \frac{6}{8}
\]
Additional Exercises 6.5 (cont.)

Given that the triangles are similar, find the length of the side labeled $x$.

7. \[ \frac{2}{x} = \frac{6}{12} \]

8. \[ \frac{1}{15} = \frac{7}{x} \]

9. \[ \frac{1}{5} = \frac{1}{x} \]

10. \[ \frac{10}{32} = \frac{16}{x} \]

11. \[ \frac{4}{7} = \frac{x}{14} \]

12. \[ \frac{2.3}{x} = \frac{2.3}{8.7} \]

13. \[ \frac{8}{x} = \frac{15}{22.5} \]

14. \[ \frac{3}{7.5} = \frac{x}{12.5} \]
**Additional Exercises 6.5 (cont.)**

15. \[
\begin{align*}
\triangle & \quad 2.7 \quad 3.8 \\
& \quad x \quad x \quad 7.2
\end{align*}
\]

16. If a 25 foot tree casts a 15 foot shadow, find the length of the shadow cast by a 40 foot tree.

17. A flagpole 24 feet tall casts a 30 foot shadow. Find the length of the shadow cast by a 36 foot pole.

18. If a 12 foot tree casts a 7 foot shadow, find the length of the shadow cast by an 18 foot tree.

19. Estimate the height of a building if the shadow cast by the building is 68 feet. At the same time, a 6 foot person casts an 8 foot shadow.

20. Find the perimeter of triangle DEF, given that it is similar to triangle ABC.

\[
\begin{align*}
A & \quad 3.2 \quad 8.5 \\
B & \quad 6 \\
E & \quad x \\
C & \quad \quad \quad \quad \quad \quad \quad \\
D & \quad y \\
F & \quad 9
\end{align*}
\]