17. **$\frac{4}{5}$;** $\frac{3}{5} \div \frac{3}{4}$

$\frac{3}{5} \times \frac{4}{3} = \frac{12}{15} = \frac{4}{5}$

18. **22.56;**

$$\begin{array}{r} {}^{1\,1}3.76 \\ 12.00 \\ +\ 6.80 \\ \hline 22.56 \end{array}$$

19. **10.75;**

$$\begin{array}{r} {}^{1\,9_1}\cancel{12.00} \\ -\ 1.25 \\ \hline 10.75 \end{array}$$

20. **14;** $8 + 6 = 14$

21. **961;** $31 \times 31 = 961$

22. **213;**

$$\begin{array}{r} 213 \\ 28\overline{)5964} \\ -56 \\ \hline {}^{2\,1}\cancel{3}6 \\ -28 \\ \hline 84 \\ -84 \\ \hline 0 \end{array}$$

23. **426;** $m = \frac{5964}{14}$;

$$\begin{array}{r} 426 \\ 14\overline{)5964} \\ -56 \\ \hline {}^{2\,1}\cancel{3}6 \\ -28 \\ \hline 84 \\ -84 \\ \hline 0 \end{array}$$

24. **$\frac{5}{5}$;** $\frac{3}{20} \times \frac{5}{5} = \frac{15}{100}$

25. **28;** $\frac{7}{25} \times \frac{4}{4} = \frac{28}{100}$

26. 

27. a. **140 cubic inches;** 7 in. × 2 in. × 10 in. = 140 cubic inches

    b. **12 edges**

28. a. **Sample: 3 p.m. and 5 p.m.**

    b. **4 p.m. to 5 p.m.; 1°F;** 80°F − 79°F = 1°F

    c. **54°F;** 80°F − 26°F = 54°F

29. a. **N**

    b. **T, E**

30. **Sample: round 3,122 to 3,000 and round 3,951 to 4,000; a reasonable estimate is 3,000 + 4,000 or 7,000 votes.**

Lesson Practice 106

a. **twenty-five thousands; 0.025; $\frac{25}{1000}$**

b. **six and eight hundred seventy-five thousands**

c. **twenty-five thousands**

d. **sixteen hundredths**

e. **4;** the number 4.375 is a number that is 4 plus a fraction, so it is more than 4 but less than 5. Since 4.500 is halfway between 4 and 5, the number we are rounding, 4.375, is less than halfway. This means that 4.375 rounds down to 4.

f. **3;** the number 2.625 is a number that is 2 plus a fraction, so it is more than 2 but less than 3. Since 2.500 is halfway between 2 and 3, the number we are rounding, 2.625, is more than halfway. This means that 2.625 rounds up to 3S.

g. **1;** the number 1.33 is a number that is 1 plus a fraction, so it is more than 1 but less than 2. Since 1.50 is halfway between 1 and 2, the number we are rounding, 1.33, is less than halfway. This means that 1.33 rounds down to 1.

h. **>; $\frac{375}{1000} > \frac{375}{10000}$**

i. **0.1, 0.102, 0.125, 0.15**

j. **0.125**

Written Practice 106

1. **24 books;** \$100 is four times greater than \$25. $4 \times 6 = 24$.

2. **0.63 meter;**

$$\begin{array}{r} {}^{0\,9_1}\cancel{1.00}\text{ meter} \\ -\ 0.37\text{ meter} \\ \hline 0.63\text{ meter} \end{array}$$

3. **1.50; $1\frac{1}{2}$;** $1\frac{50}{100} = 1.50 = 1\frac{1}{2}$

4. **64;** round 8.33 to 8 and 7.667 to 8, then multiply $8 \times 8 = 64$.

5. **8, 16, 24, 32, 40**

6. a. **18 girls;** $\frac{3}{5} \times 30 = \frac{90}{5} = 18$.

   b. **12 boys;** $30 - 18 = 12$.

   c. $\frac{2}{3}$; $\frac{12}{18} = \frac{2}{3}$

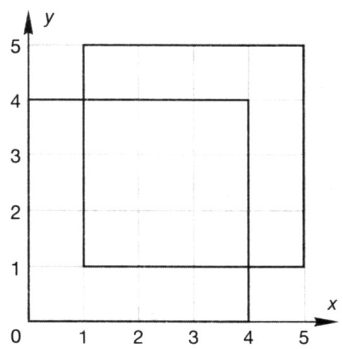
7. **$26;** round \$8.95 to \$9, \$12.29 to \$12, and \$4.88 to \$5. \$9 + \$12 + \$5 = \$26.

8. **five and three hundred seventy-five thousandths**

9. a. **16 units**

   b. **16 square units**

   c.



10. **0.875, 0.9, 0.96, 1**

11. $5\frac{3}{4}$; $5\frac{6}{8} = 5\frac{3}{4}$

12. **4;** $3\frac{10}{10} = 4$

13. $2\frac{7}{10}$;

$$\begin{array}{rcr} 4 & \longrightarrow & 3\frac{10}{10} \\ -1\frac{3}{10} & \longrightarrow & -1\frac{3}{10} \\ \hline & & 2\frac{7}{10} \end{array}$$

14. **2.1867;**

$$\begin{array}{r} {}^{1}1.2300 \\ 0.4567 \\ +\ 0.5000 \\ \hline 2.1867 \end{array}$$

15. **2.7;**

$$\begin{array}{r} {}^{3}\cancel{4}{}^{1}.0 \\ -\ 1.3 \\ \hline 2.7 \end{array}$$

16. **114,000;** $8 \times 57 \times 250$

$$\begin{array}{r} {}^{5}57 \\ \times\ 8 \\ \hline 456 \end{array} \times 250$$

$$\begin{array}{r} {}^{1\,1}{}_{2\,3}456 \\ \times\ 250 \\ \hline {}^{1}22800 \\ +\ 91200 \\ \hline 114{,}000 \end{array}$$

17. **$36.25;**

$$\begin{array}{r} \$7.{}^{1}{}^{2}25 \\ \times\ \ \ 5 \\ \hline \$36.25 \end{array}$$

18. **$3.25;**

$$\begin{array}{r} \$\ \ 3.25 \\ 8\overline{)\$26.00} \\ -24 \\ \hline 20 \\ -16 \\ \hline 40 \\ -40 \\ \hline 0 \end{array}$$

19. **20 R 16;**

$$\begin{array}{r} 20\text{ R }16 \\ 21\overline{)436} \\ -42 \\ \hline 16 \\ -0 \\ \hline 16 \end{array}$$

20. **315;**

$$\begin{array}{r} 315 \\ 16\overline{)\cancel{5}040} \\ -48 \\ \hline {}^{1}{}^{1}24 \\ -16 \\ \hline 80 \\ -80 \\ \hline 0 \end{array}$$

21. $1\frac{1}{2}$; $\frac{15}{10} = 1\frac{5}{10} = 1\frac{1}{2}$

22. $7\frac{1}{2}$; $5 \div \frac{2}{3}$

$$5 \times \frac{3}{2} = \frac{15}{2} = 7\frac{1}{2}$$

23. $\frac{4}{24}$; $\frac{3}{24}$; $\frac{7}{24}$; We multiply $\frac{1}{6}$ by $\frac{4}{4}$ and $\frac{1}{8}$ by $\frac{3}{3}$. $\frac{1}{6} \times \frac{4}{4} = \frac{4}{24}$ and $\frac{1}{8} \times \frac{3}{3} = \frac{3}{24}$. Then we add $\frac{4}{24}$ and $\frac{3}{24}$ to find their sum. $\frac{4}{24} + \frac{3}{24} = \frac{7}{24}$.

24. a. **10 students; $33\frac{1}{3}$%;** $\frac{1}{3}$ of $30 = \frac{30}{3} = 10$.

    b. **C**

25. a. **64 cubic inches;** 4 in. × 4 in. × 4 in. = 64 cubic inches.

b. **square**

26. 

27. **$5\frac{2}{3}$ times;** add the total number of times that she walked around the park and divide by 3. $(4 + 6 + 7) \div 3 = 17 \div 3 = 5\frac{2}{3}$.

28. **B;** one pint is equal to 16 oz, so 3 pints equals 3 × 16 = 48 oz.

29. **$\frac{3}{5}$;** $\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$

30. **D**

Early Finishers

a. **Brooklyn, Mackinac Straits, Golden Gate, Verrazano-Narrows**

b. **$\frac{795}{1000}, \frac{302}{1000}, \frac{72}{100}, \frac{802}{1000}$**

Lesson Practice 107

a. **60%;** we have the fraction 120 over 200 total. We can partially reduce this fraction ratio to make the denominator equal 100 and then find the percentage. $120 \div \frac{5}{200} \div 5 = \frac{60}{100} =$ 60%.

b. **20%;** we have the fraction 10 over 50 total. We can multiply this fraction ratio by $\frac{2}{2}$ to make the denominator equal 100 and then find the percentage. $10 \times \frac{2}{50} \times 2 = \frac{20}{100} =$ 20%.

c. **20;** we have the fraction 60 over 300 total. We can partially reduce this fraction ratio to make the denominator equal 100 and then find the percentage. $60 \div \frac{3}{300} \div 3 = \frac{20}{100} =$ 20%.

d. **24%;** we have the fraction 48 over 200 total. We can partially reduce this fraction ratio to make the denominator equal 100 and then find the percentage. $48 \div \frac{5}{200} \div 5 = \frac{24}{100} =$ 24%.

e. **60%;** we have the fraction 30 over 50 total. We can multiply this fraction ratio by $\frac{2}{2}$ to make the denominator equal 100 and then find the percentage. $30 \times \frac{2}{50} \times 2 = \frac{60}{100} =$ 60%.

f. **50%;** $\frac{1}{2} \times \frac{50}{50} = \frac{50}{100} = 50\%$

g. **$8\frac{1}{3}$%;** $\frac{1}{12} = 0.08333 = 8.333\% = 8\frac{1}{3}\%$

Written Practice 107

1. **62.8 seconds;** 63.8 − 1.0 = 62.8 seconds

2. **70 sq. in.;** round $9\frac{7}{8}$ in. to 10 in. and $6\frac{3}{4}$ in. to 7 in., then multiply 10 in. × 7 in. = 70 sq. in.

3. **16 bundles; sample: 245 ÷ 15 = 16 R 5; drop the remainder.**

4. **$56;** round $6.98 to $7, then multiply 8 × $7 = $56.

5. **30%;** we have the fraction 60 over 200 total. We can partially reduce this fraction ratio to make the denominator equal 100 and then find the percentage. $60 \div \frac{5}{200} \div 5 = \frac{30}{100} =$ 30%.

6. **=; 0.2 = 0.2;** $\frac{1}{10} + \frac{1}{10}$ ◯ 0.1 + 0.1

$\frac{2}{10}$ ◯ 0.2

↓

0.2 = 0.2

7. **5;** round 19.8 to 20 and 3.875 to 4, then divide 20 ÷ 4 = 5.

8. **20%;** we have the fraction 10 over 50 total. We can multiply this fraction ratio by $\frac{2}{2}$ to make the denominator equal 100 and then find the percentage. $10 \times \frac{2}{50} \times 2 = \frac{20}{100} =$ 20%.

9. **$\frac{2}{6}$; $\frac{1}{2}$;** we multiply $\frac{1}{3}$ by $\frac{2}{2}$ to get **$\frac{2}{6}$**. Then we add $\frac{2}{6}$ to $\frac{1}{6}$ to find the sum. $\frac{2}{6} + \frac{1}{6} = \frac{3}{6}$ which is equal to **$\frac{1}{2}$**.

10. a. **16 units**

b. **15 square units**

11. **3 centimeters;** *QR* is one third of *QT*. $\frac{1}{3} \times 9 = \frac{9}{3} = 3$ cm

12. **$\frac{3}{5}$;** $\frac{60}{100} = \frac{3}{5}$

13. **$1\frac{3}{10}$;** $5 - 3\frac{7}{10}$

$4\frac{10}{10} - 3\frac{7}{10} = 1\frac{3}{10}$

14. **1.3;**

$$\begin{array}{r} \overset{4}{\cancel{5}}\overset{1}{.}0 \\ -\ 3.7 \\ \hline 1.3 \end{array}$$

15. **$36.50**

16. **270,972;**

$$\begin{array}{r} \overset{3}{4}\overset{4}{5}\overset{}{6}\overset{}{7} \\ 468 \\ \times\ 579 \\ \hline {}^{1}4212 \\ 32760 \\ +\ 234000 \\ \hline 270{,}972 \end{array}$$

17. **$3.65**

18. **1753;**

$$\begin{array}{r} 1753 \\ 5\overline{)8765} \\ -5 \\ \hline 37 \\ -35 \\ \hline 26 \\ -25 \\ \hline 15 \\ -15 \\ \hline 0 \end{array}$$

19. **20;**

$$\begin{array}{r} 20 \\ 32\overline{)640} \\ -64 \\ \hline 00 \\ -0 \\ \hline 0 \end{array}$$

20. **$\frac{21}{100}$**

21. **$6\frac{2}{3}$;** $4 \div \frac{3}{5}$

$4 \times \frac{5}{3} = \frac{20}{3} = 6\frac{2}{3}$

22. a. **12 votes**

b. **$\frac{1}{4}$;** $\frac{8}{32} = \frac{1}{4}$

c. **8 votes;** find the total number of votes and divide by 4. $32 \div 4 = 8$ votes.

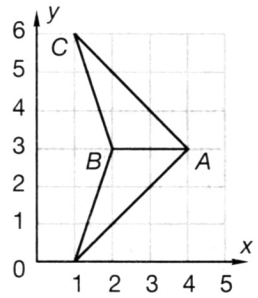
23. **C**

24. **$\frac{1}{4}$;** divide the top and bottom by 4.

25. **990;** $(10 \times 10 \times 10) - 10 = 1000 - 10 = 990$

26. a. **C**

b.



27. ***A*(4,3), *B*(2,3), *C*(1,6)**

28. **64 cubic inches;** round $1\frac{1}{4}$ in. to 4 in., $1\frac{7}{8}$ in. to 2 in., and $7\frac{7}{8}$ in. to 8 in. $V = 4$ in. $\times$ 2 in. $\times$ 8 in. $= 64$ cubic inches.

29. **2 pounds; $\frac{3}{4} + 1\frac{1}{4} = 1\frac{4}{4}$, and $1\frac{4}{4}$ is the same as 1 + 1, or 2.**

30. a. **15 yr (lion); 12 yr (moose); 10 yr (gray squirrel); 3 yr (meadow mouse)**

b. **A lion lives 5 times longer than a meadow mouse.**

Early Finishers

a. **82 students;** $\frac{123}{1} \times \frac{2}{3} = \frac{246}{3} = 82$ students

b. **41 students;** $123 - 82 = 41$ students

c. **See student work.**

Lesson Practice 108

a. **1:15 p.m.;** 14:00 − 0:45 = 13:15 = 1:15 p.m.

b. **3 hr 10 min;** 15:40 − 12:30 = 3:10

c. **7 days;** 29 − 22 = 7 days

d. **B**

e. **5 hr 5 min;** 3:50 p.m. = 15:50; 15:50 − 10:45 = 5:05

Written Practice 108

1. **45,454,500 milligrams**

2. **$4.23;**

$$\begin{array}{r} \overset{2}{\$1}.\overset{4}{2}6 \\ \$1.26 \\ \$0.49 \\ \$0.49 \\ \$0.49 \\ +\ \$0.24 \\ \hline \$4.23 \end{array}$$

3. **5 miles;** $2 \times 2.5 = 5.0$

4. **9;** $20 \div 4 = 5$, so $2y - 1 = 2(5) - 1 = 10 - 1 = 9$

5. **320;** each tick mark represents 20-pound segments. The arrow is pointing to the first tick mark past 300 or 320.

6. a. **60%;** $\frac{15}{25} \times \frac{4}{4} = \frac{60}{100} = 60\%$

   b. $\mathbf{\frac{3}{2}}$**;** there are 10 girls in the class. $\frac{15}{10} = \frac{3}{2}$

7. **21;** round 12.7 to 13 and 8.167 to 8, then add $13 + 8 = 21$.

8. $\mathbf{\frac{4}{5}}$**;** 80% is equal to $\frac{80}{100}$ which can be reduced to $\frac{4}{5}$.

9. **=;** $\mathbf{\frac{1}{2} = \frac{1}{2}}$**;** $50\% \bigcirc \frac{1}{2}$

   $\frac{50}{100} \bigcirc \frac{1}{2}$

   $\frac{1}{2} = \frac{1}{2}$

10. **2025;** $45 \times 45 = 2025$

11. **seventy-six and three hundred forty-five thousandths; 3**

12. a. **26 units**

    b. **42 square units;** 6 units × 7 units = 42 square units

13. **96 mm;** both *XY* and *YZ* equal 24 mm. $WZ = WX + XY + YZ = 48 + 24 + 24 = 96$ mm.

14. **29.836;**

$$\begin{array}{r} 2.\overset{1}{3}86 \\ 1.200 \\ 16.250 \\ +10.000 \\ \hline 29.836 \end{array}$$

15. **1.65;** $4.2 - (3 - 0.45)$

$$\begin{array}{r} \overset{2}{\cancel{3}}.\overset{9}{\cancel{0}}0 \\ -\ 0.45 \\ \hline 4.2 - \quad 2.55 \end{array}$$

$$\begin{array}{r} \overset{3}{\cancel{4}}.\overset{11}{\cancel{2}}0 \\ -\ 2.55 \\ \hline 1.65 \end{array}$$

16. **$2.47;**

$$\begin{array}{r} \$\ \ 2.47 \\ 15\overline{)\$37.05} \\ -30 \\ \hline 70 \\ -60 \\ \hline 105 \\ -105 \\ \hline 0 \end{array}$$

17. $\mathbf{\frac{3}{6}}$**;** $\mathbf{\frac{2}{3}}$**;** we multiply $\frac{1}{2}$ by $\frac{3}{3}$. $\frac{1}{2} \times \frac{3}{3} = \mathbf{\frac{3}{6}}$. Then we add $\frac{3}{6}$ and $\frac{1}{6}$ to find their sum. $\frac{3}{6} + \frac{1}{6} = \frac{4}{6} = \mathbf{\frac{2}{3}}$.

18. $\mathbf{\frac{3}{4}}$**;** $\frac{1}{2} \div \frac{2}{3}$

    $\frac{1}{2} \times \frac{3}{2} = \frac{3}{4}$

19. $\mathbf{\frac{9}{100}}$

20. $\mathbf{\frac{9}{11}}$

21. $\mathbf{4\frac{4}{7}}$

22. **20 juice boxes;** $\frac{5}{6}$ of $24 = \frac{5}{6} \times 24 = \frac{120}{6} = 20$

23. $\mathbf{x = 4}$

24. a. **17**

    b. **1 student;** 24 of the students scored 15 or more correct; there are 25 students, so the 25th student is the only one to get fewer than 15 correct.

    c. **7;** $20 - 13 = 7$

    d. **18**

25. **80 cubic feet;** V = 5 feet × 2 feet × 8 feet = 80 cubic feet

26. **$66\frac{2}{3}$%; two feet is $\frac{2}{3}$ of a yard, and $\frac{2}{3}$ as a percent is $66\frac{2}{3}$%.**

27. a. **5 lines of symmetry**

    b. **10 sides; decagon**

28. **3 goals;** Chazz scored 2 goals, so Pablo scored 3 goals.

29. **8 years old;** 1 + (14 ÷ 2) = 1 + 7 = 8 years old

30. **155°F;** 100°F + 50°F = 150°F

Early Finishers

a. **11:45 a.m.;** 9:00 + 2:45 = 11:45

b. **30 minutes;** 3:15 − 2:45 = 0:30

c. **3:25 p.m.;** 10:00 p.m. = 22:00; 22:00 − 6:35 = 15:25 = 3:25 p.m.

Lesson Practice 109

a. **1.2;**

$$\begin{array}{rl} 0.3 & \text{1 digit} \\ \times\ 4 & \text{0 digits} \\ \hline 1.2 & \text{1 digit} \end{array}$$

b. **1.8;**

$$\begin{array}{rl} 3 & \text{0 digits} \\ \times\ 0.6 & \text{1 digit} \\ \hline 1.8 & \text{1 digit} \end{array}$$

c. **1.44;**

$$\begin{array}{rl} 0.12 & \text{2 digits} \\ \times\ 12 & \text{0 digits} \\ \hline 24 & \\ +\ 120 & \\ \hline 1.44 & \text{2 digits} \end{array}$$

d. **0.98;**

$$\begin{array}{rl} \overset{2}{1}.4 & \text{1 digit} \\ \times\ 0.7 & \text{1 digit} \\ \hline 0.98 & \text{2 digits} \end{array}$$

e. **0.15;**

$$\begin{array}{rl} \overset{1}{0}.3 & \text{1 digit} \\ \times\ 0.5 & \text{1 digit} \\ \hline 0.15 & \text{2 digits} \end{array}$$

f. **3.6;**

$$\begin{array}{rl} 1.2 & \text{1 digit} \\ \times\ 3 & \text{0 digits} \\ \hline 3.6 & \text{1 digit} \end{array}$$

g. **0.75;**

$$\begin{array}{rl} \overset{2}{1}.5 & \text{1 digit} \\ \times\ 0.5 & \text{1 digit} \\ \hline 0.75 & \text{2 digits} \end{array}$$

h. **0.275;**

$$\begin{array}{rl} 0.25 & \text{2 digits} \\ \times\ 1.1 & \text{1 digit} \\ \hline 25 & \\ +\ 250 & \\ \hline 0.275 & \text{3 digits} \end{array}$$

i. **0.09 = 0.09;** $\frac{3}{10} \times \frac{3}{10} \bigcirc 0.3 \times 0.3$

$$\begin{array}{rcrl} & & 0.3 & \text{1 digit} \\ \frac{9}{100} & \bigcirc & \times\ 0.3 & \text{1 digit} \\ \hline & & 0.09 & \text{2 digits} \\ 0.09 & = & 0.09 & \end{array}$$

j. **0.64 sq. cm;**

$$\begin{array}{rl} \overset{6}{0}.8\text{ cm} & \text{1 digit} \\ \times\ 0.8\text{ cm} & \text{1 digit} \\ \hline 0.64\text{ sq. cm} & \text{2 digits} \end{array}$$

Written Practice 109

1. **See student work.**

2. **80%;** $\frac{40}{50} \times \frac{2}{2} = \frac{80}{100} = 80\%$

3. **=; 0.01 = 0.01;** $\frac{1}{10} \times \frac{1}{10} \bigcirc 0.1 \times 0.1$

$$\begin{array}{rcr} & & 0.1 \\ \frac{1}{100} & \bigcirc & \times\ 0.1 \\ \hline & & 0.01 \\ 0.01 & = & 0.01 \end{array}$$

4. **11:25 p.m.;** 24:00 − 0:35 = 23:25 = 11:25 p.m.

5. **101.101**

6. **200 grams;** 100 + 500 = 600; 600 g ÷ 3 = 200 g

7. **10, 20, 30, 40, 50**

8. **Sample: I rounded both amounts to the nearest dollar, and then subtracted; a reasonable estimate is $23 − $7, or $16.**

9. a. **22 units**

   b. **30 square units;** 5 units × 6 units = 30 square units

10. a. $\mathbf{\frac{1}{10}}$**;** $\frac{10}{100} = \frac{1}{100}$

    b. $\mathbf{\frac{1}{5}}$**;** $\frac{20}{100} = \frac{1}{5}$

11. **55.76;**

$$\begin{array}{r} \overset{1\,1}{3}2.30 \\ 4.96 \\ 7.50 \\ +11.00 \\ \hline 55.76 \end{array}$$

12. 0.44; $1 - (1.36 - 0.8)$

$$\begin{array}{r} \overset{0}{\cancel{1}}.\overset{1}{3}6 \\ -0.80 \\ \hline 0.56 \end{array}$$

$$1 - \begin{array}{r} \overset{0}{\cancel{1}}.\overset{9}{\cancel{0}}\overset{1}{\cancel{0}} \\ -0.56 \\ \hline 0.44 \end{array}$$

13. 14.4;

$$\begin{array}{rl} 12 & \text{0 digits} \\ \times\ 1.2 & \text{1 digit} \\ \hline 24 & \\ +\ 120 & \\ \hline 14.4 & \text{1 digit} \end{array}$$

14. 0.135;

$$\begin{array}{rl} 0.\overset{4}{1}5 & \text{2 digits} \\ \times\ 0.90 & \text{2 digits} \\ \hline 0.1350 & \text{4 digits} \end{array}$$

$$\downarrow$$

$$0.135$$

15. 1.6;

$$\begin{array}{rl} 0.16 & \text{2 digits} \\ \times\ 10 & \text{0 digits} \\ \hline 1.60 & \text{2 digits} \end{array}$$

$$\downarrow$$

$$1.6$$

16. 285; $m = \frac{3705}{13}$;

$$\begin{array}{r} 285 \\ 13\overline{)3705} \\ -26 \\ \hline 1\overset{0}{\cancel{1}}\overset{1}{\cancel{0}} \\ -104 \\ \hline 65 \\ -65 \\ \hline 0 \end{array}$$

17. \$1.46;

$$\begin{array}{r} \$1.46 \\ 6\overline{)\$8.76} \\ -6 \\ \hline 27 \\ -24 \\ \hline 36 \\ -36 \\ \hline 0 \end{array}$$

18. 35;

$$\begin{array}{r} 35 \\ 28\overline{)980} \\ -84 \\ \hline 140 \\ -140 \\ \hline 0 \end{array}$$

19. $\mathbf{2\frac{4}{5}}$

20. $\mathbf{5\frac{1}{2}}$; $5\frac{5}{10} = 5\frac{1}{2}$

21. $\mathbf{3\frac{1}{10}}$

22. $\mathbf{\frac{4}{6}}$; $\mathbf{\frac{3}{6}}$; $\mathbf{\frac{1}{6}}$; we multiply $\frac{2}{3}$ by $\frac{2}{2}$ and $\frac{1}{2}$ by $\frac{3}{3}$. $\frac{2}{3} \times \frac{2}{2} = \mathbf{\frac{4}{6}}$ and $\frac{1}{2} \times \frac{3}{3} = \mathbf{\frac{3}{6}}$. Then we subtract $\frac{3}{6}$ and $\frac{4}{6}$ to find their difference. $\frac{4}{6} - \frac{3}{6} = \mathbf{\frac{1}{6}}$

23. $\mathbf{\frac{1}{10}}$; $\frac{3}{30} = \frac{1}{10}$

24. $\mathbf{1\frac{1}{4}}$; $\frac{3}{4} \div \frac{3}{5}$

$$\frac{3}{4} \times \frac{5}{3} = \frac{15}{12} = 1\frac{3}{12} = 1\frac{1}{4}$$

25. $\mathbf{\frac{1}{10}}$; $\frac{3}{10} \div 3$

$$\frac{3}{10} \times \frac{1}{3} = \frac{3}{30} = \frac{1}{10}$$

26. a. 180 tiles; 12 ft × 15 ft = 180 sq. ft = 180 tiles

b. 54 feet; P = 12 ft + 15 ft + 12 ft + 15 ft = 54 ft

27. 36 cubic feet; V = 3 ft × 2 ft × 6 ft = 36 cubic feet

28. a. 2 hours

b. 1 hour

29. 9:15 p.m.; 150 minutes is equal to 2 hours 30 minutes. 18:45 + 2:30 = 21:15 = 9:15 p.m.

30. See student work.

Early Finishers

a. 2.1 ounces;

$$\begin{array}{r} \overset{5}{\overset{4}{2}}.8 \\ \times\ 0.75 \\ \hline \overset{1}{1}\overset{1}{4}0 \\ +\ 1960 \\ \hline 2.100 \end{array} \longrightarrow 2.1 \text{ ounces}$$

b. Multiply the digits, count the total number of decimal places in the factors, count over that many digits (starting from the right side of the answer), and insert the decimal point.

Lesson Practice 110

a. 0.075;

$$\begin{array}{r} \overset{1}{0.25} \\ \times\ 0.3 \\ \hline 0.075 \end{array} \Big\}\ 3 \text{ digits}$$

b. 0.0144;

$$\begin{array}{r} 0.12 \\ \times\ 0.12 \\ \hline 024 \\ +\ 0120 \\ \hline 0.0144 \end{array} \Big\}\ 4 \text{ digits}$$

c. 0.0375;

$$\begin{array}{r} \overset{1}{0.125} \\ \times\ \ 0.3 \\ \hline 0.0375 \end{array} \Big\}\ 4 \text{ digits}$$

d. 0.0015;

$$\begin{array}{r} \overset{1}{0.05} \\ \times\ 0.03 \\ \hline 0.0015 \end{array} \Big\}\ 4 \text{ digits}$$

e. 0.009;

$$\begin{array}{r} 0.03 \\ \times\ 0.3 \\ \hline 0.009 \end{array} \Big\}\ 3 \text{ digits}$$

f. 0.096;

$$\begin{array}{r} 3.2 \\ \times\ 0.03 \\ \hline 0.096 \end{array} \Big\}\ 3 \text{ digits}$$

g. 0.096;

$$\begin{array}{r} \overset{3}{0.6} \\ \times\ 0.16 \\ \hline 36 \\ +\ \ 060 \\ \hline 0.096 \end{array} \Big\}\ 3 \text{ digits}$$

h. 0.024;

$$\begin{array}{r} 0.12 \\ \times\ 0.2 \\ \hline 0.024 \end{array} \Big\}\ 3 \text{ digits}$$

i. 0.001;

$$\begin{array}{r} 0.01 \\ \times\ 0.1 \\ \hline 0.001 \end{array} \Big\}\ 3 \text{ digits}$$

j. 0.0084;

$$\begin{array}{r} \overset{1}{0.07} \\ \times\ 0.12 \\ \hline 014 \\ +\ 0070 \\ \hline 0.0084 \end{array} \Big\}\ 4 \text{ digits}$$

k. 0.08 sq. m;

$$\begin{array}{r} 0.4 \text{ m} \\ \times\ 0.2 \text{ m} \\ \hline 0.08 \text{ sq. m} \end{array} \Big\}\ 2 \text{ digits}$$

Written Practice 110

1. **20;** round 5.375 to 5 and 3.8 to 4, then multiply $5 \times 4 = 20$

2. **50%;** $\frac{5}{10} = \frac{1}{2} = 50\%$

3. a. $\mathbf{\frac{3}{10}}$; $30\% = \frac{30}{100} = \frac{3}{10}$

   b. $\mathbf{\frac{2}{5}}$; $40\% = \frac{40}{100} = \frac{2}{5}$

4. **60 passengers;** $\frac{3}{5}$ of $100 = \frac{3}{5} \times 100 = \frac{300}{5} = 60$

5. a. **4.2 cm; 42 mm**

   b. **1.4 cm;** 4.2 cm ÷ 3 = 1.4 cm

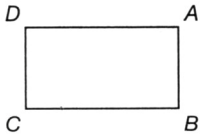
6. $\mathbf{\frac{10}{12}}$, $\mathbf{\frac{3}{12}}$; $\mathbf{1\frac{1}{12}}$; we multiply $\frac{5}{6}$ by $\frac{2}{2}$ and $\frac{1}{4}$ by $\frac{3}{3}$. $\frac{5}{6} \times \frac{2}{2} = \mathbf{\frac{10}{12}}$ and $\frac{1}{4} \times \frac{3}{3} = \mathbf{\frac{3}{12}}$. Then we add $\frac{10}{12}$ and $\frac{3}{12}$ to find their sum. $\frac{10}{12} + \frac{3}{12} = \frac{13}{12} = \mathbf{1\frac{1}{12}}$

7. a. **20 units**

   b. **20 square units**

8. a. $\overline{CD}$ **(or** $\overline{DC}$**)**

   b. $\overline{AD}$ **(or** $\overline{DA}$**) and** $\overline{BC}$ **(or** $\overline{CB}$**)**



9. $\mathbf{\frac{375}{1000}}$**; three hundred seventy-five thousandths**

10. **1.68;**

$$\begin{array}{r} \overset{5}{\cancel{6}}.\overset{9}{\cancel{0}}\overset{,}{0} \\ -\ 4.32 \\ \hline 1.68 \end{array}$$

11. **0.0132;**

$$\begin{array}{r} 0.12 \\ \times\ 0.11 \\ \hline 012 \\ +\ 0120 \\ \hline 0.0132 \end{array} \Big\}\ 4 \text{ digits}$$

12. **0.0112;**

$$\begin{array}{r} \overset{3}{0.04} \\ \times\ 0.28 \\ \hline \overset{1}{0}32 \\ +\ 0080 \\ \hline 0.0112 \end{array} \Big\}\ 4 \text{ digits}$$

13. **2.5;**

$$\begin{array}{r} 0.25 \\ \times\ 10 \\ \hline 2.50 \end{array} \Big\}\ 2 \text{ digits} \rightarrow 2.5$$

14. **195;** $x = \frac{3705}{19}$;

$$\begin{array}{r} 195 \\ 19\overline{)3705} \\ -19 \\ 180 \\ -171 \\ 95 \\ -95 \\ 0 \end{array}$$

15. **900;** $30 \times 30 = 900$

16. $\mathbf{1\frac{2}{13}}$**;** $\frac{15}{13} = 1\frac{2}{13}$

17. $\mathbf{\frac{1}{3}}$**;** $\frac{4}{12} = \frac{1}{3}$

18. $\mathbf{\frac{5}{6}}$

19. $\mathbf{2\frac{2}{5}}$**;** $2 \div \frac{5}{6}$

$$2 \times \frac{6}{5} = \frac{12}{5} = 2\frac{2}{5}$$

20. $\mathbf{\frac{5}{12}}$**;** $\frac{5}{6} \div 2$

$$\frac{5}{6} \times \frac{1}{2} = \frac{5}{12}$$

21. a. **100%**

    b. **A;** $\frac{1}{4} = 25\%$

    c. $\mathbf{\frac{1}{2}}$**;** $50\% = \frac{1}{2}$

22. a. 

    b. **rotation**

23. **Felipe's school day is 5 minutes longer;** Felipe = 7 hours 15 minutes and Natalie = 7 hours 10 minutes

24. a. **Greene, Bolden, Thompson**

    b. **0.17 second;** $10.04 - 9.87 = 0.17$ seconds

25. **See student work.**

26. **1 prime number (23); 3 composite numbers (21, 22, 24)**

27. $\mathbf{1\frac{1}{3}}$ **pounds;** $\frac{2}{3} + \frac{2}{3} = \frac{4}{3} = 1\frac{1}{3}$ pounds

28. $\mathbf{\frac{3}{4}}$ **hr;** $1 - \frac{1}{4} = \frac{4}{4} - \frac{1}{4} = \frac{3}{4}$ hr

29. **I used compatible numbers; since 277 is close to 280, and 280 ÷ 4 = 70, Jessie made a reasonable estimate.**

30. $\mathbf{13\frac{1}{2}}$ **cups;** add $4\frac{1}{2}$ cups for every 2 batches. $9 + 4\frac{1}{2} = 13\frac{1}{2}$ cups

Investigation 11

Focus On

1. **4 ft;** $\frac{1}{2}$ in. = 4 ft

2. **8 ft; 4 in.;** 1 in. = 8 ft and $\frac{1}{2}$ in. = 4 ft

3. **240 ft²; 208 ft²;** area of room = 12 ft × 20 ft = 240 ft²; without closet = 240 ft² − (8 ft × 4 ft) = 240 ft² − 32 ft² = 208 ft²

4. **6 ft; 4 ft**

5. **4 ft; 2 ft**

6. **The chest**

7. **600 yd;** 3 in. = 3 × 200 yd = 600 yd

8. **300 yd;** $1\frac{1}{2}$ in. = $1\frac{1}{2} \times 200$ yd = 300 yd

9. **700 yd; see student work.**

10. **550 yd;** $2\frac{1}{4}$ in. = $2\frac{1}{4} \times 200$ yd = $\frac{9}{4} \times 200$ yd = $\frac{1800}{4}$ yd = 500 yd

11. **500 yd;** about $2\frac{1}{2}$ in. or $2\frac{1}{2} \times 200 = 500$ yd

12. **6 in.; 1 in.;** 3 × 2 in. = 6 in.; $\frac{1}{2} \times 2$ in. = 1 in.

13. $\mathbf{\frac{1}{4}}$ **mi;** $\mathbf{\frac{3}{4}}$ **mi;** $\frac{1}{2} \times \frac{1}{2}$ mi = $\frac{1}{4}$ mi. $1\frac{1}{2} \times \frac{1}{2} = \frac{3}{2} \times \frac{1}{2} = \frac{3}{4}$ mi.

14. **10 in.;** 5 × 2 in. = 10 in.

Investigate Further

a. **See student work.**

b. **See student work.**

c. **See student work.**