

20. $\frac{4}{5} + \frac{4}{5} = \frac{8}{5} = \frac{5}{5} + \frac{3}{5} = 1\frac{3}{5}$
21. $\frac{10}{9} = \frac{9}{9} + \frac{1}{9} = 1\frac{1}{9}$
22. $32\frac{4}{3} = 32 + \frac{3}{3} + \frac{1}{3} = 33\frac{1}{3}$
23. **48 in.; 25%;** The perimeter of a square is equal to 4 times the side.
 $4 \times 1 \text{ foot} = 4 \text{ feet}$
 One foot is equal to 12 inches.
 $4 \times 12 = \mathbf{48 \text{ inches;}}$
 $\frac{1}{4} = \mathbf{25\%}$
24. a. **1 sq. ft;** $1 \text{ ft} \times 1 \text{ ft} = 1 \text{ sq. ft}$
 b. **144 sq. in.;** $12 \text{ in.} \times 12 \text{ in.} = 144 \text{ sq. in.}$
25. **Square**
26. **Median: 41 miles; mode: none;**
range = $67 - 13 = 54$ miles
27. a. 6° ; $69^\circ - 63^\circ = 6^\circ$
 b. **Zero or none**
 c. 22°F ; $69^\circ\text{F} - 47^\circ\text{F} = 22^\circ\text{F}$
28. **Quarter**
29. a. **6 cm (or 60 mm);**
 $2 \text{ cm} + 1 \text{ cm} + 2 \text{ cm} + 1 \text{ cm} = 6 \text{ cm}$
 b. **2 sq. cm (or 200 sq. mm);**
 $2 \text{ cm} \times 1 \text{ cm} = 2 \text{ sq. cm}$
30. **C**

Lesson Practice 76

- a. $\frac{1}{2}$ of $\frac{1}{2}$
 $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
- b. $\frac{1}{10}$; There are ten pennies in a dime.
 $\frac{1}{10}$; There are ten dimes in a dollar.
 $\frac{1}{100}$; There are one hundred pennies in a dollar.
 $\frac{1}{100}; \frac{1}{10} \times \frac{1}{10} = \frac{1}{100}$

c. $\frac{3}{4}$ of $\frac{1}{2}$
 $\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$

d. $\frac{1}{2}$ of $\frac{1}{3}$
 $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$

e. $\frac{2}{5}$ of $\frac{2}{3}$
 $\frac{2}{5} \times \frac{2}{3} = \frac{4}{15}$

f. $\frac{1}{3} \times \frac{2}{3} = \frac{2}{9}$

g. $\frac{3}{5} \times \frac{1}{2} = \frac{3}{10}$

h. $\frac{2}{3} \times \frac{2}{3} = \frac{4}{9}$

i. $\frac{1}{2} \times \frac{2}{2} = \frac{2}{4}$ (or $\frac{1}{2}$)

j. $\frac{1}{3}$ of $\frac{1}{2}$
 $\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$

- k. $\frac{1}{4}$ sq. in.; The area of a square is equal to the length of one side times itself.
 $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4} \text{ sq. in.}$

Written Practice 76

1. **19 miles;** $17 + m = 36$; $36 - 17 = 19$ miles
2. **19 miles;** $3m = 57$; $57 \div 3 = 19$ miles
3. $\begin{array}{r} 9.26 \\ - 6.34 \\ \hline 2.92 \end{array}$
4. The factors of 6 are 1, 2, 3, and 6.
 The factors of 12 are 1, 2, 3, 4, 6, and 12.
 The factors of 6 that are also the factors of 12 are **1, 2, 3, and 6.**
5. **12;** $n = 18 \div 3 = 6$, so $2n = 2 \times 6 = 12$
6. **100 sq. cm;** The area of a square is the length of one side times itself.
 $10 \text{ cm} \times 10 \text{ cm} = 100 \text{ sq. cm}$
7. **=; $4.5 = 4.500$**

Solutions

8. $\frac{3}{8}, \frac{1}{2}, \frac{2}{3}, \frac{5}{5}, \frac{4}{3}$

9. a. 32 squares; $64 \div 2 = 32$

b. 16 squares; $\frac{1}{2}$ of 32 = $\frac{1}{2} \times 32 = \frac{32}{2} = 16$

c. $\frac{1}{4}, \frac{16}{64} = \frac{1}{4}$

d. 25%

10.
$$\begin{array}{r} \text{Segment AC} \quad 78 \text{ mm} \\ - \text{Segment BC} \quad - 29 \text{ mm} \\ \hline \text{Segment AB} \quad 49 \text{ mm} \end{array}$$

11.
$$\begin{array}{r} 24.86 \\ - 9.7 \\ \hline 15.16 \end{array}$$

12.
$$\begin{array}{r} 8.06 \\ - 3.9 \\ \hline 5.16 \end{array}$$

13. $m = \frac{\$36.00}{8};$

$$\begin{array}{r} \$4.50 \\ 8 \overline{) \$36.00} \\ \underline{-32} \\ 40 \\ \underline{-40} \\ 00 \\ \underline{-0} \\ 0 \end{array}$$

14. $w = \frac{7600}{50};$

$$\begin{array}{r} 152 \\ 50 \overline{) 7600} \\ \underline{-50} \\ 260 \\ \underline{-250} \\ 100 \\ \underline{-100} \\ 0 \end{array}$$

15.
$$\begin{array}{r} \$16.08 \\ \times 9 \\ \hline \$144.72 \end{array}$$

16.
$$\begin{array}{r} 14 \\ 25 \\ 638 \\ \times 570 \\ \hline 44660 \\ + 319000 \\ \hline 363,660 \end{array}$$

17.
$$\begin{array}{r} 3\frac{1}{3} \\ + 1\frac{2}{3} \\ \hline 4\frac{3}{3} = 5 \end{array}$$

18.
$$\begin{array}{r} 1\frac{2}{3} \\ + 1\frac{2}{3} \\ \hline 2\frac{4}{3} = 2 + \frac{3}{3} + \frac{1}{3} = 3\frac{1}{3} \end{array}$$

19.
$$\begin{array}{r} 4 \rightarrow 3\frac{5}{5} \\ - 1\frac{2}{5} \rightarrow 1\frac{2}{5} \\ \hline 2\frac{3}{5} \end{array}$$

20.
$$\begin{array}{c} \frac{1}{2} \text{ of } \frac{3}{5} \\ \downarrow \quad \downarrow \quad \downarrow \\ \frac{1}{2} \times \frac{3}{5} = \frac{3}{10} \end{array}$$

21. $\frac{1}{3} \times \frac{2}{3} = \frac{2}{9}$

22. $\frac{1}{2} \times \frac{6}{6} = \frac{6}{12} \left(\text{or } \frac{1}{2} \right)$

23. a. Multiply the number of tickets by \$35.

b. \$350; $10 \times \$35 = \350

24. a. $\frac{3}{4} \times \frac{3}{8} = \frac{9}{32}$ sq. in.

b. $1\frac{1}{2}$ in.

$\frac{3}{4}$ in.

25. a. 1

b. 3 and 4

26. a. $\frac{1}{5}$; There are 5 nickels in a quarter.

b. $\frac{1}{4}$; There are 4 quarters in a dollar.

c. $\frac{1}{20}$; There are 20 nickels in a dollar.

27. The factors of 100 are 1, 2, 4, 10, 20, 25, 50, and 100.

28. See student work.

29. $-80^\circ\text{F}; 80^\circ\text{F} - 47^\circ\text{F} = 33^\circ\text{F}$

30. 28 seconds; sample: since Luis ran for 4 seconds less than Jaxon, I subtracted 4 seconds from Jaxon's time.

Early Finishers

1. $\frac{3}{2}, \frac{4}{4} \times \frac{2}{3} = \frac{6}{12} = \frac{1}{2}$

Lesson Practice 77

- a. **8 oz**; One pound is equal to 16 ounces, so one half pound is equal to $16 \div 2 = 8$ oz.
- b. **500 g**; One kilogram is equal to 1000 grams, then one tennis shoe is equal to one half of a kilogram which is 500 grams.
- c. **160 oz**; One pound is equal to 16 ounces, so 10 pounds is equal to $16 \times 10 = 160$ oz.
- d. **32,000 lb**; One ton is equal to 2000 pounds, so 16 tons is equal to $16 \times 2000 = 32,000$ lb.
- e. $10 \times 60 = 600$ yards

Written Practice 77

1. 1862; $1926 - 64 = 1862$
2.
$$\begin{array}{r} 11 \\ 16.9 \\ + 23.7 \\ \hline 40.6 \end{array}$$
3. 1.23, 1.32, 2.13, 13.2
4. a. **9 students**; $\frac{1}{4} \times 36 = \frac{36}{4} = 9$
 b. **3 students**; $\frac{1}{3} \times 9 = \frac{9}{3} = 3$
 c. $\frac{3}{36}$ (or $\frac{1}{12}$)
5. 2000 lb
6. $\frac{11}{100}$; 0.11; 11%
7. **32 oz**; One pound is equal to 16 ounces, so two pounds is equal to $2 \times 16 = 32$ oz.
8. **3000 grams**; 900 pennies is three times as much as 300 pennies. If 300 pennies have a mass of 1 kilogram, then 900 pennies have a mass of 3 kilograms. 3 kilograms is equal to 3000 grams.
9.
$$\begin{array}{r} \text{Segment } AB \\ + \text{Segment } BC \\ \hline \text{Segment } AC \end{array} \quad \begin{array}{r} 3.5 \text{ cm} \\ + 4.6 \text{ cm} \\ \hline 8.1 \text{ cm} \end{array}$$
10. $\frac{9}{4} = \frac{4}{4} + \frac{4}{4} + \frac{1}{4} = 2\frac{1}{4}$
11. **2**; $1 + 1 = 2$
12. $7\frac{11}{8} = 7 + \frac{8}{8} + \frac{3}{8} = 8\frac{3}{8}$

$$\begin{array}{r} 13. \quad \begin{array}{r} 332 \\ 463 \\ 2875 \\ 2489 \\ 8897 \\ + 7963 \\ \hline 22,687 \end{array} \end{array}$$

$$14. \quad \frac{1}{2} \times \frac{5}{6} = \frac{5}{12}$$

$$15. \quad \frac{2}{3} \times \frac{3}{4} = \frac{6}{12} \text{ (or } \frac{1}{2} \text{)}$$

$$16. \quad \frac{1}{2} \times \frac{2}{2} = \frac{2}{4} \text{ (or } \frac{1}{2} \text{)}$$

$$\begin{array}{r} 17. \quad \begin{array}{r} 39101 \\ 407.3 \\ - 264.7 \\ \hline 136.6 \end{array} \end{array}$$

$$\begin{array}{r} 18. \quad \begin{array}{r} 55 \\ \$5.67 \\ \times 80 \\ \hline \$453.60 \end{array} \end{array}$$

$$\begin{array}{r} 19. \quad \begin{array}{r} 126 \\ 347 \\ \times 249 \\ \hline 3123 \\ 13880 \\ + 69400 \\ \hline 86,403 \end{array} \end{array}$$

$$20. \quad 50 \times 50 = 2500$$

$$21. \quad (\$5 + 4\text{¢}) \div 6$$

$$\begin{array}{r} \$5.00 \\ + \$0.04 \\ \hline \$5.04 \div 6; \end{array} \quad \begin{array}{r} \$0.84 \\ 6 \overline{) \$5.04} \\ \underline{-48} \\ 24 \\ \underline{-24} \\ 0 \end{array}$$

$$22. \quad \begin{array}{r} 8034 \text{ R } 3 \\ 8 \overline{) 64,275} \\ \underline{-64} \\ 02 \\ \underline{-0} \\ 27 \\ \underline{-24} \\ 35 \\ \underline{-32} \\ 3 \end{array}$$


$$23. \quad w = \frac{3780}{60}; \quad \begin{array}{r} 63 \\ 60 \overline{) 3780} \\ \underline{-360} \\ 180 \\ \underline{-180} \\ 0 \end{array}$$

Solutions

24. About \$1; sample: each stack represents about 25¢ or one quarter, and four quarters is the same as one dollar.
25. All three students live more than one half kilometer from school.
26. a. 40 mm
- b. 120 mm; The width is equal to $40 \div 2 = 20$. The perimeter is equal to $40 + 20 + 40 + 20 = 120$.
- c. 800 sq. mm; $40 \text{ mm} \times 20 \text{ mm} = 80 \text{ sq. mm}$
27. The next four terms in this sequence are 3, 5, 7, 3.
28. a. $\frac{1}{12}$; There are 12 inches in 1 foot.
- b. $\frac{1}{3}$; There are 3 feet in 1 yard.
- c. $\frac{1}{36}$; There are 36 inches in 1 yard.
- d. $\frac{1}{36}$; $\frac{1}{12} \times \frac{1}{3} = \frac{1}{36}$
29. B
30. a. $\frac{3}{16}$
- b. $\frac{3}{16}$ sq. in.; $\frac{1}{4} \times \frac{3}{4} = \frac{3}{16}$ sq. in.
- c. Square inches; area is measured using square units.

Lesson Practice

78

- a. 
- b. $2^3 = 2 \times 2 \times 2 = 8$
- c. $3 \times 3 \times 3 \times 3 = 81$
- d. $2 \times 2 \times 2 \times 2 \times 2 = 32$
- e. $11 \times 11 = 121$
- f. 25; The expression $2m$ means "2 times m " (or " $m + m$ "). If $2m = 10$, then $m = 5$. The expression m^2 means " m times m ." To find m^2 when m is 5, we multiply 5 by 5. So m^2 equals 25.

- g. $(2 \times 10^5) + (5 \times 10^4)$; In expanded notation, 250,000 is expressed like this: $(2 \times 100,000) + (5 \times 10,000)$. Using powers of 10, we replace 100,000 with 10^5 , and we replace 10,000 with 10^4 .
- h. $(3 \times 10^6) + (6 \times 10^5)$; In expanded notation, 3,600,000 is expressed like this: $(3 \times 1,000,000) + (6 \times 100,000)$. Using powers of 10, we replace 1,000,000 with 10^6 , and we replace 100,000 with 10^5 .
- i. $(6 \times 10^4) + (5 \times 10^2)$; In expanded notation, 60,500 is expressed like this: $(6 \times 10,000) + (5 \times 100)$. Using powers of 10, we replace 10,000 with 10^4 , and we replace 100 with 10^2 .
- j. 1; The square root of 1 is 1 because $1 \times 1 = 1$.
- k. 2; The square root of 4 is 2 because $2 \times 2 = 4$.
- l. 4; The square root of 16 is 4 because $4 \times 4 = 16$.
- m. 7; The square root of 49 is 7 because $7 \times 7 = 49$.
- n. $<$; $\sqrt{36} \bigcirc 3^2$
 $6 \bigcirc 3 \times 3$
 $6 < 9$
- o. $\sqrt{25} - \sqrt{16} = 5 - 4 = 1$

Written Practice

78

1. $\frac{1}{3}$ of $\frac{1}{2} = \frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$; $\frac{1}{6} = 16\frac{2}{3}\%$
2. $\begin{array}{r} \$1,200 \\ - \$860 \\ \hline \$440 \end{array}$
3. There were 4 hours between 4 p.m. and 8 p.m.
 $\begin{array}{r} 3 \\ 79 \\ \times 4 \\ \hline 316 \end{array}$ guests
4. 1000 lb; sample: I know one ton is equal to 2000 pounds, and half of 2000 is 1000.
5. 8 ounces; One pound is equal to 16 ounces, so half of 16 is 8 ounces.

6. B

7. C; One half of 30 is 15 not 16, so the number in the numerator does not make the fraction equal to $\frac{1}{2}$.

8. 22 mm; 2.2 cm

9. The factors of 6 are 1, 2, 3, and 6.
The factors of 8 are 1, 2, 4, and 8.
The factors of 6 and 8 are **1 and 2**.

$$\begin{array}{r} \text{Segment } LN \\ - \text{Segment } LM \\ \hline \text{Segment } MN \end{array} \quad \begin{array}{r} 8.4 \text{ cm} \\ - 3.9 \text{ cm} \\ \hline 2.5 \text{ cm} \end{array}$$

11. 2; $\frac{6}{3} = \frac{3}{3} + \frac{3}{3} = 2$

12. 0; $1 - 1 = 0$

13. $13\frac{13}{10} = 13 + \frac{10}{10} + \frac{3}{10} = 14\frac{3}{10}$

$$\begin{array}{r} 4.6 \\ + 3.27 \\ \hline 7.87 \end{array}$$

$$\begin{array}{r} \$40.00 \\ - \$13.48 \\ \hline \$26.52 \end{array}$$

$$\begin{array}{r} \$20.50 \\ \times \quad 8 \\ \hline \$164.00 \end{array}$$

$$\begin{array}{r} \$6.30 \\ 9 \overline{) \$56.70} \\ \underline{-54} \\ 27 \\ \underline{-27} \\ 00 \\ \underline{-0} \\ 0 \end{array}$$

$$\begin{array}{r} 9^2 \quad + \sqrt{9} \\ \downarrow \quad \downarrow \\ (9 \times 9) + 3 \\ 81 + 3 = 84 \end{array}$$

$$\begin{array}{r} 58 \text{ R } 10 \\ 80 \overline{) 4650} \\ \underline{-400} \\ 650 \\ \underline{-640} \\ 10 \end{array}$$

$$\begin{array}{r} 20. \text{ mixed number; } 19\frac{3}{5} \\ 5 \overline{) 98} \\ \underline{-5} \\ 48 \\ \underline{-45} \\ 3 \end{array}$$

21. $\frac{3}{8} \cdot \frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$

22. $\frac{9}{8} \cdot \frac{3}{2} \times \frac{3}{4} = \frac{9}{8}$ (or $1\frac{1}{8}$)

23. $\frac{2}{6} \cdot \frac{1}{3} \times \frac{2}{2} = \frac{2}{6}$ (or $\frac{1}{3}$)

24. a. 3 miles; $1.5 \times 2 = 3$

b. 8:07 a.m.; $7:55 + 0:12 = 8:07$

25. The next four terms of the sequence are 7, 3, 5, 7.

26. 50 sq. cm; $10 \text{ cm} \times 5 \text{ cm} = 50 \text{ sq. cm}$

27. C

28. a. $\frac{3}{7}$; There are 3 vowels: A, A, E

b. $\frac{2}{7}$; There are 2 As

c. $\frac{5}{7}$; The letters A, A, B, C, and E come before G.

29. $(2 \times 10^7) + (5 \times 10^6)$; In expanded notation, 25,000,000 is expressed like this: $(2 \times 10,000,000) + (5 \times 1,000,000)$. Using powers of 10, we replace 10,000,000 with 10^7 , and we replace 1,000,000 with 10^6 .

30. See student work.

Early Finishers

$(2 \times 10^8) + (5 \times 10^7)$; In expanded notation, 250,000,000 is expressed like this: $(2 \times 100,000,000) + (5 \times 10,000,000)$. Using powers of 10, we replace 100,000,000 with 10^8 , and we replace 10,000,000 with 10^7 .

Lesson Practice 79

a. $\frac{3}{3}$; To change $\frac{3}{4}$ to $\frac{9}{12}$, we multiply by $\frac{3}{3}$. The fraction $\frac{3}{3}$ is equal to 1, and when we multiply by 1 we do not change the value of the number. Therefore, $\frac{3}{4}$ equals $\frac{9}{12}$.

- b. $\frac{2}{2}$; To change $\frac{3}{4}$ to $\frac{4}{6}$, we multiply by $\frac{2}{2}$. The fraction $\frac{2}{2}$ is equal to 1, and when we multiply by 1 we do not change the value of the number. Therefore, $\frac{3}{4}$ equals $\frac{4}{6}$.
- c. $\frac{4}{4}$; To change $\frac{1}{3}$ to $\frac{4}{12}$, we multiply by $\frac{4}{4}$. The fraction $\frac{4}{4}$ is equal to 1, and when we multiply by 1 we do not change the value of the number. Therefore, $\frac{1}{3}$ equals $\frac{4}{12}$.
- d. $\frac{25}{25}$; To change $\frac{1}{4}$ to $\frac{25}{100}$, we multiply by $\frac{25}{25}$. The fraction $\frac{25}{25}$ is equal to 1, and when we multiply by 1 we do not change the value of the number. Therefore, $\frac{1}{4}$ equals $\frac{25}{100}$.
- e. **3**; We can change the name of a fraction by multiplying by a fraction name for 1. To make the 3 become 9, we must multiply by 3. So the fraction name for 1 that we will use is $\frac{3}{3}$. We multiply $\frac{1}{3} \times \frac{3}{3}$ to form the equivalent fraction $\frac{3}{9}$.
- f. **10**; We can change the name of a fraction by multiplying by a fraction name for 1. To make the 3 become 15, we must multiply by 5. So the fraction name for 1 that we will use is $\frac{5}{5}$. We multiply $\frac{2}{3} \times \frac{5}{5}$ to form the equivalent fraction $\frac{10}{15}$.
- g. **6**; We can change the name of a fraction by multiplying by a fraction name for 1. To make the 5 become 10, we must multiply by 2. So the fraction name for 1 that we will use is $\frac{2}{2}$. We multiply $\frac{3}{5} \times \frac{2}{2}$ to form the equivalent fraction $\frac{6}{10}$.
- h. $\frac{3}{6}, \frac{2}{6}, \frac{5}{6}$; We multiply $\frac{1}{2}$ by $\frac{2}{3}$ and $\frac{1}{3}$ by $\frac{2}{2}$. $\frac{1}{2} \times \frac{2}{3} = \frac{3}{6}$ and $\frac{1}{3} \times \frac{2}{2} = \frac{2}{6}$. Then we add $\frac{3}{6}$ and $\frac{2}{6}$ to find their sum. $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$.
- i. $\frac{60}{100}$; **60%**; To change the fifths to hundredths, we multiply by $\frac{20}{20}$. $\frac{3}{5} \times \frac{20}{20} = \frac{60}{100}$ which is equivalent to 60%.

Written Practice
79

1. **40 days**; 1 ton is equal to 2000 pounds.
 $2000 \div 50 = 40$ days.

2. One foot is equal to 12 inches.
 $1\frac{1}{2}$ (12 inches)
 1 (12 inches) + $\frac{1}{2}$ (12 inches)
 12 inches + 6 inches = **18 inches**

3. Step 1: Find Toshi's profit on each shovel.


$$\begin{array}{r} \$10.95 \\ - \$6.30 \\ \hline \$4.65 \end{array}$$

Step 2: Multiply profit by 3 to find total profit.

$$\begin{array}{r} \$4.65 \\ \times 3 \\ \hline \$13.95 \end{array}$$

4. **Forty and four hundredths**;
 11.15
 $+ 29.89$
 \hline
40.04

5. $\frac{3}{3}$; To change $\frac{2}{3}$ to $\frac{6}{9}$, we multiply by $\frac{3}{3}$. The fraction $\frac{3}{3}$ is equal to 1, and when we multiply by 1 we do not change the value of the number. Therefore, $\frac{2}{3}$ equals $\frac{6}{9}$.

6.  1 in.; 1 in. \times 1 in. = **1 square inch**

7. The factors of 9 are 1, 3, and 9.
 The factors of 12 are 1, 2, 3, 4, 6, and 12.
 The factors of 9 that are also factors of 12 are **1 and 3**.

8. $\frac{9}{12}, \frac{8}{12}, 1\frac{5}{12}$; We multiply $\frac{3}{4}$ by $\frac{3}{3}$ and $\frac{2}{3}$ by $\frac{4}{4}$.
 $\frac{3}{4} \times \frac{3}{3} = \frac{9}{12}$ and $\frac{2}{3} \times \frac{4}{4} = \frac{8}{12}$. Then we add $\frac{9}{12}$ and $\frac{8}{12}$ to find their sum. $\frac{9}{12} + \frac{8}{12} = \frac{17}{12}$ equals $1\frac{5}{12}$.

9. Segment AC 9.1 cm
 $-$ Segment BC $- 4.2$ cm
 \hline
 Segment AB **4.9 cm**

10. $6\frac{6}{5} = 6 + \frac{5}{5} + \frac{1}{5} = 7\frac{1}{5}$

11. $5 - (3\frac{5}{8} - 3)$
 $5 - \frac{5}{8}$
 \downarrow
 $4\frac{8}{8} - \frac{5}{8} = 4\frac{3}{8}$

12. Write the numbers in the same form, then subtract.

$$\begin{array}{r} \$10.00 \\ - \$0.10 \\ \hline \$9.90 \end{array}$$

$$\begin{array}{r} 13. \quad \$2.50 \\ 4 \overline{) \$10.00} \\ \underline{-8} \\ 20 \\ \underline{-20} \\ 00 \\ \underline{-0} \\ 0 \end{array}$$

14. Write the numbers in the same form, then multiply.

$$\begin{array}{r} \$0.64 \\ \times 9 \\ \hline \$5.76 \end{array}$$

$$15. \quad m = 30.4 - 24.6; \quad \begin{array}{r} 29.4 \\ 30.4 \\ \underline{-24.6} \\ 5.8 \end{array}$$

$$16. \quad w = 2.4 + 6.35 \\ \begin{array}{r} 2.4 \\ + 6.35 \\ \hline 8.75 \end{array}$$

$$17. \quad n = \frac{6552}{9}; \quad \begin{array}{r} 728 \\ 9 \overline{) 6552} \\ \underline{-63} \\ 25 \\ \underline{-18} \\ 72 \\ \underline{-72} \\ 0 \end{array}$$

$$18. \quad \begin{array}{r} 6265 \text{ R } 4 \\ 7 \overline{) 43,859} \\ \underline{-42} \\ 18 \\ \underline{-14} \\ 45 \\ \underline{-42} \\ 39 \\ \underline{-35} \\ 4 \end{array}$$

$$19. \quad 15^2 - \sqrt{25} \\ 225 - 5 = 220$$

$$20. \quad \begin{array}{r} 51 \text{ R } 57 \\ 80 \overline{) 4137} \\ \underline{-400} \\ 137 \\ \underline{-80} \\ 57 \end{array}$$

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

$$22. \quad \frac{6}{8} \times \frac{3}{4} \times \frac{2}{2} = \frac{6}{8} \text{ (or } \frac{3}{4} \text{)}$$

$$23. \quad \frac{15}{20} \times \frac{3}{5} \times \frac{5}{4} = \frac{15}{20} \text{ (or } \frac{3}{4} \text{)}$$

$$24. \quad \text{a. D; } 3.5 \times 100 = 350$$

$$\text{b. 950 fruit cups; } 9.5 \times 100 = 950$$

$$25. \quad \frac{5}{6}; \text{ There are 5 opportunities it will not be a 4.}$$

$$26. \quad 252; 240 + 12 = 252$$

$$27. \quad \text{C}$$

$$28. \quad 4.5 \text{ cm; } P = 1.5 + 1.5 + 1.5 = 4.5$$

$$29. \quad 500 \text{ mg} < 1.0 \text{ g; } 1.0 \text{ is equal to } 1000 \text{ mg}$$

$$30. \quad \text{About \$500; sample: I rounded \$7995 to \$8000 and rounded \$8499 to \$8500; then I subtracted.}$$

Lesson Practice 80

- See student work; factor pairs for 14: 1 and 14, 2 and 7; factor pairs for 19: 1 and 19; 14 is composite and 19 is prime.
- $$\begin{array}{cccccccccc} \times & \times & \times & & & & & & & \\ \times & \times & \times & \times & \times & \times & \times & \times & \times & \times \\ \times & \times & \times & & & & & & & \end{array}$$
- Factors for 15 are 1, 3, 5, 15; 15 can be drawn using more than two arrays, so 15 is composite; factors for 17 are 1 and 17; 17 can only be drawn using two arrays, so it is prime; see student work.
- See student work; sample: 10 and 12 are composite because these numbers of tiles can be arranged in more than one array (1×10 , 2×5 and 1×12 , 2×6 , 3×4); 11 is prime because 11 tiles can be arranged in only one array (1×11).

Written Practice 80

- Step 1: Find how much money he collected for all the pencils.

$$\begin{array}{r} \$0.20 \\ \times 12 \\ \hline 040 \\ + 0200 \\ \hline \$2.40 \end{array}$$

Solutions

Step 2: Find how much profit he made by subtracting the cost.

$$\begin{array}{r} \$2.40 \\ - \$0.96 \\ \hline \$1.44 \end{array}$$

2. **500 pounds**; 1 ton is equal to 2000 pounds.
 $2000 \div 4 = 500$ pounds.

3. The factors of 8 are 1, 2, 4, and 8.
 The factors of 12 are 1, 2, 3, 4, 6, and 12.
 The factors of 8 that are the same factors of 12 are **1, 2, and 4**.

4. **12, 13, 14, 15, 16, 17, 18, 19**

5. $\frac{3}{3}$; sample: since $3 \times 3 = 9$ and $3 \times 4 = 12$, I used the fraction $\frac{3}{3}$.

6. $\frac{3}{6}, \frac{4}{6}, 1\frac{1}{6}$; We multiply $\frac{1}{2}$ by $\frac{3}{3}$ and $\frac{2}{3}$ by $\frac{2}{2}$.
 $\frac{1}{2} \times \frac{3}{3} = \frac{3}{6}$ and $\frac{2}{3} \times \frac{2}{2} = \frac{4}{6}$. Then we add $\frac{3}{6}$ and $\frac{4}{6}$ to find their sum.
 $\frac{3}{6} + \frac{4}{6} = \frac{7}{6} = 1\frac{1}{6}$

7. **2 factors**; sample; each prime number only has 1 and itself as factors.

8. $\frac{3}{8}, \frac{6}{12}, \frac{4}{6}, \frac{5}{6}, \frac{7}{7}$

9. **220 yards**

$$\begin{array}{r} 8 \overline{)1760} \\ -16 \\ \hline 16 \\ -16 \\ \hline 00 \\ -0 \\ \hline 0 \end{array}$$

10. **42 mm**; $84 \text{ mm} \div 2 = 42 \text{ mm}$

$$\begin{array}{r} \$8.43 \\ \$0.68 \\ \$15.00 \\ + \$0.05 \\ \hline \$24.16 \end{array}$$

$$\begin{array}{r} 6.505 \\ - 1.4 \\ \hline 5.105 \end{array}$$

13. Write in the same form, then subtract.

$$\begin{array}{r} \$12.00 \\ - \$0.12 \\ \hline \$11.88 \end{array}$$

$$\begin{array}{r} \$18.07 \\ \times 6 \\ \hline \$108.42 \end{array}$$

$$15. w = \frac{\$76.32}{6},$$

$$\begin{array}{r} \$12.72 \\ 6 \overline{) \$76.32} \\ -6 \\ \hline 16 \\ -12 \\ \hline 43 \\ -42 \\ \hline 12 \\ -12 \\ \hline 0 \end{array}$$

16. **64**; $2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64$

$$\begin{array}{c} \sqrt{9} + \sqrt{16} \\ \downarrow \quad \downarrow \\ 3 + 4 = 7 \end{array}$$

$$\begin{array}{r} 52\frac{1}{7} \\ 7 \overline{)365} \\ -35 \\ \hline 15 \\ -14 \\ \hline 1 \end{array}$$

$$19. \frac{9}{16}, \frac{3}{4} \times \frac{3}{4} = \frac{9}{16}$$

$$20. \frac{9}{4}, \frac{3}{2} \times \frac{3}{2} = \frac{9}{4} \text{ or } (2\frac{1}{4})$$

21. **30**; We can change the name of a fraction by multiplying by a fraction name for 1. To make the 10 become 100, we must multiply by 10. So the fraction name for 1 that we will use is $\frac{10}{10}$. We multiply $\frac{3}{10} \times \frac{10}{10}$ to form the equivalent fraction $\frac{30}{100}$.

$$22. 4\frac{4}{3} = 4 + \frac{3}{3} + \frac{1}{3} = 5\frac{1}{3}$$

$$\begin{array}{c} 5 - \frac{1}{5} \\ \downarrow \\ 4\frac{5}{5} - \frac{1}{5} = 4\frac{4}{5} \end{array}$$

$$24. \frac{7}{10} - \frac{7}{10} = 0$$

$$\begin{array}{r} 6:40 \\ + 6:30 \\ \hline 12:70 = 13:10 = 1:10 \text{ a.m.} \end{array}$$

26. **2**; The value of a digit depends upon its place in the number. Here the digit in the millions place is 2.

27. $(1 \times 10^8) + (5 \times 10^7)$; In expanded notation, 150,000,000 is expressed like this:
 $(1 \times 100,000,000) + (5 \times 10,000,000)$. Using powers of 10, we replace 100,000,000 with 10^8 , and we replace 10,000,000 with 10^7 .

28. Geometric; 32, 64

29. $\frac{1}{2}$

30. $\frac{8}{10}, \frac{80}{100}$

Investigation

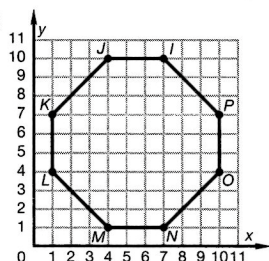
8

Focus on

1. Origin
2. (5, 2)
3. (3, 8)
4. (4, 4)
5. (7, 5)
6. (9, 6)
7. (1, 6)
8. (8, 1)

Activity 1

- a. Octagon;



- b. See student work.

Focus on

9. A (2, 4) and (5, 4)
 B (2, 1) and (5, 1)
 C (0, 1) and (3, 1)
10. Triangle B is a mirror image of triangle A, so the transformation is a reflection.
11. If triangle ABC is turned so that point C is the center of the turn, then it will move into the position of the image shown. The transformation is a rotation.

Activity 2

- a. See student work.
- b. See student work.
- c. See student work.