28. $3\frac{1}{8} \cdot 2\frac{2}{5} = \frac{\overset{5}{\cancel{25}}}{\underset{2}{\cancel{8}}} \cdot \frac{\overset{3}{\cancel{12}}}{\underset{1}{\cancel{5}}} = \frac{15}{2}$

$$3\frac{5}{7} = 3\frac{10}{14}$$
$$+ \quad \frac{15}{2} = \frac{105}{14}$$
$$3\frac{115}{14} = \mathbf{11\frac{3}{14}}$$

29. (a) $m\angle BAC = m\angle CDB = \mathbf{60°}$

(b) $m\angle BCA = 180° - (70° + 60°)$
$= 180° - 130° = \mathbf{50°}$

(c) $m\angle CBD = m\angle BCA = \mathbf{50°}$

30. **4(5 − 3)** or **4(5 − 3)**
4(2) **20 − 12**
8 **8**

Lesson 51, Lesson Practice

a. 1,5000000 ⟶ **1.5 × 10^7**

b. 4,00000000000 ⟶ **4 × 10^{11}**

c. 5,090000 ⟶ **5.09 × 10^6**

d. 2,50000000000 ⟶ **2.5 × 10^{11}**

e. 3400000, ⟶ **3,400,000**

f. 500000000, ⟶ **500,000,000**

g. 100000, ⟶ **100,000**

h. 150000, ⟶ 150,000
1500000, ⟶ 1,500,000
$1.5 \times 10^5 < 1.5 \times 10^6$

i. 1000000, ⟶ 1,000,000
1,000,000 = 1,000,000
one million = 1×10^6

Lesson 51, Mixed Practice

1. **3 tests**

2.
$$\begin{array}{r} 70 \\ 80 \\ 75 \\ 85 \\ +\ 90 \\ \hline 400 \end{array} \qquad 5\overline{)400}\ \ \mathbf{80}$$

3. $\frac{9 \text{ in.}}{6} = \frac{3}{2}$ in.

$5\left(\frac{3}{2} \text{ in.}\right) = \frac{15}{2}$ in. $= \mathbf{7\frac{1}{2}}$ **in.**

4. $\frac{\$1.98}{6 \text{ cans}} = \frac{\$0.33}{1 \text{ can}}$

$$\begin{array}{r} \$0.40 \\ -\ \$0.33 \\ \hline \$0.07 \end{array}$$

7¢ per can

5. (a) $\frac{\text{unconvinced people}}{\text{total people}} = \frac{2}{7}$

(b) $\frac{\text{convinced people}}{\text{unconvinced people}} = \frac{5}{2}$

6. (a) 1,2000000 ⟶ **1.2 × 10^7**

(b) 1,7600 ⟶ **1.76 × 10^4**

7. (a) 12000, ⟶ **12,000**

(b) 5000000, ⟶ **5,000,000**

8. (a)
$$\begin{array}{r} \mathbf{0.125} \\ 8\overline{)1.000} \\ \underline{8} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

(b) $87\frac{1}{2}\% = \frac{87.5}{100} = \mathbf{0.875}$

9. (a) **30,000**

(b) **5000**

10. (a) $40\% = \frac{40}{100} = \frac{2}{5}$

(b) $40\% = \frac{40}{100} = \frac{4}{10} = \mathbf{0.4}$

(c) $4\% = \frac{4}{100} = \frac{1}{25}$

(d) $4\% = \frac{4}{100} = \mathbf{0.04}$

11. (a) $0.5 \times 360° = \mathbf{180°}$

(b) $0.25 \times 360° = \mathbf{90°}$

(c) $0.125 \times 360° = \mathbf{45°}$

(d) $0.125 \times 360° = \mathbf{45°}$

12.
$$\begin{array}{r} \$15.80 \\ \times \quad 0.05 \\ \hline \$0.7900 \end{array} \longrightarrow \$0.79$$

$$\begin{array}{r} \$15.80 \\ + \quad \$0.79 \\ \hline \mathbf{\$16.59} \end{array}$$

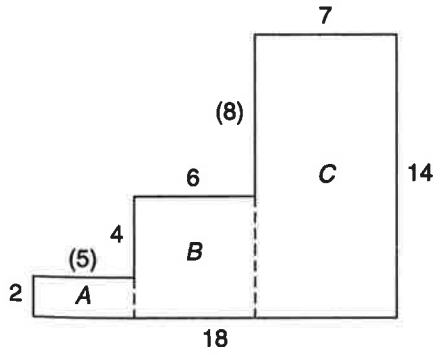
13. **0**

14. (a) $\angle Z$

(b) $\overline{DC}$

15. Perimeter = 2 m + 5 m + 4 m + 6 m + 8 m + 7 m + 14 m + 18 m = **64 m**

16.



$$\begin{array}{rrrr} \text{Area } A = & (2\text{ m})(5\text{ m}) & = & 10\text{ m}^2 \\ \text{Area } B = & (6\text{ m})(6\text{ m}) & = & 36\text{ m}^2 \\ + \text{ Area } C = & (14\text{ m})(7\text{ m}) & = & 98\text{ m}^2 \\ \hline & \text{Area of figure} & = & \mathbf{144\text{ m}^2} \end{array}$$

17. $\frac{24}{x} = \frac{60}{40}$

$60x = 24 \cdot 40$

$x = \frac{960}{60}$

$x = \mathbf{16}$

18. $\frac{6}{4.2} = \frac{n}{7}$

$4.2n = 6 \cdot 7$

$n = \frac{42}{4.2}$

$n = \mathbf{10}$

19.
$$\begin{array}{r} 1.68 \\ 5\overline{)8.40} \\ \underline{5} \\ 34 \\ \underline{30} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

$m = \mathbf{1.68}$

20.
$$\begin{array}{r} 6.50 \\ - \ 5.06 \\ \hline 1.44 \end{array}$$

$y = \mathbf{1.44}$

21. $5^2 + 3^3 + \sqrt{64}$

$= 25 + 27 + 8 = \mathbf{60}$

22. $16 \text{ cm} \cdot \frac{10 \text{ mm}}{1 \text{ cm}} = \mathbf{160 \text{ mm}}$

23.
$$\begin{array}{rrr} 5 \text{ days} & 18 \text{ hr} & 50 \text{ min} \\ + \ 2 \text{ days} & 8 \text{ hr} & 25 \text{ min} \\ \hline 7 \text{ days} & 26 \text{ hr} & 75 \text{ min} \end{array}$$

75 min = 1 hr 15 min

$$\begin{array}{rr} 1 \text{ hr} & 15 \text{ min} \\ + \ 26 \text{ hr} & \\ \hline 27 \text{ hr} & 15 \text{ min} \end{array}$$

27 hr = 1 day 3 hr

$$\begin{array}{rrr} 1 \text{ day} & 3 \text{ hr} & 15 \text{ min} \\ + \ 7 \text{ days} & & \\ \hline \mathbf{8 \text{ days}} & \mathbf{3 \text{ hr}} & \mathbf{15 \text{ min}} \end{array}$$

24.
$$\begin{array}{r} 3\text{ yd}\ \ 2\text{ ft}\ \ 5\text{ in.} \\ +\ 1\text{ yd}\ \ \ \ \ \ 9\text{ in.} \\ \hline 4\text{ yd}\ \ 2\text{ ft}\ \ 14\text{ in.} \end{array}$$

14 in. = 1 ft 2 in.

$$\begin{array}{r} 1\text{ ft}\ \ 2\text{ in.} \\ +\ 2\text{ ft} \\ \hline 3\text{ ft}\ \ 2\text{ in.} \end{array}$$

3 ft = 1 yd; 1 yd + 4 yd = 5 yd

5 yd 2 in.

25.
$$5\tfrac{1}{4} = 5\tfrac{2}{8} \longrightarrow 4\tfrac{10}{8}$$
$$-\ 3\tfrac{7}{8} = 3\tfrac{7}{8} \qquad -\ 3\tfrac{7}{8}$$
$$1\tfrac{3}{8}$$

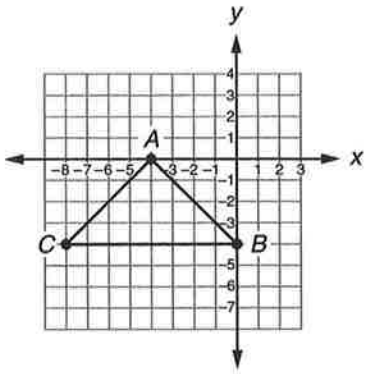
$$6\tfrac{2}{3} = 6\tfrac{16}{24}$$
$$+\ 1\tfrac{3}{8} = 1\tfrac{9}{24}$$
$$7\tfrac{25}{24} = \mathbf{8\tfrac{1}{24}}$$

26.
$$2\tfrac{2}{3} \div 1\tfrac{1}{2} = \tfrac{8}{3} \div \tfrac{3}{2}$$
$$= \tfrac{8}{3} \times \tfrac{2}{3} = \tfrac{16}{9}$$
$$3\tfrac{1}{3} \times \tfrac{16}{9} = \tfrac{10}{3} \times \tfrac{16}{9} = \tfrac{160}{27}$$
$$= \mathbf{5\tfrac{25}{27}}$$

27. **0.5(0.5 + 0.6)**
0.5(1.1)
0.55

or

0.5(0.5 + 0.6)
0.25 + 0.3
0.55



28. m∠*A* = **90°**; m∠*B* = **45°**; m∠*C* = **45°**

29. Area $= \dfrac{(8\text{ units})(4\text{ units})}{2}$
$= \mathbf{16\text{ sq. units}}$

30. **180°F**

Lesson 52, Lesson Practice

a. $5 + 5 \cdot 5 - 5 \div 5$
$5 + 25 - 1$
$30 - 1$
29

b. $50 - 8 \cdot 5 + 6 \div 3$
$50 - 40 + 2$
$10 + 2$
12

c. $24 - 8 - 6 \cdot 2 \div 4$
$24 - 8 - 12 \div 4$
$24 - 8 - 3$
$16 - 3$
13

d. $\dfrac{2^3 + 3^2 + 2 \cdot 5}{3}$
$\dfrac{8 + 9 + 2 \cdot 5}{3}$
$\dfrac{8 + 9 + 10}{3}$
$\dfrac{17 + 10}{3}$
$\dfrac{27}{3}$
9

e. $(5)(3) - (3)(4)$
$15 - 12$
3

f. $(6)(4) + \dfrac{(6)}{(2)}$
$24 + 3$
27

g. $\left(\tfrac{2}{3}\right) - \left(\tfrac{2}{3}\right)\left(\tfrac{3}{4}\right)$
$\tfrac{2}{3} - \tfrac{1}{2}$
$\tfrac{4}{6} - \tfrac{3}{6}$
$\mathbf{\tfrac{1}{6}}$

LESSON 52, MIXED PRACTICE

1. $(2 \cdot 3 \cdot 5) \div (2 + 3 + 5)$
$= 30 \div 10 = \mathbf{3}$

2. $100 - 4(7) = 100 - 28 = 72$
$72 \div 9 = 8$
8 nonagons

3.
$$\begin{array}{r} 202.020 \\ -\ 25.217 \\ \hline \mathbf{176.803} \end{array}$$

4. (a) $3\overline{)\$5.9500\ldots}$ $\quad \$1.9833\ldots$

$$\begin{array}{r} 3 \\ \hline 29 \\ 27 \\ \hline 25 \\ 24 \\ \hline 10 \\ 9 \\ \hline 10 \\ 9 \\ \hline 1 \end{array}$$

$1.98 per tape

(b)
$$\begin{array}{r} \$5.95 \\ \times\ 0.07 \\ \hline \$0.4165 \end{array} \longrightarrow \$0.42$$

$$\begin{array}{r} \$5.95 \\ +\ \$0.42 \\ \hline \mathbf{\$6.37} \end{array}$$

5. (a)
$$\begin{array}{r} 35 \\ \times\ 4 \\ \hline \mathbf{140\ pages} \end{array}$$

(b)
$$\begin{array}{r} 330\ \text{pages} \\ -\ 140\ \text{pages} \\ \hline \mathbf{190\ pages} \end{array}$$

6. $75\% = \frac{75}{100} = \frac{\mathbf{3}}{\mathbf{4}}$

60 passengers

$\frac{3}{4}$ disembarked. { 15 passengers | 15 passengers | 15 passengers

$\frac{1}{4}$ did not disembark. { 15 passengers

(a) **45 passengers**

(b) **25%**

7. (a) $3{,}750000 \longrightarrow \mathbf{3.75 \times 10^6}$

(b) $8{,}0000000 \longrightarrow \mathbf{8 \times 10^7}$

8. (a) $2050000, \longrightarrow \mathbf{2{,}050{,}000}$

(b) $40, \longrightarrow \mathbf{40}$

9. (a) $8\overline{)3.000}$ $\quad \mathbf{0.375}$

$$\begin{array}{r} 24 \\ \hline 60 \\ 56 \\ \hline 40 \\ 40 \\ \hline 0 \end{array}$$

(b) $6.5\% = \frac{6.5}{100} = \mathbf{0.065}$

10. $3.\overline{27} = 3.2727\ldots$
3.273

11. (a) $250\% = \frac{250}{100} = \frac{5}{2} = \mathbf{2\frac{1}{2}}$

(b) $250\% = 2\frac{1}{2} = \mathbf{2.5}$

(c) $25\% = \frac{25}{100} = \frac{\mathbf{1}}{\mathbf{4}}$

(d) $25\% = \frac{25}{100} = \mathbf{0.25}$

12. (a) $9\overline{)70}$ $\quad \mathbf{7\frac{7}{9}}$

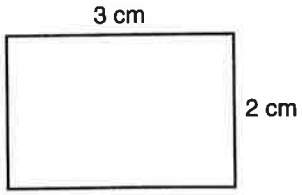
$$\begin{array}{r} 63 \\ \hline 7 \end{array}$$

(b) $9\overline{)70.00\ldots}$ $\quad \mathbf{7.\overline{7}}$

$$\begin{array}{r} 7.77\ldots \\ \hline 63 \\ \hline 70 \\ 63 \\ \hline 70 \\ 63 \\ \hline 7 \end{array}$$

13. **0.99**

14.



(a) Perimeter $= 2(30\text{ mm}) + 2(20\text{ mm})$
$= 60\text{ mm} + 40\text{ mm} = \mathbf{100\text{ mm}}$

(b) Area $= (2\text{ cm})(3\text{ cm}) = \mathbf{6\text{ cm}^2}$

15. (a) Area $= \dfrac{(12\text{ cm})(6\text{ cm})}{2} = \mathbf{36\text{ cm}^2}$

(b) Area $= \dfrac{(8\text{ cm})(6\text{ cm})}{2} = \mathbf{24\text{ cm}^2}$

(c) Area $= 36\text{ cm}^2 + 24\text{ cm}^2 = \mathbf{60\text{ cm}^2}$

16. $\dfrac{8}{f} = \dfrac{56}{105}$

$56f = 105 \cdot 8$

$f = \dfrac{840}{56}$

$f = \mathbf{15}$

17. $\dfrac{12}{15} = \dfrac{w}{2.5}$

$15w = 12 \cdot 2.5$

$w = \dfrac{30}{15}$

$w = \mathbf{2}$

18.
$$\begin{array}{r} 20.0 \\ -\ 6.8 \\ \hline 13.2 \end{array}$$

$p = \mathbf{13.2}$

19.
$$\begin{array}{r} 6.4 \\ +\ 3.6 \\ \hline 10.0 \end{array} = 10$$

$q = \mathbf{10}$

20. $5^3 - 10^2 - \sqrt{25}$

$= 125 - 100 - 5 = \mathbf{20}$

21. $4 + 4 \cdot 4 - 4 \div 4$

$4 + 16 - 1$

$20 - 1$

$\mathbf{19}$

22. $\dfrac{4.8 - 0.24}{(0.2)(0.6)}$

$= \dfrac{4.8 - 0.24}{0.12}$

$= \dfrac{4.56}{0.12} = \mathbf{38}$

23.
$$\begin{array}{r} 5\text{ hr}\ \ 45\text{ min}\ \ 30\text{ s} \\ +\ 2\text{ hr}\ \ 53\text{ min}\ \ 55\text{ s} \\ \hline 7\text{ hr}\ \ 98\text{ min}\ \ 85\text{ s} \end{array}$$

$85\text{ s} = 1\text{ min}\ \ 25\text{ s}$

$$\begin{array}{r} 1\text{ min}\ \ 25\text{ s} \\ +\ 98\text{ min} \\ \hline 99\text{ min}\ \ 25\text{ s} \end{array}$$

$99\text{ min} = 1\text{ hr}\ \ 39\text{ min}$

$$\begin{array}{r} 1\text{ hr}\ \ 39\text{ min}\ \ 25\text{ s} \\ +\ 7\text{ hr} \\ \hline \mathbf{8\text{ hr}\ \ 39\text{ min}\ \ 25\text{ s}} \end{array}$$

24. $5\frac{1}{3} \cdot 2\frac{1}{2} = \frac{\overset{8}{\cancel{16}}}{3} \cdot \frac{5}{\cancel{2}_{1}}$

$= \dfrac{40}{3} = 13\dfrac{1}{3}$

$$\begin{array}{r} 6\frac{3}{4} = 6\frac{9}{12} \\ +\ 13\frac{1}{3} = 13\frac{4}{12} \\ \hline 19\frac{13}{12} = \mathbf{20\frac{1}{12}} \end{array}$$

25. $3\frac{3}{4} \div 2 = \frac{15}{4} \div \frac{2}{1}$

$= \dfrac{15}{4} \times \dfrac{1}{2} = \dfrac{15}{8} = 1\dfrac{7}{8}$

$$\begin{array}{r} 5\frac{1}{2} = 5\frac{4}{8} \longrightarrow \quad 4\frac{12}{8} \\ -\ 1\frac{7}{8} = 1\frac{7}{8} \qquad -\ 1\frac{7}{8} \\ \hline \qquad\qquad \mathbf{3\frac{5}{8}} \end{array}$$

26. $9 + 13 + 8 + 70 = \mathbf{100}$

$$\begin{array}{r} 8.575 \\ 12.625 \\ 8.4 \\ +\ 70.4 \\ \hline 100.000 \end{array} = \mathbf{100}$$

27.
$$\begin{array}{r} 1.25 \\ \times\ 0.8 \\ \hline 1.000 \end{array} = 1$$
$1 \times 10^6 =$ **1,000,000**

28. $(4)(0.5) + \dfrac{(4)}{(0.5)}$

$2 + 8$

10

29. $1.4 \cancel{\text{meters}} \cdot \dfrac{100 \text{ centimeters}}{1 \cancel{\text{meter}}}$

$=$ **140 centimeters**

30. $\dfrac{\text{favorite sport is basketball}}{\text{total}} = \dfrac{10}{30}$

$= \mathbf{\dfrac{1}{3}}$

Lesson 53, Lesson Practice

a. $\mathbf{\dfrac{15 \text{ chairs}}{1 \text{ row}}; \dfrac{1 \text{ row}}{15 \text{ chairs}}}$

b. $18 \cancel{\text{rows}} \cdot \dfrac{15 \text{ chairs}}{1 \cancel{\text{row}}} =$ **270 chairs**

c. $\mathbf{\dfrac{24 \text{ miles}}{1 \text{ gallon}}; \dfrac{1 \text{ gallon}}{24 \text{ miles}}}$

d. $\overset{20}{\cancel{160}} \cancel{\text{miles}} \cdot \dfrac{1 \text{ gallon}}{\underset{3}{\cancel{24}} \cancel{\text{miles}}}$

$= \dfrac{20}{3}$ gallons $=$ **$6\frac{2}{3}$ gallons**

Lesson 53, Mixed Practice

1. (a) **16 boys**

(b) **16 girls**

2. $\dfrac{\text{January through June birthdays}}{\text{total birthdays}}$

$= \dfrac{16}{32} = \dfrac{1}{2}$

$\dfrac{1}{2} \times 100\% = \dfrac{100\%}{2} =$ **50%**

3. $\dfrac{\text{April through June boys' birthdays}}{\text{total boys' birthdays}} = \dfrac{5}{16}$

4. (a)
$$\begin{array}{l} \$3.95 \\ \$4.47 \\ \$4.95 \\ \$4.95 \\ \hline \$18.32 \end{array}$$

\$4.58 per book

$4\overline{)\$18.32}$

16

23

20

32

32

0

(b)
$$\begin{array}{r} \$18.32 \\ \times\ 0.08 \\ \hline \$1.4656 \end{array} \longrightarrow \$1.47 \text{ tax}$$

$$\begin{array}{r} \$18.32 \\ \$1.47 \\ \hline \end{array}$$

\$19.79 total

5.

840 gerbils

$\frac{7}{12}$ were hiding.

70 gerbils
70 gerbils
70 gerbils
70 gerbils
70 gerbils
70 gerbils
70 gerbils

$\frac{5}{12}$ were not hiding.

70 gerbils
70 gerbils
70 gerbils
70 gerbils
70 gerbils

(a) $\mathbf{\dfrac{5}{12}}$

(b) **350 gerbils**

6. (a) $1{,}000000000000 \longrightarrow \mathbf{1 \times 10^{12}}$

(b) $4{,}75000 \longrightarrow \mathbf{4.75 \times 10^5}$

7. (a) $700, \longrightarrow$ **700**

(b) $2500000, \longrightarrow 2{,}500{,}000$

$250000, \longrightarrow 250{,}000$

$2.5 \times 10^6 > 2.5 \times 10^5$

8. (a) $35 \cancel{\text{yd}} \cdot \dfrac{3 \text{ ft}}{1 \cancel{\text{yd}}} =$ **105 ft**

(b) $\overset{20}{\cancel{2000}} \cancel{\text{cm}} \cdot \dfrac{1 \text{ m}}{\underset{1}{\cancel{100}} \cancel{\text{cm}}} =$ **20 m**

9.
$$\begin{aligned} 54 &= 2 \cdot 3 \cdot 3 \cdot 3 \\ 36 &= 2 \cdot 2 \cdot 3 \cdot 3 \\ \text{LCM}\,(54, 36) &= 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \\ &= \mathbf{108} \end{aligned}$$

10.
$$\begin{array}{r} 20{,}000 \\ -\ 12{,}000 \\ \hline \mathbf{8\,000} \end{array}$$

11. (a) $150\% = \frac{150}{100} = \frac{3}{2} = \mathbf{1\frac{1}{2}}$

(b) $150\% = \frac{3}{2} = 1\frac{1}{2} = \mathbf{1.5}$

(c) $15\% = \frac{15}{100} = \mathbf{\frac{3}{20}}$

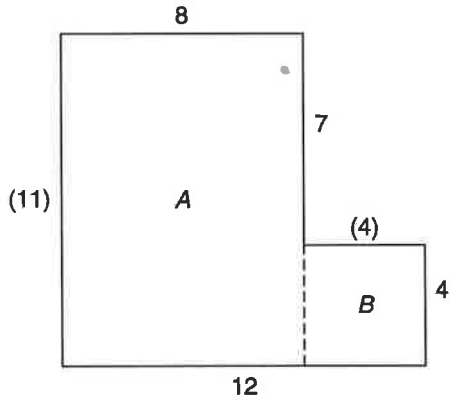
d) $15\% = \frac{15}{100} = \mathbf{0.15}$

12. (a) $\frac{4}{5} \times 100\% = \frac{400\%}{5} = \mathbf{80\%}$

(b) $0.06 = \frac{6}{100} = \mathbf{6\%}$

13.
$$\begin{array}{r} 2\text{ m} = 200\text{ cm} \\ 200\text{ cm} \\ -\ 165\text{ cm} \\ \hline \mathbf{35\text{ cm}} \end{array}$$

14.



(a)
$$\begin{array}{rrrr} \text{Area } A = & (11\text{ ft})(8\text{ ft}) & = & 88\text{ ft}^2 \\ +\ \text{Area } B = & (4\text{ ft})(4\text{ ft}) & = & 16\text{ ft}^2 \\ \hline & \text{Area of figure} & = & \mathbf{104\text{ ft}^2} \end{array}$$

(b) Perimeter $= 8\text{ ft} + 7\text{ ft} + 4\text{ ft} + 4\text{ ft} + 12\text{ ft} + 11\text{ ft} = \mathbf{46\text{ ft}}$

15. (a) $\mathbf{\frac{1.6\text{ C\$}}{1\text{ US\$}}; \frac{1\text{ US\$}}{1.6\text{ C\$}}}$

(b) $160\ \cancel{\text{US\$}} \cdot \frac{1.6\text{ C\$}}{1\ \cancel{\text{US\$}}} = \mathbf{256\text{ C\$}}$

16.
$$\begin{aligned} \frac{18}{100} &= \frac{90}{p} \\ 18p &= 100 \cdot 90 \\ p &= \frac{9000}{18} \\ p &= \mathbf{500} \end{aligned}$$

17.
$$\begin{aligned} \frac{6}{9} &= \frac{t}{1.5} \\ 9t &= 6 \cdot 1.5 \\ t &= \frac{9}{9} \\ t &= \mathbf{1} \end{aligned}$$

18.
$$\begin{array}{r} 8.00 \\ -\ 7.25 \\ \hline 0.75 \end{array}$$
$m = \mathbf{0.75}$

19.
$$\frac{1.5}{10} = 0.15$$
$n = \mathbf{0.15}$

20. $\sqrt{81} + 9^2 - 2^5 = 9 + 81 - 32 = \mathbf{58}$

21.
$$\begin{aligned} &16 \div 4 \div 2 + 3 \times 4 \\ &4 \div 2 + 12 \\ &2 + 12 \\ &\mathbf{14} \end{aligned}$$

22.
$$\begin{array}{rr} & 3\text{ yd}\ \ 1\text{ ft}\ \ 7\frac{1}{2}\text{ in.} \\ + & \quad 2\text{ ft}\ \ 6\frac{1}{2}\text{ in.} \\ \hline & 3\text{ yd}\ \ 3\text{ ft}\ \ 14\text{ in.} \end{array}$$

$14\text{ in.} = 1\text{ ft}\ \ 2\text{ in.}$

$$\begin{array}{rr} & 1\text{ ft}\ \ 2\text{ in.} \\ + & 3\text{ ft} \\ \hline & 4\text{ ft}\ \ 2\text{ in.} \end{array}$$

$4\text{ ft} = 1\text{ yd}\ \ 1\text{ ft}$

$$\begin{array}{rr} & 1\text{ yd}\ \ 1\text{ ft}\ \ 2\text{ in.} \\ + & 3\text{ yd} \\ \hline & \mathbf{4\text{ yd}\ \ 1\text{ ft}\ \ 2\text{ in.}} \end{array}$$

23. $5\frac{5}{6} \div 2\frac{1}{3} = \frac{35}{6} \div \frac{7}{3}$

$$= \frac{\overset{5}{\cancel{35}}}{\underset{2}{\cancel{6}}} \times \frac{\overset{1}{\cancel{7}}}{\underset{1}{\cancel{7}}} = \frac{5}{2} = 2\frac{1}{2}$$

$$12\frac{2}{3} = 12\frac{4}{6}$$

$$+ \quad 2\frac{1}{2} = 2\frac{3}{6}$$

$$14\frac{7}{6} = \mathbf{15\frac{1}{6}}$$

24. $1\frac{1}{2} \cdot 3\frac{1}{5} = \frac{3}{\underset{1}{\cancel{2}}} \cdot \frac{\overset{8}{\cancel{16}}}{5} = \frac{24}{5} = 4\frac{4}{5}$

$$8\frac{3}{5} \longrightarrow 7\frac{8}{5}$$

$$- 4\frac{4}{5} \qquad - 4\frac{4}{5}$$

$$\mathbf{3\frac{4}{5}}$$

25. $3.875 \times 10^1 \longrightarrow 38.75$

$$\begin{array}{r} 10.6 \\ 4.2 \\ 16.4 \\ +\ 38.75 \\ \hline \mathbf{69.95} \end{array}$$

26. $7 \times 4 = \mathbf{28}$

27. $\dfrac{(6)(0.9)}{(0.9)(5)}$

$\dfrac{5.4}{4.5}$

1.2

28. $30\overline{)1000}$ $\quad 33\frac{1}{3}$

33 flats

29. $\dfrac{\text{guessing wrong answer}}{\text{all answers}} = \mathbf{\frac{4}{5}}$

30. $m\angle a = 180° - 130° = \mathbf{50°}$

$m\angle b = 180° - (90° + 50°)$

$= 180° - 140° = \mathbf{40°}$

$m\angle c = 180° - (40° + 60°)$

$= 180° - 100° = \mathbf{80°}$

LESSON 54, LESSON PRACTICE

a.

	Ratio	Actual Count
Girls	9	63
Boys	7	B

$\frac{9}{7} = \frac{63}{B}$

$9B = 441$

$B =$ **49 boys**

b.

	Ratio	Actual Count
Sparrows	5	S
Blue jays	3	15

$\frac{5}{3} = \frac{S}{15}$

$3S = 75$

$S =$ **25 sparrows**

c.

	Ratio	Actual Count
Tagged fish	2	90
Untagged fish	9	U

$\frac{2}{9} = \frac{90}{U}$

$2U = 810$

$U =$ **405 untagged fish**

d. See student work. If desired, have students form other ratios that use the classroom environment (e.g., lefthanders to righthanders, windows to doors, students to computers).

LESSON 54, MIXED PRACTICE

1. $1776 + 50 = 1826$

$$\begin{array}{r} 1826 \\ -\ 1743 \\ \hline \mathbf{83\ years} \end{array}$$

2. $5\overline{)986}$ $\quad 197.2$

$$\begin{array}{r} 190\ cm \\ 195\ cm \\ 197\ cm \\ 201\ cm \\ +\ 203\ cm \\ \hline 986\ cm \end{array}$$

197 cm

3.

	Ratio	Actual Count
Winners	5	1200
Losers	4	L

$$\frac{5}{4} = \frac{1200}{L}$$

$$5L = 4800$$

$$L = \textbf{960 losers}$$

4. $2.6 \cancel{\text{pounds}} \cdot \frac{\$1.75}{1 \cancel{\text{pound}}}$

$= \textbf{\$4.55}$

5. $4 = 2 \cdot 2$

$6 = 2 \cdot 3$

$LCM\ (4, 6) = 2 \cdot 2 \cdot 3 = 12$

$GCF\ (4, 6) = 2$

$\frac{12}{2} = \textbf{6}$

6.

80 trees

$\frac{4}{5}$ were infested.	16 trees
	16 trees
	16 trees
$\frac{1}{5}$ were not infested.	16 trees
	16 trees

(a) **64 trees**

(b) **16 trees**

7. (a) $4,05000 \longrightarrow \textbf{4.05 × 10}^{\textbf{5}}$

(b) $004000, \longrightarrow \textbf{4000}$

8. (a) 10^8

(b) 10^4

9. (a) $\overset{1760}{\cancel{5280\ \text{ft}}} \cdot \frac{1\ \text{yd}}{\underset{1}{\cancel{3\ \text{ft}}}} = \textbf{1760 yd}$

(b) $300\ \cancel{\text{cm}} \cdot \frac{10\ \text{mm}}{1\ \cancel{\text{cm}}} = \textbf{3000 mm}$

10. **3.1416**

11. (a) $0.4 \times 360° = \textbf{144°}$

(b) $0.3 \times 360° = \textbf{108°}$

(c) $0.2 \times 360° = \textbf{72°}$

(d) $0.1 \times 360° = \textbf{36°}$

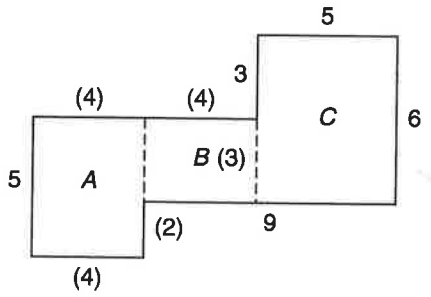
12. (a) $4\ \cancel{\text{hours}} \cdot \frac{60\ \text{miles}}{1\ \cancel{\text{hour}}} = \textbf{240 miles}$

(b) $\overset{5}{\cancel{300\ \text{miles}}} \cdot \frac{1\ \text{hour}}{\underset{1}{\cancel{60\ \text{miles}}}} = \textbf{5 hours}$

13. **B. 2^4**

14. Perimeter = 5 cm + 8 cm + 3 cm
+ 5 cm + 6 cm + 9 cm
+ 2 cm + 4 cm = **42 cm**

15.



Area A = (4 cm)(5 cm) = 20 cm^2

Area B = (4 cm)(3 cm) = 12 cm^2

+ Area C = (5 cm)(6 cm) = 30 cm^2

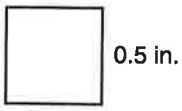
Area of figure = **62 cm^2**

16. (a) **Identity property of addition**

(b) **Distributive property**

(c) **Associative property of addition**

17.



(a) Perimeter = 4(0.5 in.) = **2 inches**

(b) Area = (0.5 in.)(0.5 in.)
= **0.25 square inch**

18. **The average score is likely to be below the median score. The mean "balances" low scores with high scores. The scores above the median are not far enough above the median to allow the balance point for all the scores to be at or above the median.**

19.
$$\begin{array}{r} 6.2 \\ -\ 4.1 \\ \hline 2.1 \end{array}$$
$x = \mathbf{2.1}$

20.
$$\begin{array}{r} 1.2 \\ +\ 0.21 \\ \hline 1.41 \end{array}$$
$y = \mathbf{1.41}$

21. $\frac{24}{r} = \frac{36}{27}$

$36r = 24 \cdot 27$

$r = \frac{648}{36}$

$r = \mathbf{18}$

22.
$$\begin{array}{r} 6.25 \\ \times\ 0.16 \\ \hline 3750 \\ 625 \\ \hline 1.0000 \end{array} = 1$$
$w = \mathbf{1}$

23. $11^2 + 1^3 - \sqrt{121}$

$= 121 + 1 - 11 = \mathbf{111}$

24. $24 - 4 \times 5 \div 2 + 5$

$24 - 20 \div 2 + 5$

$24 - 10 + 5$

$14 + 5$

$\mathbf{19}$

25. $\frac{(2.5)^2}{2(2.5)} = \frac{6.25}{5} = \mathbf{1.25}$

26.
$$\begin{array}{r} 1 \text{ week } 5 \text{ days } 14 \text{ hr} \\ +\ 2 \text{ weeks } 6 \text{ days } 10 \text{ hr} \\ \hline 3 \text{ weeks } 11 \text{ days } 24 \text{ hr} \end{array}$$

24 hr = 1 day

11 days + 1 day = 12 days

12 days = 1 week 5 days

$$\begin{array}{r} 1 \text{ week } 5 \text{ days} \\ +\ 3 \text{ weeks} \\ \hline \mathbf{4 \text{ weeks } 5 \text{ days}} \end{array}$$

27. $9\frac{1}{2} = 9\frac{3}{6} \longrightarrow 8\frac{9}{6}$

$-\ 6\frac{2}{3} = 6\frac{4}{6} \qquad -\ 6\frac{4}{6}$

$2\frac{5}{6}$

$3\frac{5}{10} = 3\frac{15}{30}$

$+\ 2\frac{5}{6} = 2\frac{25}{30}$

$5\frac{40}{30} = 6\frac{10}{30} = \mathbf{6\frac{1}{3}}$

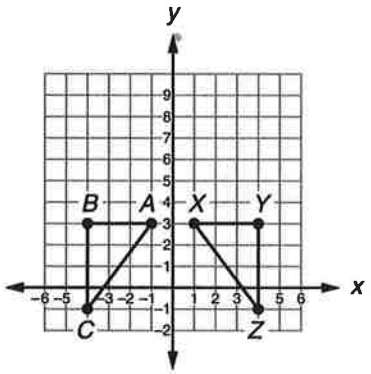
28. $6 \div 3\frac{2}{3} = \frac{6}{1} \div \frac{11}{3}$

$= \frac{6}{1} \times \frac{3}{11} = \frac{18}{11}$

$7\frac{1}{3} \cdot \frac{18}{11} = \frac{\cancel{22}^{2}}{\cancel{3}_{1}} \cdot \frac{\cancel{18}^{6}}{\cancel{11}_{1}}$

$= \mathbf{12}$

29.



30. (a) **Yes**

(b) **Yes**

(c) $\angle C$