26. $8\frac{1}{3} \cdot 1\frac{4}{5} = \frac{\overset{5}{\cancel{25}}}{\underset{1}{\cancel{3}}} \cdot \frac{\overset{3}{\cancel{9}}}{\underset{1}{\cancel{5}}} = \mathbf{15}$

27. $5\frac{5}{6} \div 7 = \frac{35}{6} \div \frac{7}{1}$

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

28. (a) Perimeter = 15 mm + 15 mm + 18 mm
= **48 mm**

(b) Area $= \frac{18 \text{ mm} \cdot 12 \text{ mm}}{2} =$ **108 mm²**

29. Odd primes: 3, 5

$\frac{2}{6} = \mathbf{\frac{1}{3}}$

30. $\frac{2}{3} = \frac{8}{12}$

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

$\frac{5}{6} = \frac{10}{12}$

$\mathbf{\frac{1}{2}, \frac{7}{12}, \frac{2}{3}, \frac{5}{6}}$

Lesson 40, Lesson Practice

a. **Each angle measures 60° because the angles equally share 180°.**

$\frac{180°}{3} = 60°$

b. **20°. Angle *ACB* and ∠*ACD* are complementary:**

90° − 70° = 20°

c. **Angle *CAB* measures 70° because it is the third angle of a triangle whose other angles measure 90° and 20°:**

180° − (90° + 20°) = 180° − 110° = 70°

d. **They are not vertical angles. Their angles are equal in measure, but they are not nonadjacent angles formed by two intersecting lines.**

e. Angle x is the third angle of a triangle:

m∠x = 180° − (40° + 80°)
= 180° − 120° = 60°

Angle x and ∠y are supplementary angles:

m∠y = 180° − 60° = 120°

Angles z and x are vertical angles:

m∠z = 60°

Lesson 40, Mixed Practice

1. (a) 3 red marbles + 2 white marbles = 5 total marbles

$\frac{\text{white marbles}}{\text{total marbles}} = \mathbf{\frac{2}{5}}$

(b) $\mathbf{\frac{2}{5}}$

2. (a) 6 minutes = 6(60 seconds)
= 360 seconds
6 minutes + 20 seconds
= **380 seconds**

(b) $\frac{380 \text{ seconds}}{4} =$ **95 seconds**

3. 18 × 24 miles = 72, 36
432 miles

4. 103.4°F − 98.6°F = **4.8°F**

5. (a) Perimeter = 35 mm + 35 mm + 70 mm + 70 mm = **210 mm**

(b) Area = 35 mm × 70 mm = **2450 mm²**

6.

	200 sheep
$\frac{5}{8}$ grazed.	25 sheep
	25 sheep
	25 sheep
	25 sheep
	25 sheep
$\frac{3}{8}$ drank.	25 sheep
	25 sheep
	25 sheep

(a) 5 · 25 sheep = **125 sheep**

(b) 3 · 25 sheep = **75 sheep**

7. BC = 100 mm − (30 mm + 45 mm)
= 100 mm − 75 mm = 25 mm
25 mm = **2.5 cm**

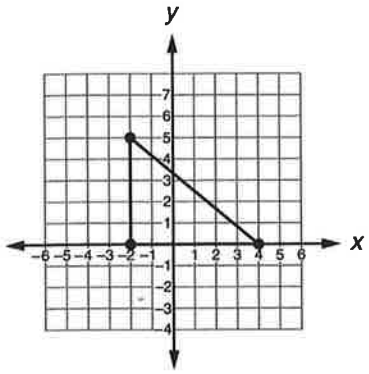
8. (a) 0.083③33 ⟶ **0.083**

(b) 0.0⑧3333 ⟶ **0.1**

9. (a) **Twelve and fifty-four thousandths**

(b) **Ten and eleven hundredths**

10.



$$\text{Area} = \frac{6 \text{ units} \cdot 5 \text{ units}}{2} = \mathbf{15 \text{ units}^2}$$

11. **0.76**

12. (a) $\angle ACB = 180° - (70° + 75°)$
$= 180° - 145° = \mathbf{35°}$

(b) $\angle ACD = 180° - 35° = \mathbf{145°}$

(c) $\angle DCE = \mathbf{35°}$

13. $\angle BCE$ (or $\angle ECB$)

14. (a) **Identity property of multiplication**

(b) $5\overline{)120}$ **24**

15. $10w = 25 \cdot 8$

$$w = \frac{25 \cdot 8}{10}$$

$w = \mathbf{20}$

16. $9n = 1.5 \cdot 6$

$$n = \frac{(1.5)(6)}{9}$$

$n = \mathbf{1}$

17. $9m = 12 \cdot 15$

$$m = \frac{12 \cdot 15}{9}$$

$m = \mathbf{20}$

18.
$$\begin{array}{r} {}^{3}\not{4}.{}^{1}0 \\ -\ 1.8 \\ \hline 2.2 \end{array}$$

$a = \mathbf{2.2}$

19.
$$\begin{array}{r} {}^{1}3.9 \\ +\ 0.39 \\ \hline 4.29 \end{array}$$

$t = \mathbf{4.29}$

20. 12 cm = 0.12 m

$$\begin{array}{r} 1.{}^{1}\not{2}{}^{1}0 \text{ m} \\ -\ 0.12 \text{ m} \\ \hline \mathbf{1.08 \text{ m}} \end{array}$$

21.
$$\begin{array}{r} 0.15 \\ \times\ 0.05 \\ \hline \mathbf{0.0075} \end{array}$$

22.
$$\begin{array}{r} 15 \\ \times\ 1.5 \\ \hline 75 \\ 15 \\ \hline \mathbf{22.5} \end{array}$$

23.
$$\begin{array}{r} \mathbf{1.2} \\ 12\overline{)14.4} \\ \underline{12} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

24.
$$\begin{array}{r} {}^{3}\not{4}.\ {}^{9}\not{0}{}^{1}0 \\ -\ 1.25 \\ \hline 2.75 \end{array} \qquad \begin{array}{r} {}^{4}\not{5}.\ {}^{1}\not{5}{}^{1}0 \\ -\ 2.75 \\ \hline \mathbf{2.85} \end{array}$$

25.
$$\begin{array}{r} 3.14 \\ +\ 1.20 \\ \hline 4.34 \end{array} \qquad \begin{array}{r} {}^{4}\not{5}.\ {}^{9}\not{0}{}^{1}0 \\ -\ 4.34 \\ \hline \mathbf{0.66} \end{array}$$

26. $6\frac{1}{4} \cdot 1\frac{3}{5} = \frac{{}^{5}\not{25}}{\not{4}_{1}} \cdot \frac{{}^{2}\not{8}}{\not{5}_{1}} = \frac{10}{1} = \mathbf{10}$

27. $7 \div 5\frac{5}{6} = \frac{7}{1} \div \frac{35}{6} = \frac{{}^{1}\not{7}}{1} \cdot \frac{6}{\not{35}_{5}}$

$$= \frac{6}{5} = \mathbf{1\frac{1}{5}}$$

28.
$$\begin{array}{rl} & \frac{8}{15} = \frac{40}{75} \\ + & \frac{12}{25} = \frac{36}{75} \\ \hline & \frac{76}{75} = \mathbf{1\frac{1}{75}} \end{array}$$

29.
$$\begin{array}{rl} & 4\frac{2}{5} = 4\frac{8}{20} \longrightarrow 3\frac{28}{20} \\ - & 1\frac{3}{4} = 1\frac{15}{20} \quad\quad - 1\frac{15}{20} \\ \hline & \mathbf{2\frac{13}{20}} \end{array}$$

30. $31.\underline{9}75 \longrightarrow 32$

$$\frac{1}{4} \times 32 = \frac{1}{\cancel{4}_{1}} \times \frac{\overset{8}{\cancel{32}}}{1} = \mathbf{8}$$

Lesson 41, Lesson Practice

a. $A = (15 \text{ in.})(8 \text{ in.}) = \mathbf{120 \text{ in.}^2}$

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

c. **One possibility:** $x(y + z) = xy + xz$

d. $6(15) = 90$
$(6 \cdot 20) - (6 \cdot 5) = 120 - 30 = 90$

e. $p = 2(l + w)$
$p = 2l + 2w$

f. **One way is to add 6 and 4. Then multiply the sum by 2. Another way is to multiply 6 by 2 and 4 by 2. Then add the products.**

Lesson 41, Mixed Practice

1. $\dfrac{\text{gazelles}}{\text{wildebeests}} = \dfrac{150}{200} = \mathbf{\dfrac{3}{4}}$

2.
$$\begin{array}{r} 105 \text{ points} \\ 112 \text{ points} \\ 98 \text{ points} \\ 113 \text{ points} \\ + \ 107 \text{ points} \\ \hline 535 \text{ points} \end{array} \qquad \begin{array}{r} \mathbf{107 \text{ points}} \\ 5\overline{)535 \text{ points}} \end{array}$$

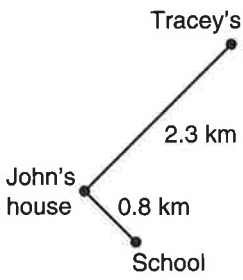
3. 19 feet 6 inches = 19 (12 inches) + 6 inches = **234 inches**

4. (a) **Associative property of addition**

(b) **Associative property of multiplication**

(c) **Distributive property**

5.



$$\begin{array}{r} 2.3 \text{ km} \\ 0.8 \text{ km} \\ 0.8 \text{ km} \\ + \ 2.3 \text{ km} \\ \hline \mathbf{6.2 \text{ km}} \end{array}$$

6. (a) $100\% - 70\% = 30\%$

$30\% = \dfrac{30}{100} = \mathbf{\dfrac{3}{10}}$

(b) $\dfrac{\text{water area}}{\text{land area}} = \mathbf{\dfrac{7}{3}}$

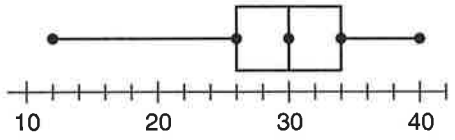
7. (a) **30 correct answers**

(b) **26 correct answers**

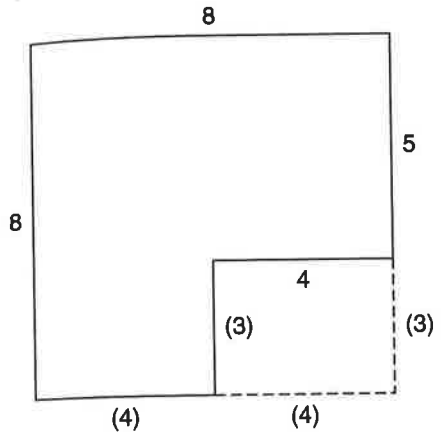
(c) **34 correct answers**

(d) **11 correct answers**

8.



9.



(a) Area of large rectangle $= (8\text{ ft})(8\text{ ft})$
$= 64\text{ ft}^2$

Area of small rectangle $= (3\text{ ft})(4\text{ ft})$
$= 12\text{ ft}^2$

Area of figure $= 64\text{ ft}^2 - 12\text{ ft}^2$
$= \mathbf{52\text{ ft}^2}$

(b) Perimeter $= 8\text{ ft} + 5\text{ ft} + 4\text{ ft} + 3\text{ ft} + 4\text{ ft} + 8\text{ ft} = \mathbf{32\text{ ft}}$

10. (a) **3.6**

(b) $3\frac{6}{10} = \mathbf{3\frac{3}{5}}$

11. $2 + 3 + 5 + 7 = \mathbf{17}$

12. (a) Perimeter $= 13\text{ mm} + 15\text{ mm} + 14\text{ mm} = \mathbf{42\text{ mm}}$

(b) Area $= \frac{(14\text{ mm})(12\text{ mm})}{2} = \mathbf{84\text{ mm}^2}$

13. (a) **0.00067**

(b) **100.023**

14. $2\pi r = 2(3.14)(10)$
$= 2(31.4) = \mathbf{62.8}$

15. $\frac{3}{5} \cdot \frac{14}{14} = \frac{42}{70}$

$\frac{1}{2} \cdot \frac{35}{35} = \frac{35}{70}$

$\frac{5}{7} \cdot \frac{10}{10} = \frac{50}{70}$

$\mathbf{\frac{35}{70}, \frac{42}{70}, \frac{50}{70}}$

16. Area $= (5.6\text{ cm})(3.4\text{ cm}) = \mathbf{19.04\text{ cm}^2}$

17. $\frac{x}{2.4} = \frac{10}{16}$

$16x = 2.4(10)$

$x = \frac{24}{16}$

$x = 1\frac{8}{16} = 1\frac{1}{2} = \mathbf{1.5}$

18. $\frac{18}{8} = \frac{m}{20}$

$8m = 18 \cdot 20$

$m = \frac{360}{8}$

$m = \mathbf{45}$

19.
$$\begin{array}{r} 7.\overset{5}{\cancel{6}}\overset{1}{0} \\ -\ 3.4\,5 \\ \hline 4.1\,5 \end{array}$$

$a = \mathbf{4.15}$

20.
$$\begin{array}{r} \mathbf{0.048} \\ 3\overline{)0.144} \\ \underline{12} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

$y = \mathbf{0.048}$

21.
$$\begin{array}{r} \mathbf{0.925} \\ 8\overline{)7.400} \\ \underline{72} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

22.
$$\begin{array}{r} 0.4 \\ \times\ 0.6 \\ \hline 0.24 \end{array} \qquad \begin{array}{r} 0.24 \\ \times\ 0.02 \\ \hline \mathbf{0.0048} \end{array}$$

23.
$$\begin{array}{r} \mathbf{0.863} \\ 5\overline{)4.315} \\ \underline{40} \\ 31 \\ \underline{30} \\ 15 \\ \underline{15} \\ 0 \end{array}$$

24.
$$\begin{array}{r} 0.065 \\ 100\overline{)6.500} \\ \underline{600} \\ 500 \\ \underline{500} \\ 0 \end{array}$$

25.
$$\begin{array}{rcl} 3\frac{1}{3} & = & 3\frac{4}{12} \\ 1\frac{5}{6} & = & 1\frac{10}{12} \\ +\ \frac{7}{12} & = & \frac{7}{12} \\ \hline & & 4\frac{21}{12} = 5\frac{9}{12} = \mathbf{5\frac{3}{4}} \end{array}$$

26.
$$\begin{array}{rcl} 4 & \longrightarrow & 3\frac{4}{4} \\ -\ 1\frac{1}{4} & & -\ 1\frac{1}{4} \\ \hline & & 2\frac{3}{4} \end{array}$$

$$\begin{array}{rcl} 4\frac{1}{6} = 4\frac{2}{12} & \longrightarrow & 3\frac{14}{12} \\ -\ 2\frac{3}{4} = 2\frac{9}{12} & & -\ 2\frac{9}{12} \\ \hline & & \mathbf{1\frac{5}{12}} \end{array}$$

27.
$$3\frac{1}{5} \cdot 2\frac{5}{8} \cdot 1\frac{3}{7} = \frac{\cancel{16}^{2}}{\cancel{5}_{1}} \cdot \frac{\cancel{21}^{3}}{\cancel{8}_{1}} \cdot \frac{\cancel{10}^{2}}{\cancel{7}_{1}} = \mathbf{12}$$

28.
$$4\frac{1}{2} \div 6 = \frac{9}{2} \div \frac{6}{1} = \frac{\cancel{9}^{3}}{2} \times \frac{1}{\cancel{6}_{2}} = \mathbf{\frac{3}{4}}$$

29. (a) $(12 \cdot 7) + (12 \cdot 13)$
$= 84 + 156 = 240$
or
$12(7 + 13) = 12 \cdot 20 = 240$
$(12 \cdot 7) + (12 \cdot 13) = 12(7 + 13)$

(b) **Distributive property**

30. $m\angle x = 180° - (90° + 42°)$
$= 180° - 132° = \mathbf{48°}$
$m\angle y = 180° - 48° = \mathbf{132°}$
$m\angle z = m\angle x = \mathbf{48°}$

Lesson 42, Lesson Practice

a. $\mathbf{2.\overline{72}}$

b. $\mathbf{0.81\overline{6}}$

c. $0.\overline{6} = 0.6666\ldots$
$0.666\textcircled{6}\ldots \longrightarrow \mathbf{0.667}$

d. $5.3\overline{81} = 5.38181\ldots$
$5.381\textcircled{8}1\ldots \longrightarrow \mathbf{5.382}$

e.
$$\begin{array}{r} 0.141666\ldots \\ 12\overline{)1.7000000\ldots} \\ \underline{12} \\ 50 \\ \underline{48} \\ 20 \\ \underline{12} \\ 80 \\ \underline{72} \\ 80 \\ \underline{72} \\ 80 \end{array}$$
$\mathbf{0.141\overline{6}}$

f. $0.1416\textcircled{6}6\ldots \longrightarrow \mathbf{0.1417}$

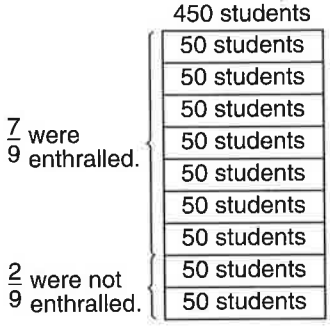
Lesson 42, Mixed Practice

1.
$$\begin{array}{rcl} \text{2 boys} & & \text{2 boys} \\ +\ \text{? girls} & \longrightarrow & +\ \text{3 girls} \\ \hline \text{5 total} & & \text{5 total} \end{array}$$
$$\frac{\text{boys}}{\text{girls}} = \mathbf{\frac{2}{3}}$$

2.
$$\begin{array}{r} \textbf{27 students} \\ 16\overline{)432} \\ \underline{32} \\ 112 \\ \underline{112} \\ 0 \end{array}$$

3.
$$\begin{array}{r} 23 \text{ miles} \\ \times\ 7 \\ \hline \mathbf{161 \text{ miles}} \end{array}$$

4.



(a) $7(50 \text{ students}) = \mathbf{350 \text{ students}}$

(b) $2(50 \text{ students}) = \mathbf{100 \text{ students}}$

5. (a) $5.1\overline{6} = 5.16666\ldots$

$5.166\underline{6}⑥\ldots \longrightarrow \mathbf{5.1667}$

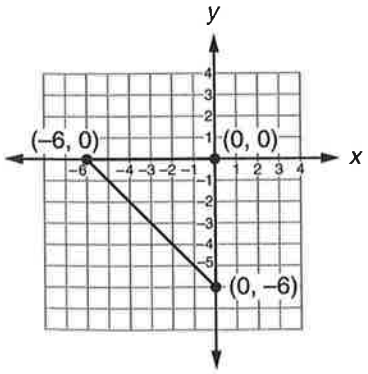
(b) $5.\overline{27} = 5.272727\ldots$

$5.272\underline{7}②7\ldots \longrightarrow \mathbf{5.2727}$

6. (a)
$$\begin{array}{r} 19 \text{ students} \\ -\ 11 \text{ students} \\ \hline \mathbf{8 \text{ students}} \end{array}$$

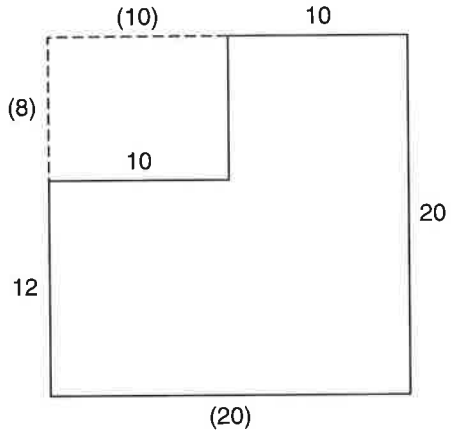
(b) $\dfrac{9}{30} = \mathbf{\dfrac{3}{10}}$

7. Area $= \dfrac{(6 \text{ units})(6 \text{ units})}{2} = \mathbf{18 \text{ units}^2}$



8. (a) Perimeter $= 10 \text{ in.} + 8 \text{ in.} + 10 \text{ in.} + 20 \text{ in.} + 20 \text{ in.} + 12 \text{ in.}$
$= \mathbf{80 \text{ in.}}$

(b)



Area of large rectangle $= 20 \text{ in.} \times 20 \text{ in.}$
$= 400 \text{ in.}^2$

Area of small rectangle $= 10 \text{ in.} \times 8 \text{ in.}$
$= 80 \text{ in.}^2$

Area of figure $= 400 \text{ in.}^2 - 80 \text{ in.}^2$
$= \mathbf{320 \text{ in.}^2}$

9.
$$\begin{array}{r} 0.15454\ldots \\ 11\overline{)1.700000\ldots} \\ \underline{11} \\ 60 \\ \underline{55} \\ 50 \\ \underline{44} \\ 60 \\ \underline{55} \\ 50 \\ \underline{44} \\ 60 \end{array}$$

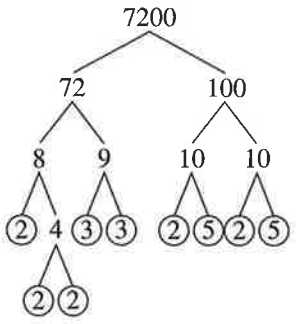
(a) $\mathbf{0.\overline{154}}$

(b) $0.15\underline{4}⑤4\ldots \longrightarrow \mathbf{0.155}$

10.
$$\begin{array}{r} {\scriptstyle 1} \\ 0.027 \\ +\ 0.58 \\ \hline \mathbf{0.607} \end{array}$$

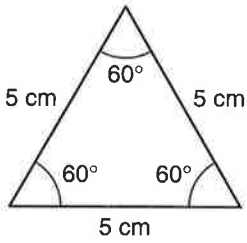
11. $\dfrac{2}{6} = \mathbf{\dfrac{1}{3}}$

12. (a) **One possibility:**



(b) $\mathbf{2^5 \cdot 3^2 \cdot 5^2}$

13.



14. $12 = 2 \cdot 2 \cdot 3$
$15 = 3 \cdot 5$
$\text{LCM}(12, 15) = 2 \cdot 2 \cdot 3 \cdot 5 = \mathbf{60}$

15. $\frac{21}{24} = \frac{w}{40}$
$24w = 21 \cdot 40$
$w = \frac{840}{24}$
$w = \mathbf{35}$

16. $\frac{1.2}{x} = \frac{9}{6}$
$9x = (1.2)6$
$x = \frac{7.2}{9}$
$x = \mathbf{0.8}$

17. $\begin{array}{r} {}^{0}\not{4}.{}^{1}{}^{3}\not{1}0 \\ -\ 9.6 \\ \hline 4.4 \end{array}$
$m = \mathbf{4.4}$

18. $\begin{array}{r} 1.63 \\ +\ 4.2 \\ \hline 5.83 \end{array}$
$n = \mathbf{5.83}$

19. $\frac{1}{2}(12)(10) = \frac{1}{2}(120) = \mathbf{60}$

20. $\mathbf{4(11) = 44}$
or
$\mathbf{(4 \cdot 5) + (4 \cdot 6) = 20 + 24 = 44}$

21. **343**

22. $\begin{array}{r} \$4.56 \\ \times\ 0.08 \\ \hline \$0.3648 \end{array} \longrightarrow \mathbf{\$0.36}$

23. $\mathbf{24 \div 6 = 4}$

24. (a) **Diameter**

(b) **Radius**

25.
$$\begin{array}{r} 1.775 \\ 4\overline{)7.100} \\ \underline{4} \\ 31 \\ \underline{28} \\ 30 \\ \underline{28} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

26. $\begin{array}{rcl} 6\frac{1}{4} & = & 6\frac{3}{12} \\ 5\frac{5}{12} & = & 5\frac{5}{12} \\ +\ \frac{2}{3} & = & \frac{8}{12} \\ \hline & & 11\frac{16}{12} = 12\frac{4}{12} = \mathbf{12\frac{1}{3}} \end{array}$

27. $\begin{array}{rcl} 4\frac{1}{6} & = & 4\frac{2}{12} \\ -\ 1\frac{1}{4} & = & 1\frac{3}{12} \\ \hline \end{array} \longrightarrow \begin{array}{r} 3\frac{14}{12} \\ -\ 1\frac{3}{12} \\ \hline 2\frac{11}{12} \end{array}$

$\begin{array}{r} 4 \\ -\ 2\frac{11}{12} \\ \hline \end{array} \longrightarrow \begin{array}{r} 3\frac{12}{12} \\ -\ 2\frac{11}{12} \\ \hline \mathbf{1\frac{1}{12}} \end{array}$

28. $6\frac{2}{5} \cdot 2\frac{5}{8} \cdot 2\frac{6}{7} =$

$$\frac{\overset{4}{\cancel{32}}}{\underset{1}{\cancel{5}}} \cdot \frac{\overset{3}{\cancel{21}}}{\underset{1}{\cancel{8}}} \cdot \frac{\overset{4}{\cancel{20}}}{\underset{1}{\cancel{7}}} = \mathbf{48}$$

29. **The quotient is greater than 1 because the dividend is greater than the divisor.**

$$6 \div 4\frac{1}{2} = \frac{6}{1} \div \frac{9}{2} = \frac{\overset{2}{\cancel{6}}}{1} \times \frac{2}{\underset{3}{\cancel{9}}} = \frac{4}{3}$$

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

30. $m\angle a = 180° - 40° = \mathbf{140°}$
$m\angle b = 180° - (90° + 40°)$
$= 180° - 130° = \mathbf{50°}$
$m\angle c = 180° - 50° = \mathbf{130°}$

Lesson 43, Lesson Practice

a. $0.24 = \frac{24}{100} = \mathbf{\frac{6}{25}}$

b. $45.6 = 45\frac{6}{10} = \mathbf{45\frac{3}{5}}$

c. $2.375 = 2\frac{375}{1000} = \mathbf{2\frac{3}{8}}$

d.
$$\begin{array}{r} \mathbf{5.75} \\ 4\overline{)23.00} \\ \underline{20} \\ 30 \\ \underline{28} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

e. $4\frac{3}{5} = \frac{23}{5}$

$$\begin{array}{r} \mathbf{4.6} \\ 5\overline{)23.0} \\ \underline{20} \\ 30 \\ \underline{30} \\ 0 \end{array}$$

f.
$$\begin{array}{r} \mathbf{0.625} \\ 8\overline{)5.000} \\ \underline{48} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

g.
$$\begin{array}{r} 0.8333\ldots \\ 6\overline{)5.0000\ldots} \\ \underline{48} \\ 20 \\ \underline{18} \\ 20 \\ \underline{18} \\ 20 \end{array}$$
$\mathbf{0.8\overline{3}}$

h. $8\% = \frac{8}{100} = \mathbf{0.08}$

i. $12.5\% = \frac{12.5}{100} = \mathbf{0.125}$

j. $150\% = \frac{150}{100} = \mathbf{1.50}$

k. $6\frac{1}{2}\% = 6.5\% = \frac{6.5}{100} = \mathbf{0.065}$

Lesson 43, Mixed Practice

1. $\frac{\text{Celtic soldiers}}{\text{total soldiers}} = \mathbf{\frac{2}{7}}$

2. (a) 11 minutes 44 seconds =
11(60 seconds) + 44 seconds =
704 seconds

(b)
$$\begin{array}{r} \mathbf{88\ seconds} \\ 8\overline{)704\ seconds} \\ \underline{64} \\ 64 \\ \underline{64} \\ 0 \end{array}$$

3.
$$\begin{array}{r} {\scriptstyle 1}\overset{1}{\cancel{2}}\overset{10}{\cancel{1}}.{}^{1}0\ \text{gallons} \\ -\ 1\ 3.\ 3\ \text{gallons} \\ \hline \mathbf{7.\ 7\ gallons} \end{array}$$

4.
$$\begin{array}{r} 1{,}000{,}200{,}000 \text{ people} \\ -\ 725{,}000{,}000 \text{ people} \\ \hline \textbf{275,200,000 people} \end{array}$$

5.

15 games

$\frac{2}{3}$ won.	5 games
	5 games
$\frac{1}{3}$ lost.	5 games

(a) $2(5 \text{ games}) = \textbf{10 games}$

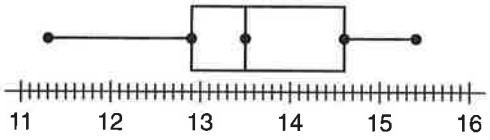
(b) $\frac{\text{won}}{\text{lost}} = \frac{\textbf{2}}{\textbf{1}}$

6. (a) **13.5 seconds**

(b) **12.8 seconds**

(c) **14.7 seconds**

7.



8. $\frac{120 \text{ mm}}{6} = 20 \text{ mm}$

Perimeter $= (4)(20 \text{ mm}) = \textbf{80 mm}$

9. (a) $0.375 = \frac{375}{1000} = \frac{\textbf{3}}{\textbf{8}}$

(b) $5.55 = 5\frac{55}{100} = \textbf{5}\frac{\textbf{11}}{\textbf{20}}$

10. (a) $2\frac{2}{5} = \frac{12}{5}$

$$\begin{array}{r} \textbf{2.4} \\ 5\overline{)12.0} \\ \underline{10} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

(b)
$$\begin{array}{r} \textbf{0.125} \\ 8\overline{)1.000} \\ \underline{8} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

11. (a) $0.\overline{45} = 0.4545\ldots$

$0.45\underline{\textcircled{5}}\ldots \longrightarrow \textbf{0.455}$

(b) $3.\overline{142857} =$

$3.142857142857\ldots$

$3.14\underline{\textcircled{2}}57142857 \longrightarrow \textbf{3.143}$

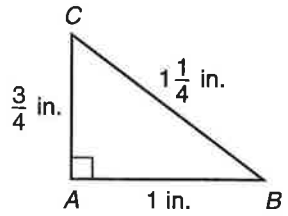
12.
$$\begin{array}{r} 0.15833\ldots \\ 12\overline{)1.90000\ldots} \\ \underline{12} \\ 70 \\ \underline{60} \\ 100 \\ \underline{96} \\ 40 \\ \underline{36} \\ 40 \\ \underline{36} \\ 40 \end{array}$$

(a) $\textbf{0.158}\overline{\textbf{3}}$

(b) $0.15\underline{\textcircled{8}}\ldots \longrightarrow \textbf{0.158}$

13.
$$\begin{array}{r} {}^{3}\not{4}.\,{}^{9}\not{0}\,{}^{1}\not{5}0 \\ -\ 0.\,1\,6\,7 \\ \hline \textbf{3.8 8 3} \end{array}$$

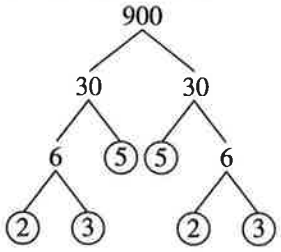
14.



$BC = \textbf{1}\frac{\textbf{1}}{\textbf{4}} \textbf{ inches}$

15. $\frac{26}{52} = \frac{\textbf{1}}{\textbf{2}}$

16. (a) **One possibility:**



(b) $2^2 \cdot 3^2 \cdot 5^2$

(c) $\sqrt{900} = 30 = \textbf{2} \cdot \textbf{3} \cdot \textbf{5}$

17. 1 liter = 1000 milliliters

$$\frac{1000 \text{ milliliters}}{2 \text{ milliliters}} = 500$$

500 eyedroppers

18. (a) $8\% = \frac{8}{100} = \mathbf{0.08}$

(b) $\$8.90 \times 0.08$

$\$0.7120 \longrightarrow \mathbf{\$0.71}$

19. (a) Perimeter = 0.6 m + 1 m + 0.8 m
= **2.4 m**

(b) Area $= \frac{(0.8 \text{ m})(0.6 \text{ m})}{2} = \mathbf{0.24 \text{ m}^2}$

20. $\frac{32}{2} = \frac{320}{20}$

The division problems are equivalent problems because the quotients are equal.

21. $2(3 + 4) = 2(7) = \mathbf{14}$

22. $\frac{10}{18} = \frac{c}{4.5}$

$18c = 10 \cdot 4.5$

$c = \frac{45}{18}$

$c = 2\frac{1}{2}$ or **2.5**

23. $1.\overset{8}{\not 9}\overset{1}{0} - 0.42 = 1.48$

$w = \mathbf{1.48}$

24.
$$4\overline{)6.500} = \mathbf{1.625}$$
4
25
24
10
8
20
20
0

25. $3\frac{3}{10} = 3\frac{9}{30} \longrightarrow 2\frac{39}{30}$

$-\ 1\frac{11}{15} = 1\frac{22}{30} \qquad -\ 1\frac{22}{30}$

$\mathbf{1\frac{17}{30}}$

26. $5\frac{1}{2} = 5\frac{5}{10}$

$6\frac{3}{10} = 6\frac{3}{10}$

$+\ \frac{4}{5} = \frac{8}{10}$

$11\frac{16}{10} = 12\frac{6}{10} = \mathbf{12\frac{3}{5}}$

27. $7\frac{1}{2} \cdot 3\frac{1}{3} \cdot \frac{4}{5} = \frac{\overset{5}{\cancel{15}}}{\underset{1}{\cancel{2}}} \cdot \frac{\overset{1}{\cancel{10}}}{\underset{1}{\cancel{3}}} \cdot \frac{4}{\underset{1}{\cancel{5}}} = 20$

$20 \div 5 = \mathbf{4}$

28. **(5, 10)**

29. $m\angle a = 180° - 110° = \mathbf{70°}$

$m\angle b = 180° - (70° + 50°)$

$= 180° - 120° = \mathbf{60°}$

$m\angle c = 180° - 60° = \mathbf{120°}$

30. (a) **180°**

(b) **90°**

(c) **45°**

LESSON 44, LESSON PRACTICE

a.
$$4\overline{)55} = \mathbf{13\ R\ 3}$$
4
15
12
3

b.
$$4\overline{)55} = \mathbf{13\frac{3}{4}}$$
4
15
12
3

c.
$$\begin{array}{r} \mathbf{13.75} \\ 4\overline{)55.00} \\ \underline{4} \\ 15 \\ \underline{12} \\ 30 \\ \underline{28} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

d.
$$\begin{array}{r} 1.8333\ldots \\ 3\overline{)5.5000\ldots} \\ \underline{3} \\ 25 \\ \underline{24} \\ 10 \\ \underline{9} \\ 10 \\ \underline{9} \\ 10 \end{array}$$

$1.833\overline{3}\ldots \longrightarrow \mathbf{1.833}$

e.
$$\begin{array}{r} 23\text{ R }1 \\ 4\overline{)93} \\ \underline{8} \\ 13 \\ \underline{12} \\ 1 \end{array}$$

23 students are in three classrooms, and 24 students are in the fourth classroom.
23, 23, 23, and 24 students

LESSON 44, MIXED PRACTICE

1. $\dfrac{\text{length}}{\text{width}} = \dfrac{24}{18} = \mathbf{\dfrac{4}{3}}$

2.
$$\begin{array}{r} 90 \\ 95 \\ 90 \\ 85 \\ 80 \\ 85 \\ 90 \\ 80 \\ 95 \\ +\ 100 \\ \hline 890 \end{array} \qquad \begin{array}{r} \mathbf{89} \\ 10\overline{)890} \end{array}$$

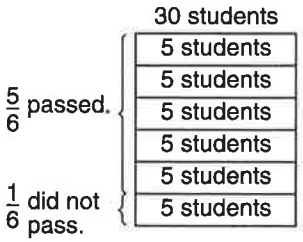
3. $\dfrac{\text{able to find a job}}{\text{total}} = \mathbf{\dfrac{3}{5}}$

4.
$$\begin{array}{r} \$0.34 \\ \times\quad 50 \\ \hline \$17.00 \end{array} \qquad \begin{array}{r} \$20.00 \\ -\ \$17.00 \\ \hline \mathbf{\$3.00} \end{array}$$

5.
$$\begin{array}{r} 2.\overset{8}{\not 9}\,\overset{17}{\not 8}0 \\ -\ 0.097 \\ \hline 2.883 \end{array}$$

Two and eight hundred eighty-three thousandths

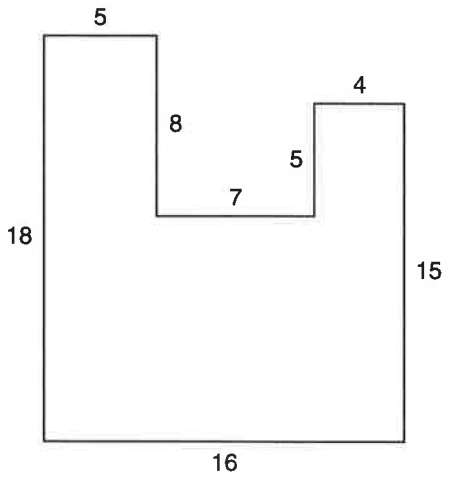
6.



(a) **5 students**

(b) $\dfrac{\text{passed}}{\text{did not pass}} = \dfrac{25}{5} = \mathbf{\dfrac{5}{1}}$

7.



Perimeter = 18m + 5m + 8m + 7m + 5m + 4m + 15m + 16m
= **78 m**

8. (a) $0.75 = \dfrac{75}{100} = \mathbf{\dfrac{3}{4}}$

(b)
$$\begin{array}{r} \mathbf{0.625} \\ 8\overline{)5.000} \\ \underline{48} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

(c) $125\% = \dfrac{125}{100} = \mathbf{1.25}$

9. $\frac{\text{hearts}}{\text{total cards}} = \frac{13}{52} = \frac{1}{4}$

10. **B. (2 · 3) + (2 · 4)**

11. $10 + 5 = 15$
$15 + 6 = 21$
$21 + 7 = 28$
15, 21, 28

12.
$$11\overline{)5.40000\ldots}\quad 0.49090\ldots$$
$$\begin{array}{r} 44 \\ \hline 100 \\ 99 \\ \hline 10 \\ 0 \\ \hline 100 \\ 99 \\ \hline 10 \\ 0 \\ \hline 10 \end{array}$$

(a) $0.4\overline{90}$

(b) $0.490\textcircled{9}0\ldots \longrightarrow$ **0.491**

13. $2 \times 3 \times 5 \times 7 =$ **210**

14. (a) $-12, 0, 0.12, \frac{1}{2}, 1.2$

(b) $-12, 0$

15. (a) $12\left(1\frac{1}{2}\text{ inches}\right)$

$= 12\left(\frac{3}{2}\text{ inches}\right) = 6 \times 3\text{ inches}$

$=$ **18 inches**

(b) 1 yard = 36 inches

$36\text{ inches} \div 1\frac{1}{2} = \frac{36}{1} \div \frac{3}{2}$

$= \frac{\overset{12}{\cancel{36}}}{1} \times \frac{2}{\cancel{3}_{1}} =$ **24 books**

16.
$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 2.46 \\ +\ 2.54 \\ \hline 5.00 \end{array} = \mathbf{5}$$

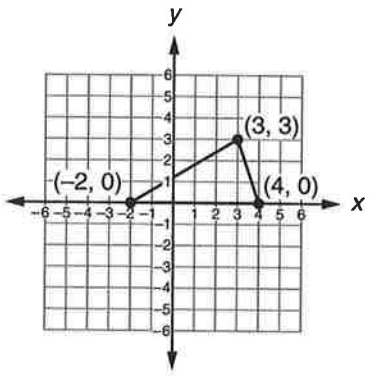
17. $3 \times 10\text{ meters} =$ **30 meters**

18. **Answers will vary. See student work.**

(a) Area = (2.5 cm)(2.5 cm) = **6.25 cm²**

(b) Perimeter = 4(2.5 cm) = **10 cm**

19.



$\text{Area} = \frac{(6\text{ units})(3\text{ units})}{2} =$ **9 units²**

20. $\frac{25}{15} = \frac{n}{1.2}$
$15n = 25 \cdot 1.2$
$n = \frac{30}{15}$
$n =$ **2**

21. $\frac{p}{90} = \frac{4}{18}$
$18p = 90 \cdot 4$
$p = \frac{360}{18}$
$p =$ **20**

22.
$$\begin{array}{r} {\scriptstyle 3\ 1\ 9} \\ \cancel{4}.\cancel{1}\cancel{0}^{1}0 \\ -\ 3.1\,4 \\ \hline 0.8\,6 \end{array}$$
$x =$ **0.86**

23.
$$\begin{array}{r} {\scriptstyle 0} \\ \cancel{1}\,^{1}0 \\ -\ 0.1 \\ \hline 0.9 \end{array}$$
$z =$ **0.9**

24.
$$\begin{array}{r} \mathbf{2.0525} \\ 8\overline{)16.4200} \\ \underline{16} \\ 04 \\ \underline{0} \\ 42 \\ \underline{40} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

25.
$$\begin{array}{r} \mathbf{0.017} \\ 9\overline{)0.153} \\ \underline{9} \\ 63 \\ \underline{63} \\ 0 \end{array}$$

26.
$$\begin{array}{rl} & 5\frac{3}{4} = 5\frac{9}{12} \\ & \frac{5}{6} = \frac{10}{12} \\ + & 2\frac{1}{2} = 2\frac{6}{12} \\ \hline & 7\frac{25}{12} = \mathbf{9\frac{1}{12}} \end{array}$$

27.
$$\begin{array}{lll} 5 \longrightarrow & 4\frac{6}{6} & 3\frac{1}{3} = 3\frac{2}{6} \\ -\ 1\frac{5}{6} & -\ 1\frac{5}{6} & -\ 3\frac{1}{6} = 3\frac{1}{6} \\ \hline & 3\frac{1}{6} & \mathbf{\frac{1}{6}} \end{array}$$

28. $3\frac{3}{4} \cdot 3\frac{1}{3} \cdot 8 = \frac{\overset{5}{\cancel{15}}}{\underset{1}{\cancel{4}}} \cdot \frac{10}{\underset{1}{\cancel{3}}} \cdot \frac{\overset{2}{\cancel{8}}}{1} = \mathbf{100}$

29. $7 \div 10\frac{1}{2} = \frac{7}{1} \div \frac{21}{2} = \frac{\overset{1}{\cancel{7}}}{1} \times \frac{2}{\underset{3}{\cancel{21}}} = \mathbf{\frac{2}{3}}$

30. (a) $m\angle ABD = 180° - (35° + 90°)$
$= 180° - 125° = \mathbf{55°}$

(b) $m\angle CBD = 90° - 55° = \mathbf{35°}$

(c) $m\angle BDC = 90° - 35° = \mathbf{55°}$

(a) **The other two angles of ΔABD measure 35° and 90°. For the sum to be 180°, $m\angle ABD$ must be 55°.**

(b) **Since the figure is a rectangle, $m\angle ABC$ is 90°. We found that $m\angle ABC$ is 55°; $\angle CBD$ is the complement of $\angle ABD$, so $m\angle CBD$ is 35°.**

(c) **Angle *BDC* is the complement of a 35° angle. Also, $\angle BCD$ is the third angle of a triangle whose other two angles measure 35° and 90°.**

Lesson 45, Lesson Practice

a.
$$\begin{array}{r} \mathbf{8.6} \\ 06\overline{)51.6} \\ \underline{48} \\ 36 \\ \underline{36} \\ 0 \end{array}$$

b.
$$\begin{array}{r} \mathbf{1.6} \\ 009\overline{)14.4} \\ \underline{9} \\ 54 \\ \underline{54} \\ 0 \end{array}$$

c.
$$\begin{array}{r} \mathbf{340.} \\ 007\overline{)2380.} \\ \underline{21} \\ 28 \\ \underline{28} \\ 00 \\ \underline{0} \\ 0 \end{array}$$

d.
$$\begin{array}{r} \mathbf{300.} \\ 008\overline{)2400.} \\ \underline{24} \\ 00 \\ \underline{0} \\ 00 \\ \underline{0} \\ 0 \end{array}$$

e.
$$\begin{array}{r} \mathbf{16\ pens} \\ \$075\overline{)\$1200.} \\ \underline{75} \\ 450 \\ \underline{450} \\ 0 \end{array}$$

f. **If we multiply $\frac{0.25}{0.5}$ by $\frac{10}{10}$, the result is $\frac{2.5}{5}$. Since $\frac{10}{10}$ equals 1, we have not changed the value by multiplying—we have only changed the form.**

LESSON 45, MIXED PRACTICE

1. $\frac{\text{raisins}}{\text{nuts}} = \frac{3}{5}$

2. $\$1 + \$0.40(8)$
$= \$1 + \$3.20 = \mathbf{\$4.20}$

3. $54.05 - 50.04 = 4.01$
Four and one-hundredth

4. (a) 22 votes − 18 votes = **4 votes**

(b) $\frac{\text{Carlos's votes}}{\text{total votes}} = \frac{14}{70} = \frac{1}{5}$

5.

Riders on the Giant Gyro

$\frac{4}{7}$ were euphoric.	$\frac{1}{7}$ of riders
	$\frac{1}{7}$ of riders
	$\frac{1}{7}$ of riders
	$\frac{1}{7}$ of riders
$\frac{3}{7}$ were vertiginous.	$\frac{1}{7}$ of riders
	$\frac{1}{7}$ of riders
	$\frac{1}{7}$ of riders

(a) $\frac{3}{7}$

(b) $\frac{\text{euphoric riders}}{\text{vertiginous riders}} = \frac{4}{3}$

6. $10 = 2 \cdot 5$
$16 = 2 \cdot 2 \cdot 2 \cdot 2$
$\text{LCM}(10, 16) = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 5 = \mathbf{80}$

7. $5^2 \times 10^2 = 5 \cdot 5 \cdot 10 \cdot 10$
$= 25 \cdot 100 = \mathbf{2500}$

8. (a) $56\text{ cm} - 20\text{ cm} = 36\text{ cm}$
$\frac{36\text{ cm}}{2} = \mathbf{18\text{ cm}}$

(b) $\text{Area} = (10\text{ cm})(18\text{ cm})$
$= \mathbf{180\text{ cm}^2}$

9. (a) $\mathbf{62\frac{1}{2}}$

(b) **0.09**

(c) $7.5\% = \frac{7.5}{100} = \mathbf{0.075}$

10. (a) $23.54545\underline{4}5\ldots \longrightarrow \mathbf{23.54545}$

(b) $0.91666\underline{6}\ldots \longrightarrow \mathbf{0.91667}$

11. $2\text{ kilograms} = 2(1000\text{ grams})$
$= \mathbf{2000\text{ grams}}$

12.
$$\begin{array}{r} 0.065 \\ \times\ \$5.00 \\ \hline \$0.32500 \end{array} \longrightarrow \mathbf{\$0.33}$$

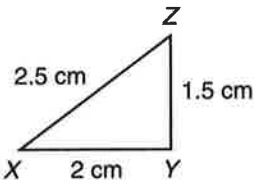
13.
$$\begin{array}{r} 0.566\ldots \\ 9\overline{)5.100\ldots} \\ 45 \\ \hline 60 \\ 54 \\ \hline 60 \\ 54 \\ \hline 6 \end{array}$$

(a) $0.566\underline{6}\ldots \longrightarrow \mathbf{0.567}$

(b) $\mathbf{0.5\overline{6}}$

14. $\frac{\text{aces}}{\text{total cards}} = \frac{4}{52} = \frac{1}{13}$

15.



$XZ = \mathbf{2.5\text{ cm}}$

16. (a) $\text{Perimeter} = 2.5\text{ cm} + 1.5\text{ cm} + 2\text{ cm}$
$= \mathbf{6\text{ cm}}$

(b) $\text{Area} = \frac{(1.5\text{ cm})(2\text{ cm})}{2}$
$= \mathbf{1.5\text{ cm}^2}$

17. $\frac{3}{w} = \frac{25}{100}$

$25w = 3 \cdot 100$

$w = \frac{300}{25}$

$w = \mathbf{12}$

18. $\frac{1.2}{4.4} = \frac{3}{a}$

$1.2a = 3 \cdot 4.4$

$a = \frac{13.2}{1.2}$

$a = \mathbf{11}$

19.
$$\begin{array}{r} {\scriptstyle 0\ 1}\\ 1.\ 2^{1}0\\ -\ 0.\ 2\ 3\\ \hline 0.\ 9\ 7 \end{array}$$

$m = \mathbf{0.97}$

20.
$$\begin{array}{r} {\scriptstyle 1\ 1}\\ 0.65\\ +\ 1.97\\ \hline 2.62 \end{array}$$

$r = \mathbf{2.62}$

21.
$$\begin{array}{r} 0.15\\ \times\ 0.15\\ \hline 75\\ 15\\ \hline \mathbf{0.0225} \end{array}$$

22.
$$\begin{array}{r} 1.2\\ \times\ 2.5\\ \hline 6\,0\\ 2\,4\\ \hline 3.00 \end{array} = 3$$

$3 \times 4 = \mathbf{12}$

23.
$$\begin{array}{r} \mathbf{2.828}\\ 5\overline{)14.140}\\ \underline{10}\\ 41\\ \underline{40}\\ 14\\ \underline{10}\\ 40\\ \underline{40}\\ 0 \end{array}$$

24.
$$\begin{array}{r} \mathbf{0.8}\\ 012.\overline{)009.6}\\ \underline{96}\\ 0 \end{array}$$

25.
$$\begin{array}{rcl} \frac{5}{8} & = & \frac{15}{24}\\ \frac{5}{6} & = & \frac{20}{24}\\ +\ \frac{5}{12} & = & \frac{10}{24}\\ \hline & & \frac{45}{24} = 1\frac{21}{24} = \mathbf{1\frac{7}{8}} \end{array}$$

26.
$$\begin{array}{rcl} 2\frac{1}{3} & = & 2\frac{4}{12}\\ -\ 1\frac{1}{4} & = & 1\frac{3}{12}\\ \hline & & 1\frac{1}{12} \end{array}$$

$$\begin{array}{rcl} 4\frac{1}{2} & = & 4\frac{6}{12}\\ -\ 1\frac{1}{12} & = & 1\frac{1}{12}\\ \hline & & \mathbf{3\frac{5}{12}} \end{array}$$

27. $\frac{7}{15} \cdot 10 \cdot 2\frac{1}{7} = \frac{\cancel{7}^{1}}{\cancel{15}_{1}} \cdot \frac{10}{1} \cdot \frac{\cancel{15}^{1}}{\cancel{7}_{1}} = \mathbf{10}$

28. $6\frac{3}{5} \div 1\frac{1}{10} = \frac{33}{5} \div \frac{11}{10}$

$= \frac{\cancel{33}^{3}}{\cancel{5}_{1}} \times \frac{\cancel{10}^{2}}{\cancel{11}_{1}} = \mathbf{6}$

29.
$$\begin{array}{r} 33\frac{1}{3}\\ \$021.\overline{)\$700.}\\ \underline{63}\\ 70\\ \underline{63}\\ 7 \end{array}$$

33 pencils

30. (a) **Answers will vary. See student work.**

(b) **The sum of the angle measures of a triangle is 180°.**