**26.** $0.9x + 1.2 \le 3$

$0.9x + 1.2 - 1.2 \le 3 - 1.2$

$0.9x \le 1.8$

$\frac{0.9x}{0.9} \le \frac{1.8}{0.9}$

$x \le 2$

$x \le 2$




**27.** $\frac{10^3 \cdot 10^2}{10^5} - 10^{-1}$

$= \frac{10^5}{10^5} - \frac{1}{10}$

$= 1 - \frac{1}{10} = \frac{10}{10} - \frac{1}{10} = \frac{9}{10}$ or **0.9**

**28.** $\sqrt{1^3 + 2^3} + (1 + 2)^3$

$= \sqrt{1 + 8} + (3)^3 = \sqrt{9} + 27$

$= 3 + 27 = \mathbf{30}$

**29.** $5 - 2\frac{2}{3}\left(1\frac{3}{4}\right) = 5 - \frac{8}{3}\left(\frac{7}{4}\right)$

$= 5 - \frac{14}{3} = 4\frac{3}{3} - 4\frac{2}{3} = \frac{1}{3}$

**30.** (a) $\frac{(-10) + (-8) - (-6)}{(-2)(+3)}$

$\frac{-18 - (-6)}{-6}$

$\frac{-12}{-6}$

**2**

(b) $-8 + 3(-2) - 6$

$-8 + (-6) - 6$

**−20**

---

## Lesson 96, Lesson Practice

**a.** $4 \times 6° = \mathbf{24°}$

**b.** $20 \times 6° = \mathbf{120°}$

**c.** $7 \times 6° = \mathbf{42°}$

**d.** **See student work; 55°**

**e.** **See student work; 15°**

**f.** **See student work; 45°**

**g.** **See student work; 145°**

**h.** $x(x - y)$

$\mathbf{x^2 - xy}$

**i.** $-3(2x - 1)$

$\mathbf{-6x + 3}$

**j.** $-x(x - 2)$

$\mathbf{-x^2 + 2x}$

**k.** $-2(4 - 3x)$

$\mathbf{-8 + 6x}$

**l.** $x^2 + 2x - 3(x + 2)$

$x^2 + 2x - 3x - 6$

$\mathbf{x^2 - x - 6}$

**m.** $x^2 - 2x - 3(x - 2)$

$x^2 - 2x - 3x + 6$

$\mathbf{x^2 - 5x + 6}$

---

## Lesson 96, Mixed Practice

**1.** $3(\$280) + 5(\$240)$

$= \$840 + \$1200 = \$2040$

$\underline{\mathbf{\$255}}$ **per ton**

$8\overline{)\$2040}$

**2.** $\frac{9^2}{\sqrt{9}} = \frac{81}{3} = \mathbf{27}$

**3.** $\frac{2000 \text{ miles}}{25 \text{ miles per gallon}} = 80 \text{ gallons}$

$\frac{80 \text{ gallons}}{16 \text{ gallons per tank}} = \mathbf{5 \text{ tanks}}$

**4.** $\frac{\text{vertices}}{\text{edges}} = \mathbf{\frac{2}{3}}$

**5.**

| | Case 1 | Case 2 |
|---|---|---|
| Dollars | 12 | $d$ |
| Yuan | 100 | 475 |

$$\frac{12}{100} = \frac{d}{475}$$
$$100d = 5700$$
$$d = \textbf{57 dollars}$$

**6.**

| | Percent | Actual Count |
|---|---|---|
| Original | 100 | $O$ |
| − Change | 20 | $C$ |
| New | 80 | 60 |

$$\frac{100}{80} = \frac{O}{60}$$
$$80O = 6000$$
$$O = \textbf{75}$$

**7.**

| | Percent | Actual Count |
|---|---|---|
| Original | 100 | 120 |
| + Change | 25 | $C$ |
| New | 125 | $N$ |

$$\frac{100}{125} = \frac{120}{N}$$
$$100N = 15{,}000$$
$$N = \textbf{150 customers per day}$$

**8.** (a) $\mathbf{60 = W_P \times 50}$

$$\frac{60}{50} = \frac{W_P \times 50}{50}$$
$$\frac{6}{5} = W_P$$
$$W_P = \frac{6}{5} \times 100\% = \textbf{120\%}$$

(b) $\mathbf{50 = W_P \times 60}$

$$\frac{50}{60} = \frac{W_P \times 60}{60}$$
$$\frac{5}{6} = W_P$$
$$W_P = \frac{5}{6} \times 100\% = \textbf{83}\,\frac{\mathbf{1}}{\mathbf{3}}\textbf{\%}$$

**9.** $1.2\ \text{m}^2 \cdot \frac{100\ \text{cm}}{1\ \text{m}} \cdot \frac{100\ \text{cm}}{1\ \text{m}}$

$= \textbf{12,000 cm}^2$

**10.** (a) **Angles: $\angle A$ and $\angle E$, $\angle B$ and $\angle D$, $\angle ACB$ and $\angle ECD$ (or $\angle BCA$ and $\angle DCE$)**
**Sides: $\overline{AB}$ and $\overline{ED}$ (or $\overline{BA}$ and $\overline{DE}$), $\overline{BC}$ and $\overline{DC}$ (or $\overline{CB}$ and $\overline{CD}$), $\overline{AC}$ and $\overline{EC}$ (or $\overline{CA}$ and $\overline{CE}$)**

(b) $m\angle ECD = 90° - 53° = \textbf{37°}$

**11.** $x + y \geqslant x - y$

**12.** $(-2)[(-4) + (-3)]$

$-2[-7]$

**14**

**13.** 1 yard = 36 inches

Area = (9 inches)(9 inches)

$= \textbf{81 square inches}$

**14.** (a) $p(3, 3) = \frac{1}{4} \cdot \frac{1}{4} = \frac{\mathbf{1}}{\mathbf{16}}$

(b) $p(1, 1, 1, 1) = \frac{2}{4} \cdot \frac{2}{4} \cdot \frac{2}{4} \cdot \frac{2}{4}$

$= \frac{16}{256} = \frac{\mathbf{1}}{\mathbf{16}}$

**15.** (a) Area of base = (3 cm)(3 cm)

$= 9\ \text{cm}^2$

Volume = $(9\ \text{cm}^2)(3\ \text{cm}) = \textbf{27 cm}^3$

(b) Area of base $= \frac{(4\ \text{cm})(6\ \text{cm})}{2}$

$= 12\ \text{cm}^2$

Volume = $(12\ \text{cm}^2)(5\ \text{cm}) = \textbf{60 cm}^3$

**16.**

| | | |
|---|---|---|
| \$14.50 | \$290 | \$290 |
| × 20 | × 0.07 | + \$20.30 |
| \$290 | \$20.30 | **\$310.30** |

**17.** (a) $\frac{\mathbf{3}}{\mathbf{80}}$

(b) **0.0375**

**18.**

| | Percent | Actual Count |
|---|---|---|
| Original | 100 | \$24 |
| − Change | $33\frac{1}{3}$ | $C$ |
| New | $66\frac{2}{3}$ | $N$ |

(a) $\frac{100}{33\frac{1}{3}} = \frac{\$24}{C}$

$100C = \$24\left(33\frac{1}{3}\right)$

$100C = \frac{\$2400}{3}$

$C = \textbf{\$8}$

(b) \$24

− \$8

**\$16**

**19.** $24 \times 10^{-5} = \mathbf{2.4 \times 10^{-4}}$

**20.** (a) $C = \pi(12\text{ m})$
$C = \mathbf{12\pi\text{ m}}$

(b) $A = \pi(36\text{ m}^2)$
$A = \mathbf{36\pi\text{ m}^2}$

**21.** (a) $15 \times 6° = \mathbf{90°}$

(b) $25 \times 6° = \mathbf{150°}$

(c) $8 \times 6° = \mathbf{48°}$

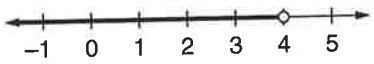
**22.** (a) $\frac{360°}{8} = \mathbf{45°}$

(b) $180° - 45° = \mathbf{135°}$

**23.** $\boldsymbol{Q'(8, -4), R'(4, 0), S'(0, -4), T'(4, -8)}$

**24.**
$$0.8x + 1.5 < 4.7$$
$$0.8x + 1.5 - 1.5 < 4.7 - 1.5$$
$$0.8x < 3.2$$
$$\frac{0.8x}{0.8} < \frac{3.2}{0.8}$$
$$\boldsymbol{x < 4}$$

$x < 4$




**25.**
$$2\frac{1}{2}x - 7 = 13$$
$$2\frac{1}{2}x - 7 + 7 = 13 + 7$$
$$2\frac{1}{2}x = 20$$
$$\left(\frac{2}{5}\right)\frac{5}{2}x = \left(\frac{2}{5}\right)20$$
$$\boldsymbol{x = 8}$$

**26.**
$$-3x + 8 = -10$$
$$-3x + 8 - 8 = -10 - 8$$
$$-3x = -18$$
$$\frac{-3x}{-3} = \frac{-18}{-3}$$
$$\boldsymbol{x = 6}$$

**27.** (a) $-3(x - 4)$
$\mathbf{-3x + 12}$

(b) $x(x + y)$
$\mathbf{x^2 + xy}$

**28.** (a)
$$\frac{(-4) - (-8)(-3)(-2)}{-2}$$
$$\frac{(-4) - (24)(-2)}{-2}$$
$$\frac{(-4) - (-48)}{-2}$$
$$\frac{44}{-2}$$
$$\mathbf{-22}$$

(b) $(-3)^2 + 3^2 = 9 + 9 = \mathbf{18}$

**29.** (a) $(-4ab^2)(-3b^2c)(5a)$
$(-4) \cdot a \cdot b \cdot b \cdot (-3) \cdot b \cdot b \cdot c \cdot (5) \cdot a$
$(-4)(-3)(5) \cdot a \cdot a \cdot b \cdot b \cdot b \cdot b \cdot c$
$\boldsymbol{60\,a^2b^4c}$

(b) $a^2 + ab - ab - b^2$
$\boldsymbol{a^2 - b^2}$

**30.** **A, A; A, B; A, C; B, A; B, B; B, C; C, A; C, B; C, C**

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## LESSON 97, LESSON PRACTICE

**a.** **Corresponding angles: $\angle W$ and $\angle R$; $\angle Y$ and $\angle Q$; $\angle X$ and $\angle P$**
**Corresponding sides: $\overline{YW}$ and $\overline{QR}$; $\overline{WX}$ and $\overline{RP}$; $\overline{XY}$ and $\overline{PQ}$**

**b.** **See student work.**

**c.**
$$\frac{6}{9} = \frac{x}{12}$$
$$9x = 72$$
$$x = \mathbf{8}$$

**d.** **See student work.**

**e.**
$$\frac{6}{9} = \frac{12}{y}$$
$$6y = 108$$
$$y = \mathbf{18}$$

**f.**
$$\frac{H_T}{6\text{ ft}} = \frac{18\text{ ft}}{9\text{ ft}}$$
$$9\text{ ft} \cdot H_T = 18\text{ ft} \cdot 6\text{ ft}$$
$$H_T = \frac{\overset{6}{\cancel{18}}\text{ ft} \cdot \overset{2}{\cancel{6}}\text{ ft}}{\underset{1}{\cancel{9}}\text{ ft}}$$
$$H_T = \mathbf{12\text{ ft}}$$

**g. About 11 ft**

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## LESSON 97, MIXED PRACTICE

**1.**
$$\begin{array}{r} \$8.95 \\ \times\ 0.06 \\ \hline \$0.537 \end{array} \longrightarrow \$0.54 \qquad \begin{array}{r} \$8.95 \\ +\ \$0.54 \\ \hline \$9.49 \end{array}$$
$$\begin{array}{r} \$10.00 \\ -\ \$9.49 \\ \hline \mathbf{\$0.51} \end{array}$$

**2.**
$$\begin{array}{r} \overset{1}{\not{2}},\overset{1}{0}00,000,000,000 \\ -\quad 300,000,000,000 \\ \hline 1,700,000,000,000 \end{array} \qquad \mathbf{1.7 \times 10^{12}}$$

**3.** (a) **90**

(b) **90**

(c) **20**

**4.**

| | Case 1 | Case 2 |
|---|---|---|
| Miles | 24 | $m$ |
| Minutes | 60 | 5 |

$$\frac{24}{60} = \frac{m}{5}$$
$$60m = 120$$
$$m = \mathbf{2\ miles}$$

**5.**

| | Case 1 | Case 2 |
|---|---|---|
| Yards | 3520 | $y$ |
| Minutes | 5 | 8 |

$$\frac{3520}{5} = \frac{y}{8}$$
$$5y = 28{,}160$$
$$y = \mathbf{5632\ yards}$$

**6. Translation of 5 units to the right**

**7.** 1 yard = 36 inches

$$\frac{\overset{1}{\not{3}}}{\underset{1}{\not{4}}} \times \overset{9}{\not{36}}\ \text{inches} = \mathbf{27\ inches}$$

**8.**

| | Ratio | Actual Count |
|---|---|---|
| Leeks | 5 | $L$ |
| Radishes | 7 | 420 |

$$\frac{5}{7} = \frac{L}{420}$$
$$7L = 2100$$
$$L = \mathbf{300\ leeks}$$

**9.** $\mathbf{40 = 2.5 \times W_N}$

$$\frac{40}{2.5} = \frac{2.5 \times W_N}{2.5}$$
$$\mathbf{16} = W_N$$

**10.** $\mathbf{40 = W_P \times 60}$

$$\frac{40}{60} = \frac{W_P \times 60}{60}$$
$$\frac{2}{3} = W_P$$
$$W_P = \frac{2}{3} \times 100\% = \mathbf{66\frac{2}{3}\%}$$

**11.** $W_D = 0.4 \times 6$

$W_D = \mathbf{2.4}$

**12.**

| | Percent | Actual Count |
|---|---|---|
| Original | 100 | $O$ |
| + Change | 10 | $C$ |
| New | 110 | \$17,600 |

$$\frac{100}{110} = \frac{O}{\$17{,}600}$$
$$110O = \$1{,}760{,}000$$
$$O = \mathbf{\$16{,}000}$$

**13.** $\dfrac{1.78 + 2.04}{2} = \mathbf{1.91}$

**14.** (a) $\mathbf{3\frac{1}{4}}$

(b) **325%**

(c) $\mathbf{0.1\overline{6}}$

(d) $\mathbf{16\frac{2}{3}\%}$

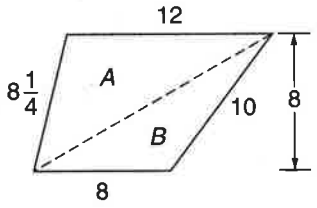
**15.** $x + y \lessgtr x - y$

**16.** $(5.4 \times 6) \times (10^8 \times 10^{-4})$
$= 32.4 \times 10^4 = \mathbf{3.24 \times 10^5}$

**17.** (a) $C \approx 3.14(20 \text{ mm})$
$C \approx \mathbf{62.8 \text{ mm}}$

(b) $A \approx 3.14(100 \text{ mm}^2)$
$A \approx \mathbf{314 \text{ mm}^2}$

**18.**




Area of triangle $A = \dfrac{(12 \text{ ft})(8 \text{ ft})}{2} = 48 \text{ ft}^2$

\+ Area of triangle $B = \dfrac{(8 \text{ ft})(8 \text{ ft})}{2} = 32 \text{ ft}^2$

Area of figure $= \mathbf{80 \text{ ft}^2}$

**19.** (a) Area of base $= \dfrac{(1 \text{ m})(2 \text{ m})}{2} = 1 \text{ m}^2$

Volume $= (1 \text{ m}^2)(2 \text{ m}) = \mathbf{2 \text{ m}^3}$

(b) Area of base $= \pi (1 \text{ m}^2) = \pi \text{ m}^2$

Volume $= (\pi \text{ m}^2)(1 \text{ m}) = \boldsymbol{\pi \text{m}^3}$

**20.** (a) $\text{m}\angle X = 180° - (120° + 25°)$
$= \mathbf{35°}$

(b) $\text{m}\angle Y = 180° - (90° + 35°) = \mathbf{55°}$

(c) $\text{m}\angle A = 180° - (60° + 55°)$
$= \mathbf{65°}$

**21.** $\dfrac{x}{12 \text{ cm}} = \dfrac{10 \cancel{\text{cm}}}{15 \cancel{\text{cm}}}$

$15 \cdot x = 120 \text{ cm}$

$x = \mathbf{8 \text{ cm}}$

**22.** **See student diagrams.**

$\dfrac{H_P}{3 \text{ ft}} = \dfrac{72 \text{ ft}}{4 \text{ ft}}$

$4 \text{ ft} \times H_P = 3 \text{ ft} \times 72 \text{ ft}$

$H_P = \dfrac{3 \text{ ft} \times \overset{18}{\cancel{72}} \cancel{\text{ft}}}{\underset{1}{\cancel{4}} \cancel{\text{ft}}}$

$H_P = \mathbf{54 \text{ ft}}$

**23.** $\dfrac{(40{,}000)(600)}{80} = \mathbf{300{,}000}$

**24.** $1.2m + 0.12 = 12$

$1.2m + 0.12 - 0.12 = 12 - 0.12$

$1.2m = 11.88$

$\dfrac{1.2m}{1.2} = \dfrac{11.88}{1.2}$

$m = \mathbf{9.9}$

**25.** $1\frac{3}{4}y - 2 = 12$

$1\frac{3}{4}y - 2 + 2 = 12 + 2$

$1\frac{3}{4}y = 14$

$\left(\dfrac{\overset{1}{\cancel{4}}}{\underset{1}{\cancel{7}}}\right)\dfrac{\overset{1}{\cancel{7}}}{\underset{1}{\cancel{4}}}y = \left(\dfrac{4}{\underset{1}{\cancel{7}}}\right)\overset{2}{\cancel{14}}$

$y = \mathbf{8}$

**26.** $3x - y + 8 + x + y - 2$

$3x + x - y + y + 8 - 2$

$\mathbf{4x + 6}$

**27.** (a) $3(x - y)$
$\mathbf{3x - 3y}$

(b) $x(y - 3)$
$\mathbf{xy - 3x}$

**28.** $4\frac{1}{2} \div 1\frac{1}{8} = \dfrac{\overset{1}{\cancel{9}}}{\underset{1}{\cancel{2}}} \times \dfrac{\overset{4}{\cancel{8}}}{\underset{1}{\cancel{9}}} = 4$

$3\frac{1}{3} \div 4 = \dfrac{10}{3} \times \dfrac{1}{4} = \dfrac{10}{12} = \mathbf{\dfrac{5}{6}}$

**29.** $\dfrac{(-2) - (+3) + (-4)(-3)}{(-2) + (+3) - (+4)}$

$\dfrac{(-2) - (+3) + (+12)}{(-2) + (+3) - (+4)}$

$\dfrac{(-5) + (12)}{(1) - (+4)}$

$\dfrac{7}{-3}$

$\mathbf{-2\frac{1}{3}}$

30. A, B
A, C
B, A
B, C
C, A
C, B

## LESSON 98, LESSON PRACTICE

**a.** $\frac{6 \cdot \cancel{24}^{2}}{\cancel{12}_{1}} =$ **12 feet**

**b.** $\frac{54}{\cancel{36}_{3}} \cdot \cancel{12}^{1} =$ **18 inches**

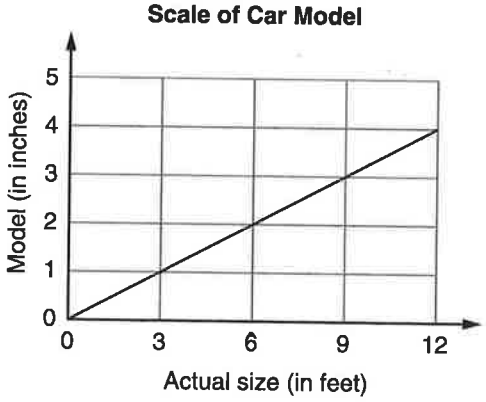
**c.** $5 \times 3 = 15$
$7 \times 3 =$ **21**

**d.** $3 \times 7 = 21$
$42 \div 7 =$ **6**

**e.** $10f = 25$
$f = \frac{25}{10}$
$f =$ **2.5**

**f.** $(2.5)^2 =$ **6.25**

**g.**




**h.** **C. 9 ft**

## LESSON 98, MIXED PRACTICE

**1.** (a) $p(2, 6) = \frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$

$p(3, 5 \text{ or } 6) = \frac{1}{6} \cdot \frac{2}{6} = \frac{2}{36}$

$p(4, 4 \text{ or } 5 \text{ or } 6) = \frac{1}{6} \cdot \frac{3}{6} = \frac{3}{36}$

$p(5, 3 \text{ or } 4 \text{ or } 5 \text{ or } 6) = \frac{1}{6} \cdot \frac{4}{6} = \frac{4}{36}$

$p(6, 2 \text{ or } 3 \text{ or } 4 \text{ or } 5 \text{ or } 6) = \frac{1}{6} \cdot \frac{5}{6} = \frac{5}{36}$

$\frac{\mathbf{15}}{\mathbf{36}} = \frac{\mathbf{5}}{\mathbf{12}}$

(b) **0**

**2.**

| | Percent | Actual Count |
|---|---|---|
| Original | 100 | \$45 |
| − Change | 20 | $C$ |
| New | 80 | $N$ |

$\frac{100}{80} = \frac{\$45}{N}$
$100N = \$3600$
$N =$ **\$36**

**3.**

| | Case 1 | Case 2 |
|---|---|---|
| Dollars | 5 | $d$ |
| Kroner | 40 | 100 |

$\frac{5}{40} = \frac{d}{100}$
$40d = 500$
$d =$ **\$12.50**

**4.**

| | Percent | Actual Count |
|---|---|---|
| Original | 100 | $O$ |
| + Change | 25 | 20 |
| New | 125 | $N$ |

$\frac{25}{125} = \frac{20}{N}$
$25N = 2500$
$N =$ **100 students**

**5.** $(3x)(x) - (x)(2x)$
$[(3) \cdot x \cdot x] - [x \cdot (2) \cdot x]$
$[(3) \cdot x \cdot x] - [(2) \cdot x \cdot x]$
$3x^2 - 2x^2$
$x^2$

**6.** $\dfrac{6(10) + 9(15)}{15}$

$= \dfrac{60 + 135}{15} =$ **13 points per game**

**7.** (a) $\begin{array}{r} 44{,}010 \text{ miles} \\ -\ 43{,}764 \text{ miles} \\ \hline 246 \text{ miles} \end{array}$

$\dfrac{246 \text{ miles}}{12 \text{ gallons}} =$ **20.5 miles per gallon**

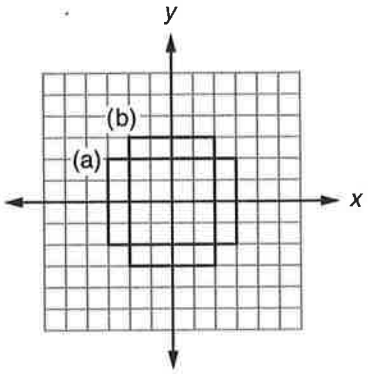
(b) $\dfrac{246 \text{ miles}}{5 \text{ hours}} =$ **49.2 miles per hour**

**8.** $\dfrac{3}{5} \times W_N = 60$

$\left(\dfrac{\cancel{3}^{1}}{\cancel{5}_{1}}\right)\left(\dfrac{\cancel{5}^{1}}{\cancel{3}_{1}} \times W_N\right) = \left(\dfrac{5}{\cancel{3}_{1}}\right)\cancel{60}^{20}$

$W_N =$ **100**

**9.**




(a) **(3, −2)**

(b) **(2, 3), (2, −3), (−2, −3), (−2, 3)**

**10.** $\dfrac{2}{6} = \dfrac{1}{3}$

**11.** $a = 9, \quad 9^2 = 81$

**12.** $40 = W_P \times 250$

$\dfrac{40}{250} = \dfrac{W_P \times 250}{250}$

$\dfrac{4}{25} = W_P$

$W_P = \dfrac{4}{25} \times 100\% =$ **16%**

**13.** $0.4 \times W_N = 60$

$\dfrac{0.4 \times W_N}{0.4} = \dfrac{60}{0.4}$

$W_N =$ **150**

**14.**

| | Percent | Actual Count |
|---|---|---|
| Original | 100 | $40 |
| + Change | 60 | $C$ |
| New | 160 | $N$ |

$\dfrac{100}{160} = \dfrac{\$40}{N}$

$100N = \$6400$

$N =$ **$64**

**15.** $2\frac{1}{8} - 1\frac{3}{8} = \frac{17}{8} - \frac{11}{8} = \frac{6}{8} = \frac{3}{4}$ **inch**

**16.**




**17.** (a) $\dfrac{7}{500}$

(b) **0.014**

**18.** $(1.4 \times 10^{-6})(5 \times 10^{4})$

$7.0 \times 10^{-2}$

**19.** $y = -2(3)$

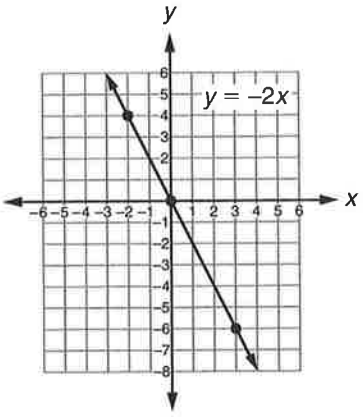
$y =$ **−6;**

$y = -2(0)$

$y =$ **0;**

$y = -2(-2)$

$y =$ **4**




**(0,0)**

**20.** (a) $C \approx 3.14(2 \text{ ft})$

$C \approx$ **6.28 ft**

(b) $A \approx 3.14(1 \text{ ft}^2)$

$A \approx$ **3.14 ft²**

**21.** **See student work; 40°.**

**22.** $\frac{x}{30} = \frac{20}{50}$

$50x = 600$

$x = \mathbf{12\ in.}$

$\frac{y}{16} = \frac{50}{20}$

$20y = 800$

$y = \mathbf{40\ in.}$

$\textbf{Area} = \frac{(16\text{ in.})(12\text{ in.})}{2} = \mathbf{96\ in.^2}$

**23.** $20f = 50$

$f = \frac{50}{20}$

$f = \mathbf{2.5}$

**24.** $-\frac{3}{5}m + 8 = 20$

$-\frac{3}{5}m + 8 - 8 = 20 - 8$

$-\frac{3}{5}m = 12$

$\left(-\frac{\overset{1}{\cancel{5}}}{\cancel{3}}\right)\left(-\frac{\overset{1}{\cancel{3}}}{\cancel{5}}m\right) = \left(-\frac{5}{\cancel{3}}\right)\cancel{12}^{4}$

$m = \mathbf{-20}$

**25.** $0.3x - 2.7 = 9$

$0.3x - 2.7 + 2.7 = 9 + 2.7$

$0.3x = 11.7$

$\frac{0.3x}{0.3} = \frac{11.7}{0.3}$

$x = \mathbf{39}$

**26.** $\sqrt{5^3 - 5^2} = \sqrt{125 - 25} = \sqrt{100}$

$= \mathbf{10}$

**27.**

$$\begin{array}{r} \overset{0}{\cancel{1}}\text{ gal}\ \ \overset{0}{\cancel{1}}\text{ qt}\ (2\text{ pt}) \\ -\quad 1\text{ qt}\ \ 1\text{ pt} \\ \hline \end{array} \longrightarrow$$

$$\begin{array}{r} \overset{0}{\cancel{1}}\text{ gal}\ \ \overset{4}{\overset{0}{\cancel{1}}}\text{ qt}\ \ 2\text{ pt} \\ -\quad 1\text{ qt}\ \ 1\text{ pt} \\ \hline \mathbf{3\text{ qt}\ \ 1\text{ pt}} \end{array}$$

**28.** $(0.25)(1.25 - 1.2)$

$= (0.25)(0.05) = \mathbf{0.0125}$

**29.** $7\frac{1}{3} - \left(1\frac{3}{4} \div 3\frac{1}{2}\right)$

$= 7\frac{1}{3} - \left(\frac{7}{4} \div \frac{7}{2}\right) = 7\frac{1}{3} - \left(\frac{\overset{1}{\cancel{7}}}{\underset{2}{\cancel{4}}} \times \frac{\overset{1}{\cancel{2}}}{\underset{1}{\cancel{7}}}\right)$

$= 7\frac{1}{3} - \frac{1}{2} = 7\frac{2}{6} - \frac{3}{6} = 6\frac{8}{6} - \frac{3}{6}$

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

**30.** $\frac{(-2)(3) - (3)(-4)}{(-2)(-3) - (4)}$

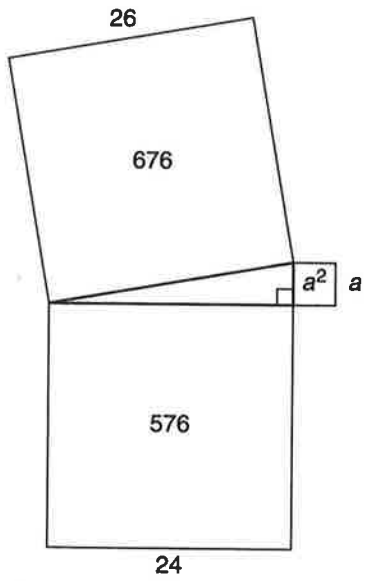
$\frac{(-6) - (-12)}{(6) - (4)}$

$\frac{6}{2}$

$\mathbf{3}$

## Lesson 99, Lesson Practice

**a.**

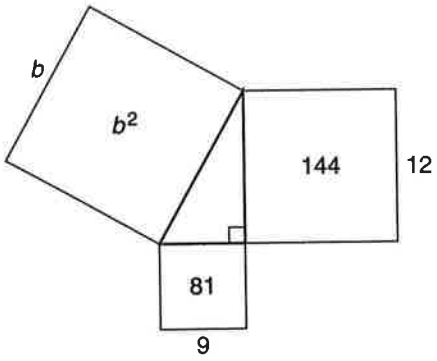



$a^2 + 576 = 676$

$a^2 = 100$

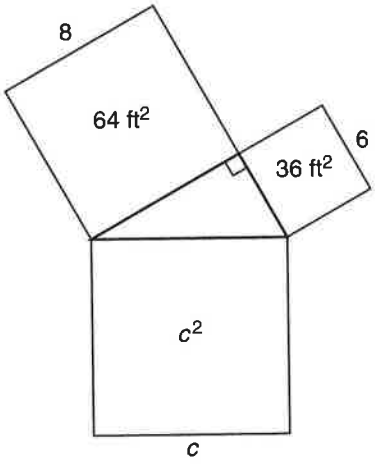
$a = \mathbf{10}$

**b.**




$$81 + 144 = b^2$$
$$225 = b^2$$
$$\mathbf{15} = b$$

**c.**




$$64\text{ ft}^2 + 36\text{ ft}^2 = c^2$$
$$100 = c^2$$
$$10 = c$$
$$\text{Perimeter} = 8\text{ ft} + 6\text{ ft} + 10\text{ ft}$$
$$= \mathbf{24\text{ ft}}$$

---

## LESSON 99, MIXED PRACTICE

**1.**
$$\begin{array}{r} \$15.00 \\ \times \quad 0.15 \\ \hline \$2.25 \end{array}$$

**2.**
$$\begin{array}{r} 0.0\,0\,2\,\overset{4}{\cancel{5}}\overset{1}{0}\,0\,0 \\ -\ 0.0\,0\,0\,0\,2\,0 \\ \hline 0.0\,0\,2\,4\,8\,0 \end{array} \qquad \mathbf{2.48 \times 10^{-3}}$$

**3.** (a) $\dfrac{4(30) + 7(31) + 29}{12} = \mathbf{30.5\text{ days}}$

(b) **31 days**

(c) **31 days**

(d) **2 days**

**4.** 2 pounds = 32 ounces

$$\frac{\$2.72}{32\text{ ounces}} = \frac{\$0.085}{1\text{ ounce}}$$

$$\frac{\$3.60}{48\text{ ounces}} = \frac{\$0.075}{1\text{ ounce}}$$

$$\begin{array}{r} \$0.085 \\ -\ \$0.075 \\ \hline \$0.01 \end{array}$$

**1¢ more per ounce**

**5.**

| | Case 1 | Case 2 |
|---|---|---|
| Pounds | 80 | 300 |
| Price | \$96 | $p$ |

$$\frac{80}{\$96} = \frac{300}{p}$$
$$80p = \$28{,}800$$
$$p = \mathbf{\$360}$$

**6.**

| | Ratio | Actual Count |
|---|---|---|
| Stalactites | 9 | $C$ |
| Stalagmites | 5 | $G$ |
| Total | 14 | 1260 |

$$\frac{5}{14} = \frac{G}{1260}$$
$$14G = 6300$$
$$G = \mathbf{450\text{ stalagmites}}$$

**7.** $\dfrac{5}{\cancel{8}_{1}}(\overset{2}{\cancel{16}}\text{ ounces}) = \mathbf{10\text{ ounces}}$

**8.** (a) $\mathbf{0.1 \times W_N = 20}$

$$\frac{0.1 \times W_N}{0.1} = \frac{20}{0.1}$$
$$W_N = \mathbf{200}$$

(b) $\mathbf{20 = W_P \times 60}$

$$\frac{20}{60} = \frac{W_P \times 60}{60}$$
$$\frac{1}{3} = W_P$$
$$W_P = \frac{1}{3} \times 100\% = \mathbf{33\frac{1}{3}\%}$$

**9.** (a) **Right triangle**

(b) **Equilateral triangle**

(c) **Isosceles triangle**

**10.**

| | Percent | Actual Count |
|---|---|---|
| Original | 100 | \$3.40 |
| − Change | 20 | $C$ |
| New | 80 | $N$ |

$$\frac{100}{80} = \frac{\$3.40}{N}$$
$$100N = \$272$$
$$N = \mathbf{\$2.72}$$

**11.** $100\% - 20\% = \mathbf{80\%}$

**12.** $\text{Area} = \dfrac{(6 \text{ units})(3 \text{ units})}{2} = \mathbf{9 \text{ units}^2}$

**13.**

| | Scale | Measure |
|---|---|---|
| Model | 1 | 8 |
| Object | 60 | $m$ |

$$\frac{1}{60} = \frac{8}{m}$$
$$m = \mathbf{480 \text{ inches}}$$
$$\overset{40}{\cancel{480}}\ \cancel{\text{inches}} \cdot \frac{1 \text{ foot}}{\cancel{12}\ \cancel{\text{inches}}} = \mathbf{40 \text{ feet}}$$

**14.** (a) $\mathbf{1.\overline{3}}$

(b) $\mathbf{133\frac{1}{3}\%}$

(c) $\mathbf{\frac{1}{75}}$

(d) $\mathbf{0.01\overline{3}}$

**15.** (a) $(ax^2)(-2ax)(-a^2)$
$a \cdot x \cdot x \cdot (-2) \cdot a \cdot x \cdot (-1) \cdot a \cdot a$
$(-2)(-1) \cdot a \cdot a \cdot a \cdot a \cdot x \cdot x \cdot x$
$\mathbf{2a^4x^3}$

(b) $\frac{1}{2}\pi + \frac{2}{3}\pi - \pi = \frac{3}{6}\pi + \frac{4}{6}\pi - \frac{6}{6}\pi$
$= \frac{7}{6}\pi - \frac{6}{6}\pi = \mathbf{\frac{1}{6}\pi}$

**16.** $(8.1 \times 9) \times (10^{-6} \times 10^{10}) = 72.9 \times 10^4$
$= \mathbf{7.29 \times 10^5}$

**17.** $\sqrt{(15)^2 - (12)^2} = \sqrt{225 - 144}$
$= \sqrt{81} = \mathbf{9}$

**18.** $5^2 + c^2 = 13^2$
$25 + c^2 = 169$
$c^2 = 169 - 25$
$c^2 = 144$
$c = \mathbf{12}$

**19.** $\text{Area of base} \approx 3.14(100 \text{ cm}^2)$
$\approx 314 \text{ cm}^2$
$\text{Volume} \approx (314 \text{ cm}^2)(10 \text{ cm}) = \mathbf{3140 \text{ cm}^3}$

**20.** (a) $m\angle X = 180° - 138° = \mathbf{42°}$

(b) $m\angle Y = 180° - (100° + 42°) = \mathbf{38°}$

(c) $m\angle Z = 180° - (90° + 38°) = \mathbf{52°}$

**21.** (a) $\frac{x}{6} = \frac{12}{8}$
$8x = 72$
$x = \mathbf{9 \text{ inches}}$

(b) $6f = 9$
$f = \frac{9}{6}$
$f = \mathbf{1.5}$

(c) $(1.5)(1.5) = \mathbf{2.25 \text{ times}}$

**22.** $\dfrac{(40{,}000)(400)}{80} = \mathbf{200{,}000}$

**23.** $4n + 1.64 = 2$
$4n + 1.64 - 1.64 = 2 - 1.64$
$4n = 0.36$
$\frac{4n}{4} = \frac{0.36}{4}$
$n = \mathbf{0.09}$

**24.** $3\frac{1}{3}x - 1 = 49$
$3\frac{1}{3}x - 1 + 1 = 49 + 1$
$3\frac{1}{3}x = 50$
$\left(\frac{3}{10}\right)\left(\frac{10}{3}x\right) = \left(\frac{3}{10}\right)50$
$x = \mathbf{15}$

**25.** $\frac{17}{25} = \frac{m}{75}$
$25m = 1275$
$m = \mathbf{51}$

**26.** $3^3 + 4^2 - \sqrt{225}$
$= 27 + 16 - 15 = \mathbf{28}$

**27.** $\sqrt{225} - 15^0 + 10^{-1} = 15 - 1 + \frac{1}{10}$
$= 14 + \frac{1}{10} = \mathbf{14\frac{1}{10}}$ or $\mathbf{14.1}$

**28.** $\left(3\frac{1}{3}\right)\left(\frac{3}{4}\right)\left(\frac{40}{1}\right)$

$= \left(\frac{10}{\cancel{3}_1}\right)\left(\frac{\cancel{3}^1}{\cancel{4}_1}\right)\left(\frac{\cancel{40}^{10}}{1}\right) = \mathbf{100}$

**29.** $\dfrac{-12 - (6)(-3)}{(-12) - (-6) + (3)}$

$\dfrac{-12 - (-18)}{(-6) + 3}$

$\dfrac{6}{-3}$

$\mathbf{-2}$

**30.** $3(x - 2) = 3(x) - 3(2) = \mathbf{3x - 6}$

---

## Lesson 100, Lesson Practice

**a.** **2 and 3**

**b.** **8 and 9**

**c.** **26 and 27**

**d.** $x^2 = 1^2 + 1^2$

$x^2 = 1 + 1$

$x^2 = 2$

$x = \mathbf{\sqrt{2}}$

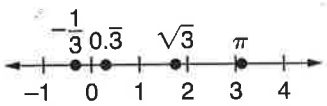
**e.** $2^2 = 1^2 + y^2$

$4 = 1 + y^2$

$3 = y^2$

$\mathbf{\sqrt{3}} = y$

**f.**




$\mathbf{\sqrt{3}, \pi}$

---

## Lesson 100, Mixed Practice

**1.** $2.5(\$2.60) + 2(\$1.49)$

$= \$6.50 + \$2.98 = \$9.48$

$\$20.00$

$- \$9.48$

$\mathbf{\$10.52}$

**2.** (a) $p(6) = \frac{1}{5}$

$p(4) = \frac{1}{5}$

$\frac{1}{5} + \frac{1}{5} = \mathbf{\frac{2}{5}}$

(b) $p(3, 3 \text{ or } 5 \text{ or } 7) = \frac{1}{5} \cdot \frac{3}{5} = \frac{3}{25}$

$p(5, 3 \text{ or } 5 \text{ or } 7) = \frac{1}{5} \cdot \frac{3}{5} = \frac{3}{25}$

$p(7, 3 \text{ or } 5 \text{ or } 7) = \frac{1}{5} \cdot \frac{3}{5} = \frac{3}{25}$

$\frac{3}{25} + \frac{3}{25} + \frac{3}{25} = \mathbf{\frac{9}{25}}$

**3.** Average $= (1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10) \div 10$

$= \frac{55}{10} = \mathbf{5.5}$

**4.** $375 \cancel{\text{ miles}} \dfrac{1 \text{ hour}}{50 \cancel{\text{ miles}}} = \mathbf{7\frac{1}{2} \text{ hours}}$

**5.**

| | Case 1 | Case 2 |
|---|---|---|
| Kilometers | 300 | 500 |
| Hours | 4 | $h$ |

$\frac{300}{4} = \frac{500}{h}$

$300h = 2000$

$h = 6\frac{2}{3}$ hours

$6\frac{2}{3}$ hours $= \mathbf{6 \text{ hours } 40 \text{ minutes}}$

**6.**

| | Ratio | Actual Count |
|---|---|---|
| Winners | 1 | $W$ |
| Losers | 15 | $L$ |
| Total | 16 | 800 |

$\frac{1}{16} = \frac{W}{800}$

$16W = 800$

$W = \mathbf{50 \text{ winners}}$

**7.**

| | Percent | Actual Count |
|---|---|---|
| Original | 100 | $O$ |
| − Change | 30 | $C$ |
| New | 70 | 350 |

$\frac{100}{70} = \frac{O}{350}$

$70O = 35{,}000$

$O = \mathbf{500}$

**8.** $\frac{3}{4} \cdot n = 36$

$$\left(\frac{\cancel{4}^{1}}{\cancel{3}_{1}}\right)\left(\frac{\cancel{3}^{1}}{\cancel{4}_{1}}n\right) = \left(\frac{4}{\cancel{3}_{1}}\right)\cancel{36}^{12}$$

$$n = 48$$

$$\frac{1}{\cancel{2}_{1}} \cdot \cancel{48}^{24} = \mathbf{24}$$

**9.** (a) $\mathbf{300 = 0.06 \times W_N}$

$$\frac{300}{0.06} = \frac{0.06 \times W_N}{0.06}$$

$$\mathbf{5000} = W_N$$

(b) $\mathbf{20 = W_P \times 10}$

$$\frac{20}{10} = \frac{W_P \times 10}{10}$$

$$2 = W_P$$

$$W_P = 2 \times 100\% = \mathbf{200\%}$$

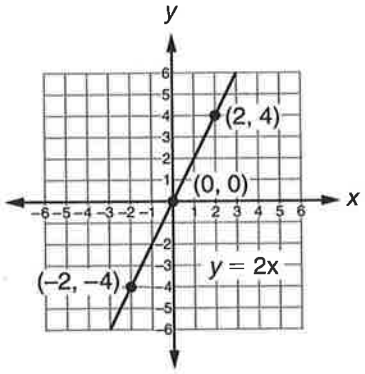
**10.**

| | |
|---|---|
| \$40.00 | \$40.00 |
| $\times$ 0.065 | + \$2.60 |
| \$2.60 | **\$42.60** |

**11.** $x(x + 3) = x(x) + x(3)$

$= \mathbf{x^2 + 3x}$

**12.**




**Another point from the 3rd quadrant could be (−1, −2) or (−3, −6).**

**13.** (a) $\mathbf{2\frac{1}{2}}$ **inches**

(b) $120f = 5$

$$f = \frac{5}{120}$$

$$f = \frac{1}{24}$$

(c) **14 feet**

**14.** (a) $2f = 6$

$$f = \frac{6}{2}$$

$$f = 3$$

(b) $(3)(3) =$ **9 times**

(c) $3^3 =$ **27 times**

**15. Insufficient information**

**16.** (a) $\frac{18}{25}$

(b) **0.72**

**17.** $(4.5 \times 6) \times (10^6 \times 10^3) = 27 \times 10^9$

$= \mathbf{2.7 \times 10^{10}}$

**18.** (a) $6^2 = 36, 7^2 = 49$

**6 and 7**

(b) $4^2 = 16, 5^2 = 25$

**4 and 5**

**19.** (a) $C \approx \frac{22}{\cancel{7}_{1}}(\cancel{14}^{2}$ in.)

$C \approx$ **44 in.**

(b) $A \approx \frac{22}{\cancel{7}_{1}}(\cancel{49}^{7}$ in.$^2$)

$A \approx$ **154 in.$^2$**

**20.** $15^2 + a^2 = 17^2$

$225 + a^2 = 289$

$a^2 = 289 - 225$

$a^2 = 64$

$a =$ **8 cm**

**21.** Area of base $= \frac{(3 \text{ cm})(4 \text{ cm})}{2}$

$= 6 \text{ cm}^2$

Volume $= (6 \text{ cm}^2)(6 \text{ cm}) =$ **36 cm$^3$**

**22.** Area of base $\approx 3.14(4 \text{ cm}^2)$

$\approx 12.56 \text{ cm}^2$

Volume $\approx (12.56 \text{ cm}^2)(10 \text{ cm})$

$\approx$ **125.6 cm$^3$**

**23.** $m\angle a = 180° - 48° =$ **132°**

$m\angle b = 180° - 132° =$ **48°**

$m\angle c = 180° - (90° + 48°) =$ **42°**

**24.** $-4\frac{1}{2}x + 8^0 = 4^3$

$-4\frac{1}{2}x + 1 - 1 = 64 - 1$

$-4\frac{1}{2}x = 63$

$\left(-\frac{2}{9}\right)\left(-\frac{9}{2}x\right) = \left(-\frac{2}{9}\right)63$

$x = \mathbf{-14}$

**25.** $\frac{15}{w} = \frac{45}{3.3}$

$(45)w = 15(3.3)$

$\frac{45w}{45} = \frac{49.5}{45}$

$w = \mathbf{1.1}$

**26.** $\sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = \mathbf{10}$

**27.** $3\frac{1}{3}\left(7\frac{2}{10} \div \frac{3}{5}\right) = 3\frac{1}{3}\left(\frac{\overset{12}{\cancel{24}}}{\underset{1}{\cancel{10}}} \times \frac{\overset{1}{\cancel{5}}}{\underset{1}{\cancel{3}}}\right)$

$= 3\frac{1}{3}(12) = \frac{10}{\underset{1}{\cancel{3}}}(\overset{4}{\cancel{12}}) = \mathbf{40}$

**28.** $8\frac{5}{6} - 2\frac{1}{2} - 1\frac{1}{3}$

$= 8\frac{5}{6} - 2\frac{3}{6} - 1\frac{2}{6} = 6\frac{2}{6} - 1\frac{2}{6}$

$= \mathbf{5}$

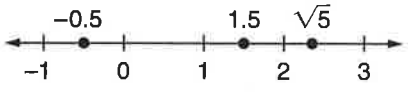
**29.** $\frac{|-18| - (2)(-3)}{(-3) + (-2) - (-4)}$

$\frac{18 - (-6)}{(-5) - (-4)}$

$\frac{24}{-1}$

$\mathbf{-24}$

**30.**




## LESSON 101, LESSON PRACTICE

**a.** $3x + 6 = \mathbf{30}$

$3x = 24$

$x = \frac{24}{3}$

$x = \mathbf{8}$

**b.** $\frac{1}{2}x - 10 = \mathbf{30}$

$\frac{1}{2}x = 40$

$\left(\frac{2}{1}\right)\left(\frac{1}{2}x\right) = \left(\frac{2}{1}\right)40$

$x = \mathbf{80}$

**c.** $3x + 2x = \mathbf{90°}$

$5x = 90°$

$x = \frac{90°}{5}$

$x = 18°$

$2(18°) = \mathbf{36°}$

**d.** $x + 2x + 3x = \mathbf{180°}$

$6x = 180°$

$x = \frac{180°}{6}$

$x = \mathbf{30°}$

$2x = 2(30°) = \mathbf{60°}$

$3x = 3(30°) = \mathbf{90°}$

## LESSON 101, MIXED PRACTICE

**1.** (a) **11.9**

(b) **11.8 and 11.9**

(c) **0.7**

**2.** $\$6(3.75) = \mathbf{\$22.50}$

**3.**

| | Case 1 | Case 2 |
|---|---|---|
| Flour | 3 | 15 |
| Eggs | 2 | $e$ |

$\frac{3}{2} = \frac{15}{e}$

$3e = 30$

$e = \mathbf{10\ eggs}$

**4.**

| | Case 1 | Case 2 |
|---|---|---|
| Words | 48 | $w$ |
| Seconds | 60 | 90 |

$\frac{48}{60} = \frac{w}{90}$

$60w = 4320$

$w = \mathbf{72\ words}$