LESSON 16, LESSON PRACTICE

a. **2 yards**

b. **2 quarts**

c. **8 lb**

d. $\frac{3}{8}$ in. + $\frac{5}{8}$ in. = $\frac{8}{8}$ in. = **1 in.**

e.
$$\begin{array}{r} 32^\circ \text{ F} \\ +\ 180^\circ \text{ F} \\ \hline \mathbf{212^\circ \text{ F}} \end{array}$$

f. $2(3 \text{ ft} + 4 \text{ ft}) = 2(7 \text{ ft}) =$ **14 ft**

g. 1 ton = 2000 pounds

$$\begin{array}{r} 2000 \text{ pounds} \\ -\ 1000 \text{ pounds} \\ \hline \mathbf{1000 \text{ pounds}} \end{array}$$

h. $\frac{1}{2}$ **ounce**

LESSON 16, MIXED PRACTICE

1. $35 + N_A = 118$

$$\begin{array}{r} 118 \text{ students} \\ -\ 35 \text{ students} \\ \hline \mathbf{83 \text{ students}} \end{array}$$

2. $18C = 4500$

$$\begin{array}{r} 250 \\ 18\overline{)4500} \\ \underline{36} \\ 90 \\ \underline{90} \\ 00 \\ \underline{0} \\ 0 \end{array}$$

250 cartons

3. $324 - F = 27$

$$\begin{array}{r} 324 \text{ ducks} \\ -\ 27 \text{ ducks} \\ \hline \mathbf{297 \text{ ducks}} \end{array}$$

4. $(2 \times 100) + (5 \times 10)$

5. (a) $\frac{8}{10} = \frac{4}{5}$

(b) $\frac{8}{5} = 1\frac{3}{5}$

$\frac{8}{5} > 1\frac{2}{5}$

6. ***AB*** **is** $1\frac{3}{8}$ **in.;** ***CB*** **is** $1\frac{3}{8}$ **in.;** ***CA*** **is** $2\frac{3}{4}$ **in.**

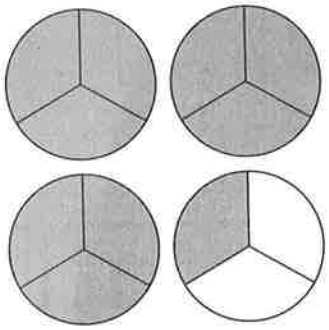
7. (a) $\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \mathbf{\frac{2}{3}}$

(b) $40\% = \frac{40}{100}$

$\frac{40}{100} \div \frac{20}{20} = \mathbf{\frac{2}{5}}$

(c) $\frac{10}{12} = \frac{10 \div 2}{12 \div 2} = \frac{5}{6}$, $6\frac{10}{12} = \mathbf{6\frac{5}{6}}$

8.



9. (a) $\frac{5}{6} \cdot \frac{4}{4} = \mathbf{\frac{20}{24}}$

(b) $\frac{3}{8} \cdot \frac{3}{3} = \mathbf{\frac{9}{24}}$

(c) $\frac{1}{4} \cdot \frac{6}{6} = \mathbf{\frac{6}{24}}$

10. (a) $100\% \div 3 = \mathbf{33\frac{1}{3}\%}$

(b) $\frac{1 \text{ quart}}{4 \text{ quarts}} = \mathbf{\frac{1}{4}}$

11.
$$\begin{array}{r} 90 \\ 7\overline{)630} \\ \underline{63} \\ 00 \\ \underline{0} \\ 0 \end{array}$$

1, 2, 3, 5, 6, 7, 9

12. (a) $2\frac{2}{7}$

(b) $3\frac{16}{8} = 3\frac{2}{1} = \frac{5}{1} = \mathbf{5}$

(c) $2\frac{16}{9} = \frac{34}{9} = \mathbf{3\frac{7}{9}}$

13. **Identity property of multiplication**

14.
$$\begin{array}{r} 1776 \\ +\ \ 87 \\ \hline 1863 \end{array}$$
$m = \mathbf{1863}$

15.
$$\begin{array}{r} \$16.25 \\ -\ \$10.15 \\ \hline \$6.10 \end{array}$$
$b = \mathbf{\$6.10}$

16.
$$\begin{array}{r} 77 \\ 13\overline{)1001} \\ \underline{91} \\ 91 \\ \underline{91} \\ 0 \end{array}$$
$n = \mathbf{77}$

17.
$$\begin{array}{r} 42 \\ 42\overline{)1764} \\ \underline{168} \\ 84 \\ \underline{84} \\ 0 \end{array}$$
$d = \mathbf{42}$

18. $3\frac{3}{4} - 1\frac{1}{4} = 2\frac{2}{4} = \mathbf{2\frac{1}{2}}$

19. $\frac{3}{10}$ in. $+ \frac{8}{10}$ in. $= \frac{11}{10}$ in. $= \mathbf{1\frac{1}{10}}$ **in.**

20. $\frac{3}{4} \times \frac{1}{3} = \frac{3}{12} = \frac{3 \div 3}{12 \div 3} = \mathbf{\frac{1}{4}}$

21. $\frac{4}{3} \cdot \frac{3}{2} = \frac{12}{6} = \mathbf{2}$

22.
$$\begin{array}{r} \mathbf{625} \\ 16\overline{)10{,}000} \\ \underline{96} \\ 40 \\ \underline{32} \\ 80 \\ \underline{80} \\ 0 \end{array}$$

23. $\frac{100\%}{8} = \frac{100\% \div 4}{8 \div 4} = \frac{25\%}{2}$

$= \mathbf{12\frac{1}{2}\%}$

24.
$$\begin{array}{r} 7\,777 \\ 9\overline{)70{,}000} \\ \underline{63} \\ 70 \\ \underline{63} \\ 70 \\ \underline{63} \\ 7 \end{array}$$
$\mathbf{7777\frac{7}{9}}$

25.
$$\begin{array}{r} 45 \\ \times\ 45 \\ \hline 225 \\ \underline{180} \\ \mathbf{2025} \end{array}$$

26. **Each term can be found by adding $\frac{1}{16}$ to the preceding term (or $K = \frac{1}{16}n$).**

$\frac{3}{16} + \frac{1}{16} = \frac{4}{16} = \frac{1}{4}$

$\frac{4}{16} + \frac{1}{16} = \frac{5}{16}$

$\frac{5}{16} + \frac{1}{16} = \frac{6}{16}, \frac{6 \div 2}{16 \div 2} = \frac{3}{8}$

$\mathbf{\frac{1}{4}, \frac{5}{16}, \frac{3}{8}}$

27. **Acute angle, obtuse angle**

28. $2\frac{1}{2} = \frac{5}{2}, 1\frac{2}{3} = \frac{5}{3}$

$\frac{5}{2} \times \frac{5}{3} = \frac{25}{6}$

$= \mathbf{4\frac{1}{6}}$

29. $\frac{2}{3} \cdot \frac{2}{2} = \frac{4}{6}$

$\frac{4}{6} + \frac{1}{6} = \mathbf{\frac{5}{6}}$

30. $\mathbf{\frac{8}{3}}$

LESSON 17, LESSON PRACTICE

a. 90°

b. 50°

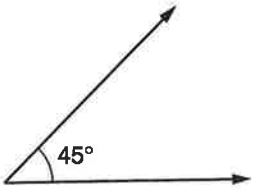
c. 115°

d. 65°

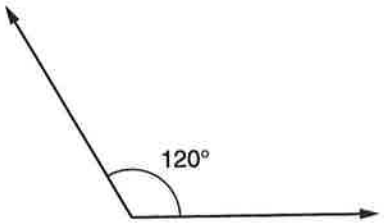
e. 130°

f. 23°

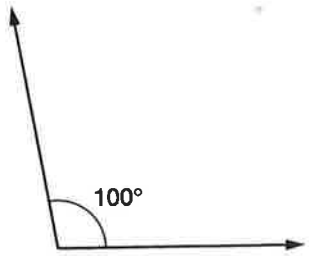
g.



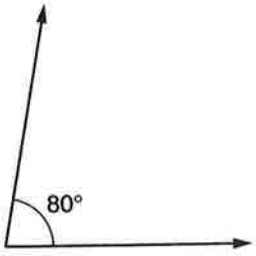
h.



i.



j.



k. $\frac{1}{2}$ degree

LESSON 17, MIXED PRACTICE

1. $2420 + 5090 = T$

$$\begin{array}{r} 2420 \text{ soldiers} \\ +\ 5090 \text{ soldiers} \\ \hline \textbf{7510 soldiers} \end{array}$$

2. $\frac{3}{20} + F = \frac{20}{20}$

$$\begin{array}{r} \frac{20}{20} \\ -\ \frac{3}{20} \\ \hline \frac{17}{20} \end{array}$$

3. $15S = 210$

$$15\overline{)210}$$

$$\begin{array}{r} 14 \\ 15 \\ \hline 60 \\ 60 \\ \hline 0 \end{array}$$

14 students

4. $1620 - 1492 = D$

$$\begin{array}{r} 1620 \\ -\ 1492 \\ \hline 128 \end{array}$$

128 years

5. C. $\frac{5}{3}$

6. (a) $\overleftrightarrow{QR}$ (or $\overleftrightarrow{RQ}$)

(b) $\overleftrightarrow{RT}$ (or $\overleftrightarrow{TR}$)

(c) **90°**

7. (a) $\frac{12 \div 4}{16 \div 4} = \frac{3}{4}$

(b) $\frac{12 \div 6}{18 \div 6} = \frac{2}{3}$, $3\frac{12}{18} = 3\frac{2}{3}$

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

8. 2 lb = 2 (16 oz) = 32 oz

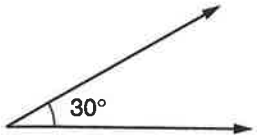
32 oz + 8 oz = **40 oz**

9. (a) $\frac{2}{9} \cdot \frac{2}{2} = \mathbf{\frac{4}{18}}$

(b) $\frac{1}{3} \cdot \frac{6}{6} = \mathbf{\frac{6}{18}}$

(c) $\frac{5}{6} \cdot \frac{3}{3} = \mathbf{\frac{15}{18}}$

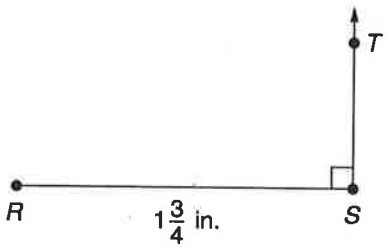
10.



11. (a) Factors of 20: 1, 2, 4, 5, 10, 20
Factors of 50: 1, 2, 5, 10, 25, 50
1, 2, 5, 10

(b) **10**

12.



13. (a) $\frac{8}{4} - \frac{4}{8} = \frac{8}{4} - \frac{4 \div 2}{8 \div 2}$

$= \frac{8}{4} - \frac{2}{4} = \frac{6}{4} = \mathbf{\frac{3}{2}}$ or $\mathbf{1\frac{1}{2}}$

(b) $4 - \frac{4}{8} = \frac{4}{1} - \frac{4}{8}$

$= \frac{4}{1} \cdot \frac{8}{8} - \frac{4}{8} = \frac{32}{8} - \frac{4}{8}$

$= \frac{28}{8} = \frac{28 \div 4}{8 \div 4} = \mathbf{\frac{7}{2}}$ or $\mathbf{3\frac{1}{2}}$

14.
$$\begin{array}{r} 141 \\ +\ 231 \\ \hline 372 \end{array}$$
$x = \mathbf{372}$

15.
$$\begin{array}{r} \$25.00 \\ -\ \$6.30 \\ \hline \$18.70 \end{array}$$
$y = \mathbf{\$18.70}$

16.
$$\begin{array}{r} \$3.75 \\ 8\overline{)\$30.00} \\ \underline{24} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ 0 \end{array}$$
$w = \mathbf{\$3.75}$

17. $100\% \div 20\% = 5$
$m = \mathbf{5}$

18. $3\frac{5}{6} - 1\frac{1}{6} = 2\frac{4}{6}$

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

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

19. $\frac{1}{2} \cdot \frac{2}{3} = \frac{2}{6} = \mathbf{\frac{1}{3}}$

20.
$$\begin{array}{r} \mathbf{\$2.50} \\ 40\overline{)\$100.00} \\ \underline{80} \\ 200 \\ \underline{200} \\ 00 \\ \underline{0} \\ 0 \end{array}$$

21.
$$\begin{array}{r} 55 \\ \times\ 55 \\ \hline 275 \\ \underline{275} \\ \mathbf{3025} \end{array}$$

22. $2(8 \text{ in.} + 6 \text{ in.}) = 2(14 \text{ in.})$
$= \mathbf{28 \text{ in.}}$

23. $\frac{3}{4}$ in. $+ \frac{3}{4}$ in. $= \frac{6}{4}$ in.

$= \frac{3}{2}$ in. $= \mathbf{1\frac{1}{2}}$ **in.**

24. $\frac{15}{16}$ in. $- \frac{3}{16}$ in. $= \frac{12 \div 4}{16 \div 4}$ in.

$= \mathbf{\frac{3}{4}}$ **in.**

25. $\frac{1}{2} \cdot \frac{4}{3} \cdot \frac{9}{2} = \frac{4}{6} \cdot \frac{9}{2}$

$= \frac{36}{12} = \mathbf{3}$

26. $\$20.25 - \$15.17 = \$5.08$

$5 bill, 1 nickel, 3 pennies

27. (a) $\left(\frac{1}{2} \cdot \frac{3}{4}\right) \cdot \frac{2}{3} = \left(\frac{3}{8}\right) \cdot \frac{2}{3}$

$= \frac{6 \div 6}{24 \div 6}$

$= \frac{1}{4}$

$\frac{1}{2} \cdot \left(\frac{3}{4} \cdot \frac{2}{3}\right) = \frac{1}{2} \cdot \left(\frac{6}{12}\right)$

$= \frac{6}{24} = \frac{1}{4}, \frac{1}{4} = \frac{1}{4}$

$\left(\frac{1}{2} \cdot \frac{3}{4}\right) \cdot \frac{2}{3} = \frac{1}{2}\left(\frac{3}{4} \cdot \frac{2}{3}\right)$

(b) **Associative property of multiplication**

28. **Answers will vary. See student work. Sample answer: If 85% of Shyla's answers were correct, then what percent were not correct?**

29. $3\frac{3}{4} = \frac{4 \times 3 + 3}{4} = \mathbf{\frac{15}{4}}$

reciprocal $= \mathbf{\frac{4}{15}}$

30. $\frac{3}{4} \cdot \frac{2}{2} = \frac{6}{8}$

$\frac{6}{8} + \frac{5}{8} = \frac{11}{8} = \mathbf{1\frac{3}{8}}$

Lesson 18, Lesson Practice

a. **Octagon**

b. **Square**

c. **Acute angle**

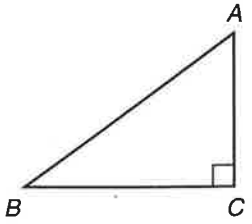
d. **Yes**

e. **No**

f. **$\angle B$**

g. **Equal in measure; each angle is a right angle with a measure of 90°.**

h.



Lesson 18, Mixed Practice

1. **$6D = 3300$**

$6\overline{)3300}$ **550 miles**

30
30
30
00
0
0

2. **$456 + 517 = T$**

456 miles
+ 517 miles
973 miles

3. **$3977 + W = 5000$**

5000 meters
− 3977 meters
1023 meters

4. **$1{,}000{,}000{,}000 - 10{,}000{,}000 = D$**

1,000,000,000
− 10,000,000
990,000,000

Nine hundred ninety million

5. (a) $\mathbf{-1}$, **0**, $\mathbf{\frac{3}{4}}$, **1**, $\mathbf{\frac{5}{3}}$

(b) $\mathbf{-1}$, **0**

6. **Side *AD*** (or **side *DA***)

7. (a) -2

(b) 4

8. (a) $2\% = \frac{2}{100} = \frac{2}{100} \div \frac{2}{2} = \mathbf{\frac{1}{50}}$

(b) $\frac{12 \div 4}{20 \div 4} = \mathbf{\frac{3}{5}}$

(c) $\frac{15 \div 5}{20 \div 5} = \frac{3}{4}$, $6\frac{15}{20} = \mathbf{6\frac{3}{4}}$

9. (a) $\frac{4}{5} \cdot \frac{6}{6} = \mathbf{\frac{24}{30}}$

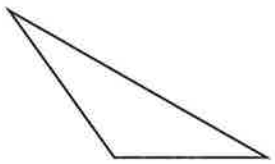
(b) $\frac{2}{3} \cdot \frac{10}{10} = \mathbf{\frac{20}{30}}$

(c) $\frac{1}{6} \cdot \frac{5}{5} = \mathbf{\frac{5}{30}}$

10. $8 - 5 = 3$

3 sides

11. (a)



(b) **Acute angles**

12. (a) **25%**

(b) $\mathbf{\frac{6}{8}}$ or $\mathbf{\frac{3}{4}}$

13. **Identity property of multiplication**

14. $\frac{5}{8} + \frac{3}{8} = \frac{8}{8}$

$x = \mathbf{\frac{8}{8}}$ or $\mathbf{1}$

15. $\frac{7}{10} - \frac{3}{10} = \frac{4}{10}$

$y = \mathbf{\frac{4}{10}}$ or $\mathbf{\frac{2}{5}}$

16. $\frac{5}{6} - \frac{1}{6} = \frac{4}{6}$

$m = \mathbf{\frac{4}{6}}$ or $\mathbf{\frac{2}{3}}$

17. $\mathbf{\frac{4}{3}}$

18. $5\frac{7}{10} - \frac{3}{10} = 5\frac{4}{10} = \mathbf{5\frac{2}{5}}$

19. $\frac{3}{2} \cdot \frac{2}{4} = \frac{6}{8} = \mathbf{\frac{3}{4}}$

20.
$$\begin{array}{r} \mathbf{45} \\ 45\overline{)2025} \\ \underline{180} \\ 225 \\ \underline{225} \\ 0 \end{array}$$

21.
$$\begin{array}{r} 750 \\ \times\ \ 80 \\ \hline \mathbf{60{,}000} \end{array}$$

22.
$$\begin{array}{r} 21 \\ \times\ 21 \\ \hline 21 \\ \underline{42} \\ \mathbf{441} \end{array}$$

23. $2(50 \text{ in.} + 40 \text{ in.}) = 2(90 \text{ in.})$

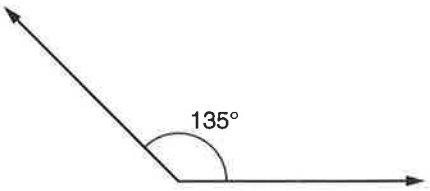
$= \mathbf{180 \text{ in.}}$

24. $\frac{8}{16} = \frac{1}{2} = \frac{50}{100} = \mathbf{50\%}$

25. (a) $360° \div 4 = \mathbf{90°}$

(b) $360° \div 6 = \mathbf{60°}$

26. (a)



(b) $180° - 135° = \mathbf{45°}$

27. (a) ΔSQR

(b) ΔXYZ

(c) $\angle F$

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

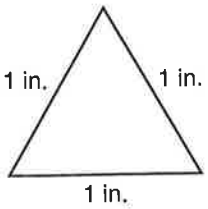
$\frac{1}{3} \cdot \frac{2}{2} = \frac{2}{6}$

$\frac{3}{6} + \frac{2}{6} = \mathbf{\frac{5}{6}}$

29. $2\frac{1}{4} = \frac{9}{4}$

$\frac{9}{4} \cdot \frac{4}{3} = \frac{36}{12} = 3$

30.



Regular

Lesson 19, Lesson Practice

a. Perimeter = 3 in. + 3 in. + 2 in. + 5 in.
= **13 in.**

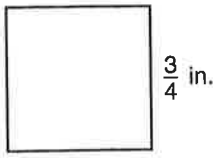
b. Perimeter = 5(5 cm) = **25 cm**

c. Perimeter = 8(12 in.) = **96 in.**

d. Missing length = 10 in. − 4 in. = 6 in.
Missing height = 5 in. − 2 in. = 3 in.
Perimeter = 10 in. + 2 in. + 6 in.
+ 3 in. + 4 in. + 5 in.
= **30 in.**

e. 100 feet ÷ 4 = **25 feet**

f.



Perimeter $= 4\left(\frac{3}{4}\text{ in.}\right)$

$= \frac{4}{1} \cdot \frac{3}{4}\text{ in.} = \frac{12}{4}\text{ in.}$

= **3 in.**

Lesson 19, Mixed Practice

1. $\frac{1}{8} + N_L = \frac{8}{8}$

$\frac{8}{8}$

$-\ \frac{1}{8}$

$\frac{7}{8}$

2. $F - 76 = 124$

124 people
+ 76 people
200 people

3. $84 \times 6 = T$

84
× 6
504
504 slices

4. 4(20 years) + 7 years = **87 years**

5. (a) **Eighteen million, seven hundred thousand**

(b) **(8 × 100) + (7 × 10) + (4 × 1)**

6. **3 − 7 = −4**

7. **Water freezes at 32°F. Water boils at 212°F.**

8. Perimeter = 6 cm + 6 cm + 8 cm + 8 cm
= **28 cm**

9. (a) $3\frac{16}{24} = 3\frac{16 \div 8}{24 \div 8} = \mathbf{3\frac{2}{3}}$

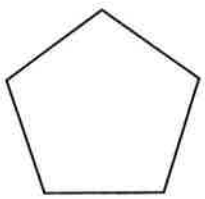
(b) $\frac{15 \div 3}{24 \div 3} = \mathbf{\frac{5}{8}}$

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

10. (a) $\frac{3}{4} \cdot \frac{9}{9} = \mathbf{\frac{27}{36}}$

(b) $\frac{4}{9} \cdot \frac{4}{4} = \mathbf{\frac{16}{36}}$

11.



12. **Octagon**

13. (a) **90°**

(b) $4(90°) = \mathbf{360°}$

14. $k = \frac{1}{8} \cdot 8 = \frac{1}{8} \cdot \frac{8}{1} = \frac{8}{8} = \mathbf{1}$

15.
$$\begin{array}{r} 8998 \\ -\ 1547 \\ \hline 7451 \end{array}$$
$a = \mathbf{7451}$

16.
$$\begin{array}{r} \$1.37 \\ 30\overline{)\$41.10} \\ 30 \\ \hline 111 \\ 90 \\ \hline 210 \\ 210 \\ \hline 0 \end{array}$$
$b = \mathbf{\$1.37}$

17.
$$\begin{array}{r} 23 \\ \$0.32\overline{)\$7.36} \\ 64 \\ \hline 96 \\ 96 \\ \hline 0 \end{array}$$
$c = \mathbf{23}$

18.
$$\begin{array}{r} \$30.10 \\ -\ \$26.57 \\ \hline \$3.53 \end{array}$$
$d = \mathbf{\$3.53}$

19. $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} = \frac{6}{3} = \mathbf{2}$

20. $3\frac{7}{8} - \frac{5}{8} = 3\frac{2}{8} = \mathbf{3\frac{1}{4}}$

21. $\frac{2}{3} \cdot \frac{3}{7} = \frac{6}{21} = \mathbf{\frac{2}{7}}$

22. $3\frac{7}{8} + \frac{5}{8} = 3\frac{12}{8} = 4\frac{4}{8} = \mathbf{4\frac{1}{2}}$

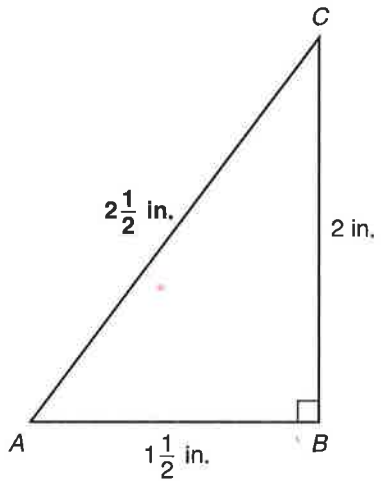
23.
$$\begin{array}{r} 50 \\ \times\ 50 \\ \hline \mathbf{2500} \end{array}$$

24.
$$\begin{array}{r} \mathbf{9\,100} \\ 11\overline{)100{,}100} \\ 99 \\ \hline 11 \\ 11 \\ \hline 00 \\ 0 \\ \hline 00 \\ 0 \\ \hline 0 \end{array}$$

25. (a) **2**

(b) $2 \cdot 5 = \mathbf{10}$

26.



27. $3\frac{1}{3} = \frac{10}{3}$

$\frac{10}{3} \cdot \frac{3}{2} = \frac{30}{6} = \mathbf{5}$

28. $\frac{1}{2} \cdot \frac{5}{5} = \frac{5}{10}$

$\frac{9}{10} - \frac{5}{10} = \frac{4}{10} = \mathbf{\frac{2}{5}}$

29. $100\% \div 3 = \mathbf{33\frac{1}{3}\%}$

30. Missing length = 10 in. − 6 in. = 4 in.
Missing height = 7 in. − 4 in. = 3 in.
Perimeter = 10 in. + 4 in. + 6 in. + 3 in. + 4 in. + 7 in.
= **34 in.**