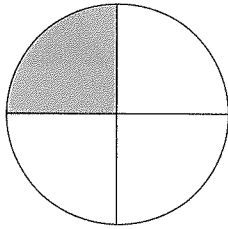NAME

Lesson 1 Fractions of a Whole

What fraction of the figure is shaded?

The circle is cut into four equal pieces, so the denominator, or the bottom of the fraction, is 4.

Only one part is shaded, so the numerator, or the top of the fraction, is 1.

$\frac{1}{4}$ of the figure is shaded.

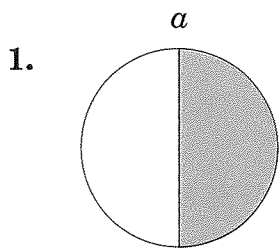---

What fraction of the figure is shaded?
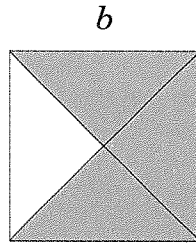

$\frac{4}{8}$ ⟵ parts shaded—numerator.
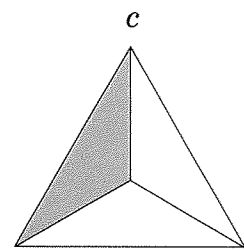 ⟵ parts in all—denominator.

$\frac{4}{8}$ of the figure is shaded.

What fraction of each figure is shaded?

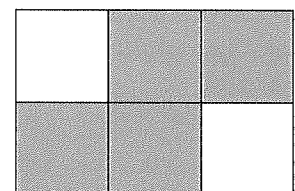| *a*	*b*	*c*

1.

$\frac{\quad}{2}$ $\frac{3}{\quad}$ $\frac{\quad}{3}$

2.

3.
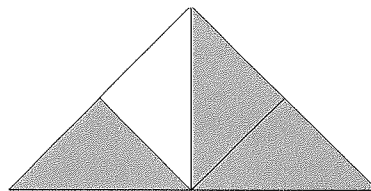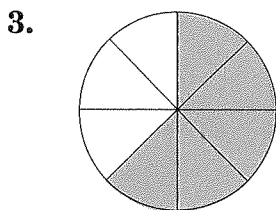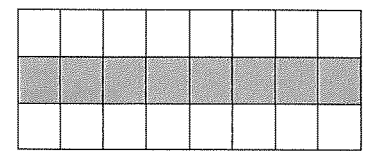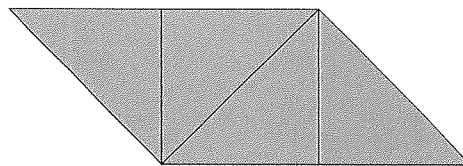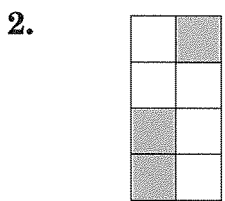
Lesson 2 Fractions of a Set

What fraction of the set is shaded?
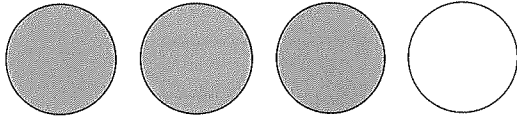
$\dfrac{3}{4}$ ← objects shaded—numerator.
← object in all—denominator.

$\dfrac{3}{4}$ of the set is shaded.

What fraction of the set is shaded?
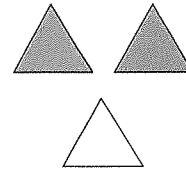
$\dfrac{2}{3}$ ←number shaded
←number in all

$\dfrac{2}{3}$ of the set is shaded.

What fraction of each set is shaded?

a

1.

b

$\dfrac{1}{\rule{1cm}{0.4pt}}$

$\dfrac{}{2}$

2.

$\dfrac{\rule{1cm}{0.4pt}}{\rule{1cm}{0.4pt}}$

$\dfrac{\rule{1cm}{0.4pt}}{\rule{1cm}{0.4pt}}$

3.

$\dfrac{\rule{1cm}{0.4pt}}{\rule{1cm}{0.4pt}}$

$\dfrac{\rule{1cm}{0.4pt}}{\rule{1cm}{0.4pt}}$

Lesson 3 Equivalent Fractions (multiply)

Find an equivalent fraction.

$\dfrac{2}{3} \times \dfrac{?}{?}$

You can find an equivalent fraction for $\frac{2}{3}$ if you multiply both the numerator and the denominator by the same number, such as 2.

$\dfrac{2}{3} = \dfrac{2 \times 2}{3 \times 2} = \dfrac{4}{6}$

Multiply the numerator by 2 to get 4.
Multiply the denominator by 2 to get 6.

$\dfrac{2}{3} = \dfrac{4}{6}$

$\frac{2}{3}$ and $\frac{4}{6}$ are equivalent fractions.

Use multiplication to find each equivalent fraction.

	a	*b*	*c*
1.	$\dfrac{1}{5} = \dfrac{1 \times 2}{5 \times 2} = \dfrac{2}{}$	$\dfrac{2}{4} = \dfrac{2 \times 3}{4 \times 3} = \dfrac{}{12}$	$\dfrac{1}{3} = \dfrac{1 \times 4}{3 \times 4} = \dfrac{4}{}$
2.	$\dfrac{2}{3} = \dfrac{2 \times 3}{3 \times} = \dfrac{}{}$	$\dfrac{5}{6} = \dfrac{5 \times}{6 \times 2} = \dfrac{}{}$	$\dfrac{1}{5} = \dfrac{1 \times 2}{ \times 2} = \dfrac{}{}$
3.	$\dfrac{2}{3} = \dfrac{2 \times 5}{3 \times} = \dfrac{}{}$	$\dfrac{4}{6} = \dfrac{4 \times}{6 \times 2} = \dfrac{}{}$	$\dfrac{1}{3} = \dfrac{1 \times 3}{3 \times} = \dfrac{}{}$
4.	$\dfrac{1}{4} = \dfrac{1 \times}{4 \times} = \dfrac{}{16}$	$\dfrac{1}{3} = \dfrac{1 \times}{3 \times} = \dfrac{5}{}$	$\dfrac{3}{4} = \dfrac{3 \times}{4 \times} = \dfrac{}{8}$

	a	*b*	*c*	*d*
5.	$\dfrac{3}{5} = \dfrac{}{15}$	$\dfrac{6}{8} = \dfrac{}{16}$	$\dfrac{2}{3} = \dfrac{}{27}$	$\dfrac{1}{4} = \dfrac{}{8}$
6.	$\dfrac{4}{5} = \dfrac{}{20}$	$\dfrac{5}{7} = \dfrac{10}{}$	$\dfrac{1}{6} = \dfrac{}{12}$	$\dfrac{8}{9} = \dfrac{}{27}$

CHAPTER 12

Lesson 4 Equivalent Fractions (divide)

Find an equivalent fraction.

$\dfrac{8}{10} = \dfrac{?}{?}$

You can find an equivalent fraction for $\frac{8}{10}$ if you can divide both the numerator and the denominator by the same number, such as 2.

$\dfrac{8}{10} = \dfrac{8 \div 2}{10 \div 2} = \dfrac{4}{5}$

Divide the numerator by 2 to get 4.
Divide the denominator by 2 to get 5.

$\dfrac{8}{10} = \dfrac{4}{5}$

$\frac{8}{10}$ and $\frac{4}{5}$ are equivalent fractions.

Use division to find each equivalent fraction.

	a	*b*	*c*
1.	$\dfrac{10}{12} = \dfrac{10 \div 2}{12 \div 2} = \dfrac{5}{}$	$\dfrac{4}{8} = \dfrac{4 \div 2}{8 \div 2} = \dfrac{}{4}$	$\dfrac{4}{12} = \dfrac{4 \div 4}{12 \div 4} = \dfrac{1}{}$
2.	$\dfrac{5}{10} = \dfrac{5 \div 5}{10 \div } = \dfrac{}{}$	$\dfrac{6}{12} = \dfrac{6 \div }{12 \div 6} = \dfrac{}{}$	$\dfrac{6}{9} = \dfrac{6 \div 3}{ \div 3} = \dfrac{}{}$
3.	$\dfrac{12}{15} = \dfrac{12 \div 3}{15 \div } = \dfrac{}{}$	$\dfrac{4}{10} = \dfrac{4 \div }{10 \div 2} = \dfrac{}{}$	$\dfrac{12}{16} = \dfrac{12 \div 4}{16 \div } = \dfrac{}{}$
4.	$\dfrac{6}{15} = \dfrac{6 \div }{15 \div } = \dfrac{}{5}$	$\dfrac{10}{15} = \dfrac{10 \div }{15 \div } = \dfrac{2}{}$	$\dfrac{4}{16} = \dfrac{4 \div }{16 \div } = \dfrac{}{4}$

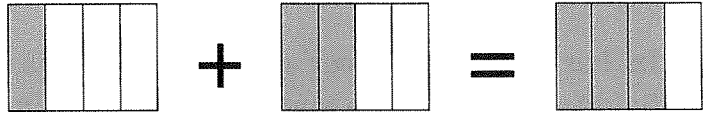|	*a*	*b*	*c*	*d*
5.	$\dfrac{12}{16} = \dfrac{}{8}$	$\dfrac{2}{6} = \dfrac{}{3}$	$\dfrac{6}{18} = \dfrac{}{6}$	$\dfrac{10}{16} = \dfrac{}{8}$
6.	$\dfrac{8}{20} = \dfrac{}{10}$	$\dfrac{6}{8} = \dfrac{3}{}$	$\dfrac{2}{12} = \dfrac{}{6}$	$\dfrac{8}{12} = \dfrac{}{3}$

Lesson 5 Adding Fractions (like denominators)

$$\frac{1}{4} + \frac{2}{4} = \frac{?}{?}$$

$$\frac{1}{4} + \frac{2}{4} = \frac{1+2}{4}$$ Add the numerators.

$$= \frac{3}{4}$$ Write the sum over the common denominator.

Add the fractions.

	a	b	c
1.	$\frac{1}{3} + \frac{1}{3} = \frac{}{3}$	$\frac{2}{5} + \frac{1}{5} = \frac{}{5}$	$\frac{2}{4} + \frac{1}{4} = \frac{3}{}$
2.	$\frac{3}{7} + \frac{2}{7} = \text{—}$	$\frac{2}{9} + \frac{3}{9} = \text{—}$	$\frac{1}{7} + \frac{2}{7} = \text{—}$
3.	$\frac{3}{10} + \frac{3}{10} = \text{—}$	$\frac{3}{8} + \frac{1}{8} = \text{—}$	$\frac{2}{5} + \frac{1}{5} = \text{—}$

	a	b	c	d	e
4.	$\begin{array}{r}\frac{1}{6}\\[-2pt]+\frac{4}{6}\\\hline \overline{6}\end{array}$	$\begin{array}{r}\frac{2}{6}\\[-2pt]+\frac{3}{6}\\\hline \overline{6}\end{array}$	$\begin{array}{r}\frac{1}{8}\\[-2pt]+\frac{3}{8}\\\hline \overline{8}\end{array}$	$\begin{array}{r}\frac{1}{12}\\[-2pt]+\frac{6}{12}\\\hline \overline{12}\end{array}$	$\begin{array}{r}\frac{4}{7}\\[-2pt]+\frac{3}{7}\\\hline \overline{7}\end{array}$
5.	$\begin{array}{r}\frac{3}{5}\\[-2pt]+\frac{1}{5}\\\hline\end{array}$	$\begin{array}{r}\frac{2}{9}\\[-2pt]+\frac{2}{9}\\\hline\end{array}$	$\begin{array}{r}\frac{1}{3}\\[-2pt]+\frac{1}{3}\\\hline\end{array}$	$\begin{array}{r}\frac{4}{10}\\[-2pt]+\frac{5}{10}\\\hline\end{array}$	$\begin{array}{r}\frac{2}{8}\\[-2pt]+\frac{4}{8}\\\hline\end{array}$

CHAPTER 12

Lesson 5 Problem Solving

Solve each problem.

1. In her first two soccer games, Anna was on the field for $\frac{1}{10}$ of a game and $\frac{6}{10}$ of a game. What fraction of a full game was she on the field altogether?

   In her first two games, Anna was on the field for _____ of a full game.

2. Yu Luan ran $\frac{2}{8}$ of a lap. Sue ran $\frac{3}{8}$ of a lap. What was the total distance the two girls ran?

   They ran _____ of a lap.

3. It took Jenna $\frac{1}{6}$ of an hour to water her flowers and $\frac{4}{6}$ of an hour to weed her garden. How long did she work in her yard?

   Jenna worked in her yard _____ of an hour.

4. Tamara is making a submarine sandwich. She covered $\frac{1}{4}$ of the bun with salami and $\frac{2}{4}$ of the bun with ham. How much of the bun did she cover?

   Tamara covered _____ of the bun.

5. $\frac{3}{5}$ of the students in Mrs. Wagner's class have brown eyes. $\frac{1}{5}$ of the class have blue eyes. What fraction of the class have brown or blue eyes?

   _____ of Mrs. Wagner's class have brown or blue eyes.

6. Robert read $\frac{3}{7}$ of his book yesterday and $\frac{2}{7}$ of his book today. How much of the book has he read?

   Robert has read _____ of his book.

| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
| 6. |

Lesson 6 Subtracting Fractions (like denominators)

Subtract. $\dfrac{4}{5} - \dfrac{3}{5} = \dfrac{?}{?}$

$\dfrac{4}{5} - \dfrac{3}{5} = \dfrac{4-3}{5}$ Subtract the numerators.
Write the difference over the
common denominator.

$$\begin{array}{r} \dfrac{4}{5} \\[4pt] -\dfrac{3}{5} \\[4pt] \hline \dfrac{1}{5} \end{array}$$

$\dfrac{4-3}{5} = \dfrac{1}{5}$ The difference between $\frac{4}{5}$ and $\frac{3}{5}$ is $\frac{1}{5}$.

Subtract the fractions.

	a	b	c
1.	$\dfrac{6}{10} - \dfrac{2}{10} = \dfrac{}{10}$	$\dfrac{2}{5} - \dfrac{1}{5} = \dfrac{}{5}$	$\dfrac{2}{4} - \dfrac{1}{4} = \dfrac{1}{}$
2.	$\dfrac{3}{5} - \dfrac{2}{5} = -$	$\dfrac{3}{8} - \dfrac{1}{8} = -$	$\dfrac{8}{8} - \dfrac{5}{8} = -$
3.	$\dfrac{4}{5} - \dfrac{3}{5} = -$	$\dfrac{7}{9} - \dfrac{6}{9} = -$	$\dfrac{4}{5} - \dfrac{1}{5} = -$

	a	b	c	d	e
4.	$\begin{array}{r}\frac{9}{12}\\[2pt]-\frac{4}{12}\\[2pt]\hline \frac{}{12}\end{array}$	$\begin{array}{r}\frac{6}{6}\\[2pt]-\frac{3}{6}\\[2pt]\hline \frac{}{6}\end{array}$	$\begin{array}{r}\frac{4}{7}\\[2pt]-\frac{1}{7}\\[2pt]\hline \frac{}{7}\end{array}$	$\begin{array}{r}\frac{7}{10}\\[2pt]-\frac{2}{10}\\[2pt]\hline \frac{}{10}\end{array}$	$\begin{array}{r}\frac{4}{7}\\[2pt]-\frac{3}{7}\\[2pt]\hline \frac{}{7}\end{array}$
5.	$\begin{array}{r}\frac{6}{8}\\[2pt]-\frac{2}{8}\\[2pt]\hline \end{array}$	$\begin{array}{r}\frac{9}{11}\\[2pt]-\frac{3}{11}\\[2pt]\hline \end{array}$	$\begin{array}{r}\frac{2}{3}\\[2pt]-\frac{1}{3}\\[2pt]\hline \end{array}$	$\begin{array}{r}\frac{5}{7}\\[2pt]-\frac{2}{7}\\[2pt]\hline \end{array}$	$\begin{array}{r}\frac{8}{10}\\[2pt]-\frac{3}{10}\\[2pt]\hline \end{array}$

CHAPTER 12

Lesson 6 Problem Solving

Solve each problem.

1. The small beetle was $\frac{1}{5}$ of the length of my thumb. The large beetle was $\frac{2}{5}$ of the length of my thumb. How much longer was the large beetle than the small beetle?

   The large beetle was _____ of the length of my thumb longer than the small beetle.

2. Seven-eighths of the theatre was full for Friday night's performance. On Saturday night only $\frac{5}{8}$ of the theatre was full. How much more of the theatre was full on Friday night than on Saturday night?

   The theatre was _____ more full on Friday night than on Saturday night.

3. The pool was $\frac{6}{8}$ full last night and $\frac{7}{8}$ full this morning. How much of the pool was filled during the night?

   _____ of the pool was filled last night.

4. Liam made a snack using $\frac{9}{12}$ of bowl of nuts and $\frac{8}{12}$ of a bowl of raisins. How much more of a bowl of nuts than raisins does Liam use?

   Liam uses _____ of a bowl more nuts than raisins.

5. It takes Margaret $\frac{3}{6}$ of an hour to walk to school. It only takes Jordan $\frac{2}{6}$ of an hour to get there. How much longer does it take Margaret to walk to school than it takes Jordan?

   It takes Margaret _____ of an hour longer to walk to school than it takes Jordan.

1.

2.

3.

4.

5.

CHAPTER 12 PRACTICE TEST
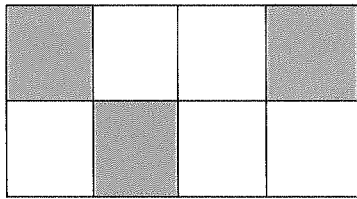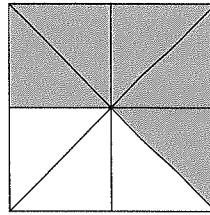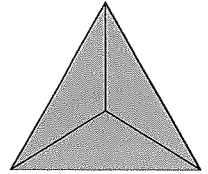## Fractions

What fraction of each figure is shaded?

1.

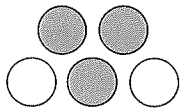_____   _____   _____   _____
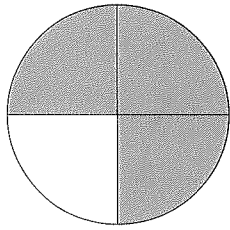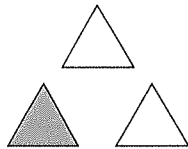
What fraction of each set is shaded?

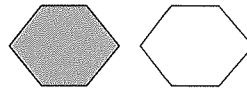**2.**
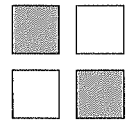
_____   _____   _____   _____

Find the number that makes the two fractions equivalent.

3. $\dfrac{4}{8} = \dfrac{\quad}{16}$ $\dfrac{2}{5} = \dfrac{18}{\quad}$ $\dfrac{1}{4} = \dfrac{3}{\quad}$ $\dfrac{3}{5} = \dfrac{\quad}{15}$

Add.

| a | b | c | d |

4. $\dfrac{4}{8} + \dfrac{3}{8} =$ $\dfrac{1}{3} + \dfrac{1}{3} =$ $\dfrac{2}{10} + \dfrac{3}{10} =$ $\dfrac{2}{9} + \dfrac{6}{9} =$

Subtract.

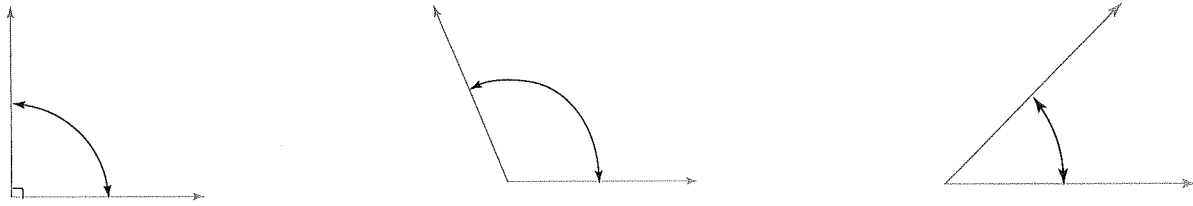**5.** $\dfrac{3}{4} - \dfrac{1}{4} =$ $\dfrac{5}{12} - \dfrac{3}{12} =$ $\dfrac{7}{12} - \dfrac{4}{12} =$ $\dfrac{3}{6} - \dfrac{2}{6} =$

CHAPTER 13   PRETEST
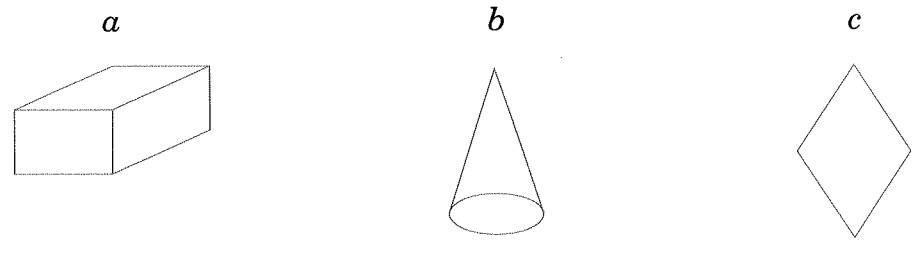Geometry

Identify each angle as *right, acute,* or *obtuse.*

1.

_____   _____   _____

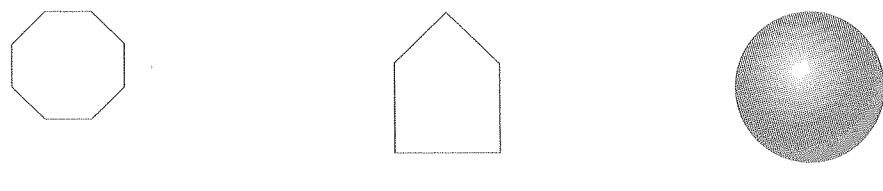Write the letter for the name of each figure on the blank.

a   b   c

2.

_____   _____   _____
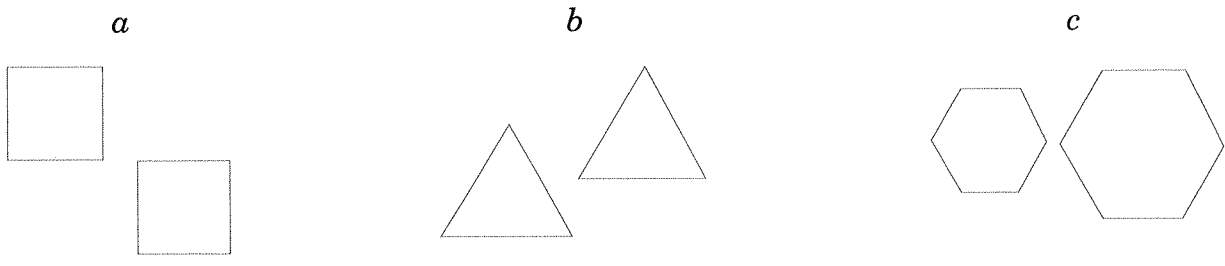
a. sphere
b. quadrilateral
c. octagon
d. rectangular prism
e. cone
f. pentagon

3.

_____   _____   _____

Identify each pair of plane figures as *congruent* or *not congruent.*

a   b   c
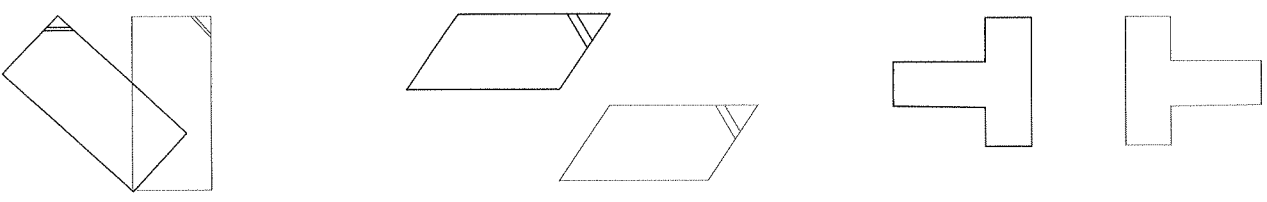
4.

_____   _____   _____

Identify how each figure has been moved by writing *slide, flip,* or *turn.*

5.

_____   _____   _____