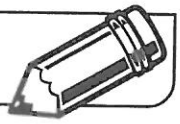
Name _____ Date _____ Time _____

LESSON 5•1

Birthday Box



Use only numbers from one data bank below to fill in the missing values for this number story.

Reminder: oz means ounce

For her birthday, Alisha got a box containing _____ pieces of candy that weighed _____ oz. Each piece of candy weighed _____ oz. She ate _____ pieces of candy. The remaining _____ pieces of candy and the box weighed _____ oz. The weight of the box is _____ oz.

1. Read the problem.
2. Think about how the missing values need to relate to each other. Which values should be greater than other values? Which should be less than other values? Are there multiples that can help you?
3. Fill in the missing values.
4. Read the problem again. Make sure the number relationships make sense.

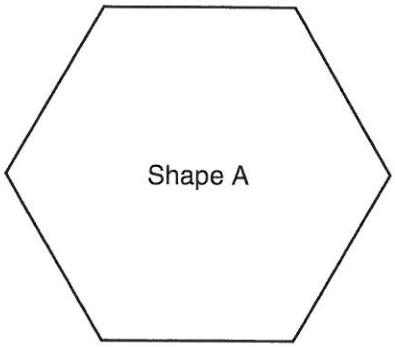
Data Bank: Whole Numbers						
1	2	6	30	36	61	73

Data Bank: Fractions and Mixed Numbers						
$\frac{1}{3}$	$\frac{3}{4}$	$5\frac{3}{4}$	$8\frac{3}{4}$	9	15	24

Name _____ Date _____ Time _____

LESSON 5•2

Pattern Block Fractions

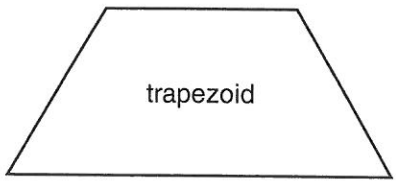


1. Cover Shape A with trapezoid blocks.

   a. How many trapezoid blocks does it take to cover Shape A? _____

   b. Write a fraction for this amount. _____

   c. What fraction of Shape A is covered by one trapezoid block? _____

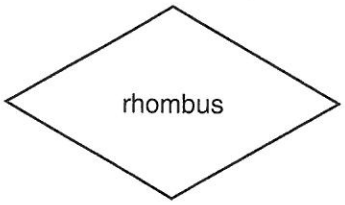


2. Cover Shape A with rhombus blocks.

   a. How many rhombus blocks does it take to cover Shape A? _____

   b. Write a fraction for this amount. _____

   c. What fraction of Shape A is covered by one rhombus block? _____

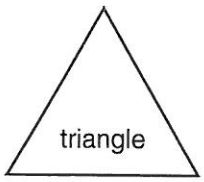


3. Cover Shape A with triangle blocks.

   a. How many triangle blocks does it take to cover Shape A? _____

   b. Write a fraction for this amount. _____

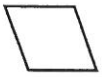
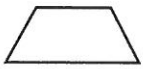
   c. What fraction of Shape A is covered by one triangle block? _____



Name Date Time

LESSON 5•2

Pattern Blocks and Fractions

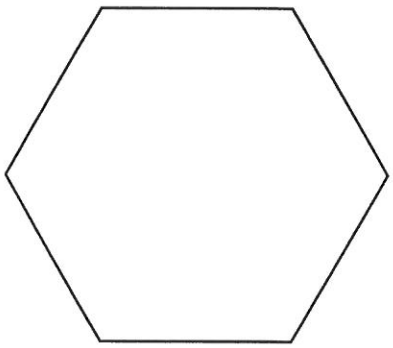
Use your  ,  , and  pattern blocks to solve these problems.

1. Choose one pattern block and give it a value. The block can be worth ONE or a fraction of ONE. Draw the block and record its value.

The _____ is worth _____.

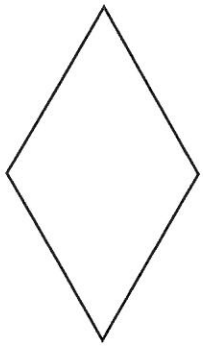
Use the figure you chose in Problem 1 to answer Problems 2–5.

2.



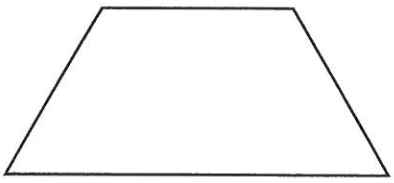
A hexagon is worth _____.

3.



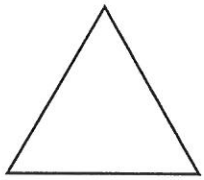
A rhombus is worth _____.

4.



A trapezoid is worth _____.

5.



A triangle is worth _____.

6. In the space below or on another piece of paper, make a design with about 10 pattern blocks. Trace the outline of each block. (Or use the pattern-block shapes on the Geometry Template.)

7. Label each part of your design with a fraction. How much is the design worth? _____

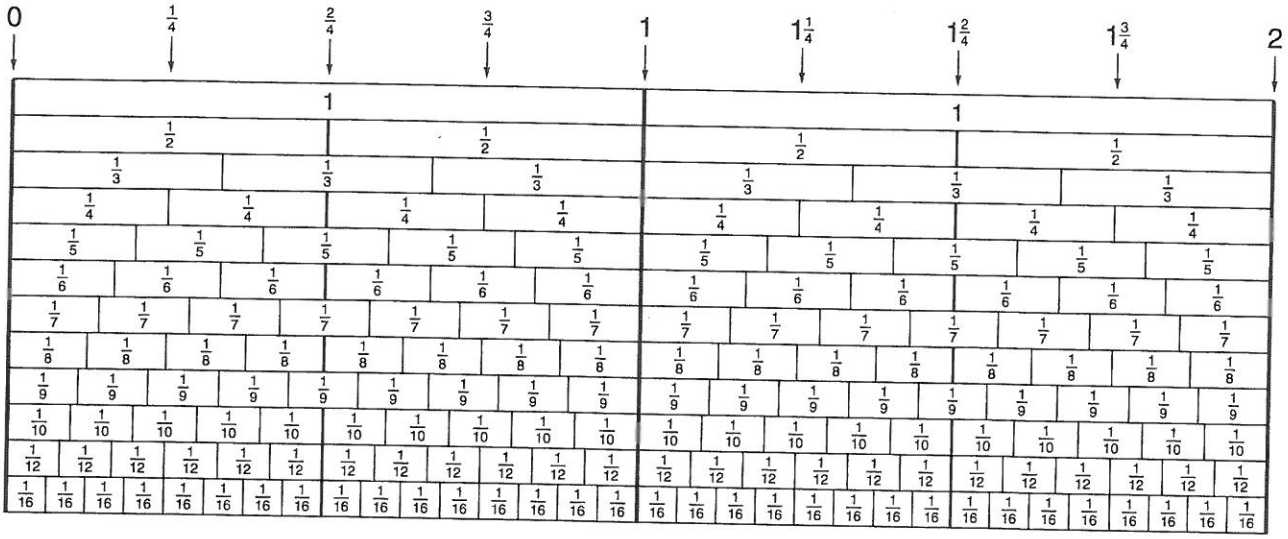
8. Write a number model to show how you calculated the value of the design.

_____

Name _____ Date _____ Time _____

LESSON 5·3

Fraction-Stick Chart



1. Using the Fraction-Stick Chart, list all the fractions that are equivalent to $\frac{1}{2}$. _____

   a. What pattern do you notice in the numerators for these fractions?

   _____

   _____

   b. What pattern do you notice in the denominators for these fractions?

   _____

   _____

   c. Are the patterns complete? _____

   d. What fraction is missing that would make the pattern complete? _____

2. Using the Fraction-Stick Chart, list all the fractions that are equivalent to $\frac{1}{3}$.

   _____

   a. What pattern do you notice in these fractions?

   _____

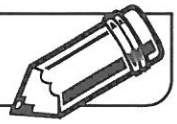
   _____

   b. Use this pattern to find the next 3 fractions that are equivalent to $\frac{1}{3}$. _____

Name # Date Time

LESSON 5•4

Exploring Simplest Form



A fraction is in simplest form if no other equivalent fraction can be found by dividing the numerator and the denominator by a whole number. For example, $\frac{1}{2}$ is in simplest form.

1. Use the division rule to find equivalent fractions.

a. $\frac{4}{10} =$ _____

b. $\frac{3}{15} =$ _____

c. $\frac{4}{20} =$ _____

d. $\frac{5}{25} =$ _____

e. $\frac{6}{30} =$ _____

f. $\frac{30}{36} =$ _____

g. $\frac{35}{42} =$ _____

h. $\frac{40}{48} =$ _____

i. $\frac{45}{54} =$ _____

j. $\frac{20}{32} =$ _____

2. List the fractions from your answers in Problem 1 that are in simplest form.

_____

3. Find and list the simplest form for the remaining fractions.

_____

4. Jamie wants to be able to find the simplest form for any fraction by using the division rule and dividing only once. What should she do?

_____

_____

_____

_____

_____

_____

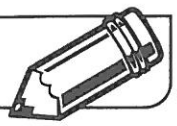
_____

_____

Name Date Time

LESSON 5·5

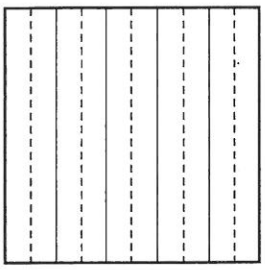
Renaming Fractions as Decimals



1. Fill in the missing numbers and shade the squares. Each large square is worth 1.

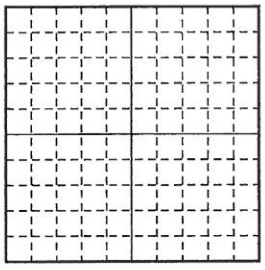
Whole
large square

Shade $\frac{4}{5}$ of the square.



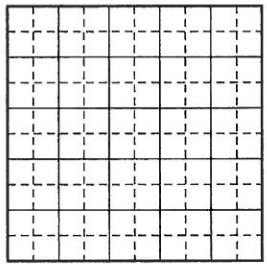
a. $\frac{4}{5} = \frac{\square}{10} = 0.\_\_\_\_$

Shade $\frac{1}{4}$ of the square.



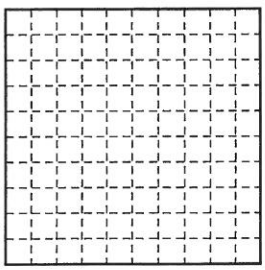
b. $\frac{1}{4} = \frac{\square}{100} = 0.\_\_\_\_$

Shade $\frac{5}{25}$ of the square.



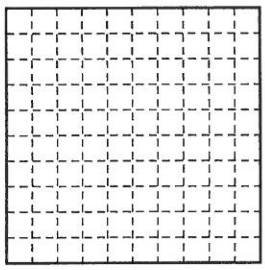
c. $\frac{5}{25} = \frac{\square}{100} = 0.\_\_\_\_$

Shade $\frac{1}{25}$ of the square.



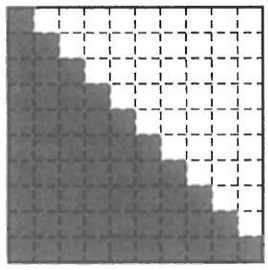
d. $\frac{1}{25} = \frac{\square}{100} = 0.\_\_\_\_$

Shade $\frac{4}{50}$ of the square.



e. $\frac{4}{50} = \frac{\square}{100} = 0.\_\_\_\_$

Write the shaded part as a fraction and as a decimal.

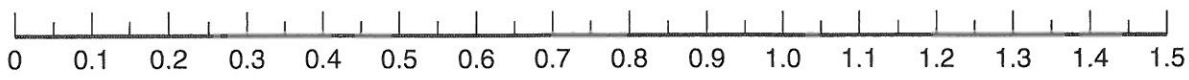


f. $\frac{\square}{\square} = 0.\_\_\_\_$

2. Write each number below as a decimal. Then use the letters to mark the decimals on the number line.

a. $\frac{3}{4} = \_\_\_.\_\_\_$ **b.** $\frac{3}{10} = \_\_\_.\_\_\_$ **c.** $\frac{2}{5} = \_\_\_.\_\_\_$ **d.** $\frac{27}{100} = \_\_\_.\_\_\_$

e. $\frac{11}{25} = \_\_\_.\_\_\_$ **f.** $\frac{17}{50} = \_\_\_.\_\_\_$ **g.** $\frac{6}{5} = \_\_\_.\_\_\_$ **h.** $1\frac{5}{50} = \_\_\_.\_\_\_$



Name Date Time

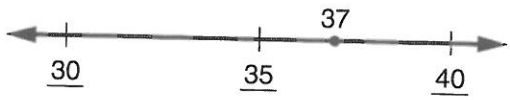
LESSON 5•5

Rounding Whole Numbers and Decimals

Draw number lines to help you round the numbers below.

Example: Round 37 to the nearest ten.

- Draw and label a number line from the first multiple of 10 less than 37 (that is, 30) to the first multiple of 10 greater than 37 (that is, 40). Mark and label the point halfway between these endpoints (35).
- Find 37 on the number line. Mark and label it.
- Since 37 is closer to 40, round 37 up to 40.



1. Round 26 to the nearest ten.

_____

2. Round 1,256 to the nearest hundred.

_____

3. Round 1,256 to the nearest thousand.

_____

4. Round 2.6 to the nearest whole number.

_____

5. Round 182.73 to the nearest ten.

_____

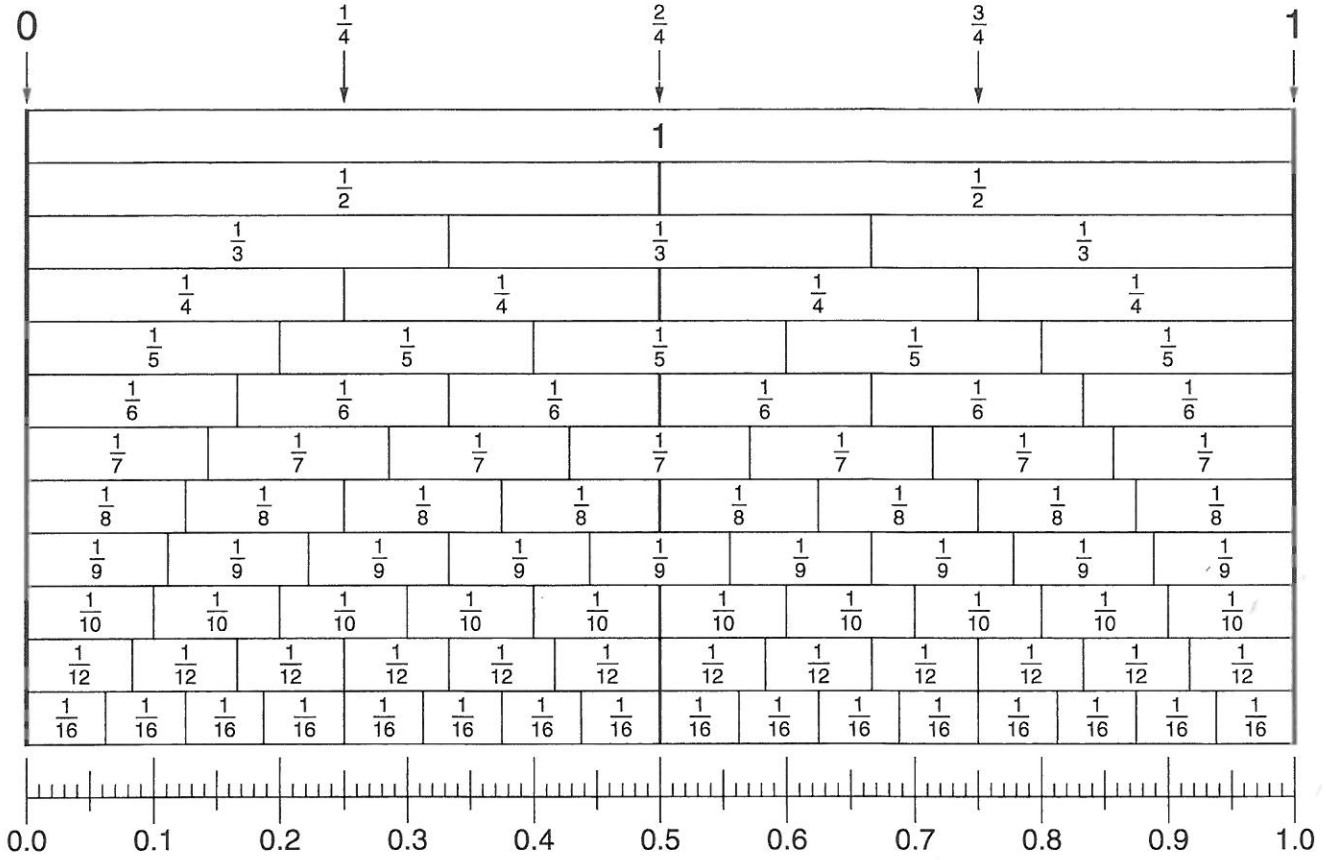
6. Round 1,009 to the nearest hundred.

_____

Name Date Time

LESSON 5·6

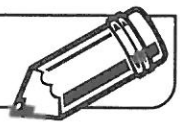
Fraction-Stick Chart and Decimal Number Line



Name Date Time

LESSON 5•6

Table of Decimal Equivalents for Fractions



Example: To find the decimal equivalent for $\frac{1}{4}$, use the row for the denominator 4. Go to the column for the numerator 1. The box where the row and the column meet shows the decimal 0.25.

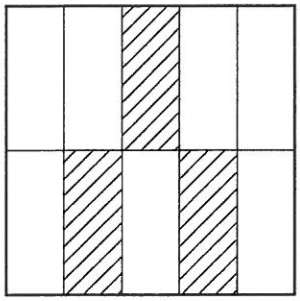
Denominator \ Numerator	1	2	3	4	5	6	7	8	9	10
1	1.0	2.0	3.0							
2	0.5	1.0	1.5							
3							$2.\overline{3}$			
4	0.25				1.25					
5	0.2				1.0					
6										$1.\overline{6}$
7	$0.\overline{142857}$									
8					0.625					
9								$0.\overline{8}$		
10	0.1									

Name Date Time

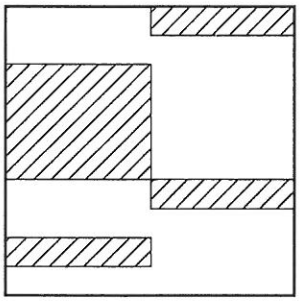
LESSON 5·6

Fractions and Decimals

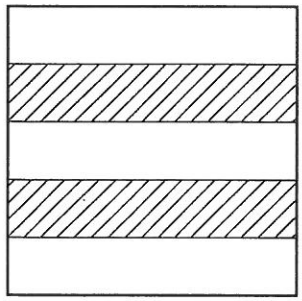
Write the fraction name and decimal name for the shaded portion of each square. Use your transparent 100-grid to check your answer. For Problem 9, color the grid to show a fraction and then write the fraction and decimal name for the shaded portion of the square.

1. 

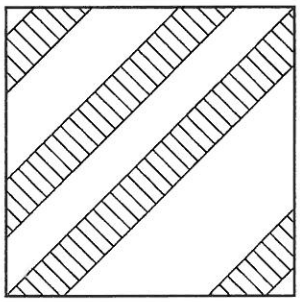
$\frac{3}{10} = 0.3$

2. 

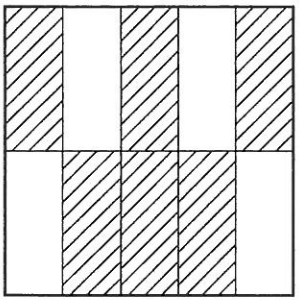
$\frac{\quad}{\quad} = 0.\_\_\_\_$

3. 

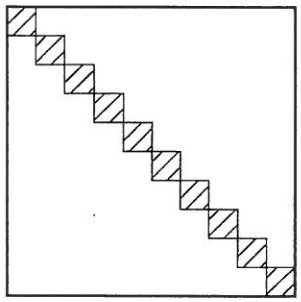
$\frac{\quad}{\quad} = 0.\_\_\_\_$

4. 

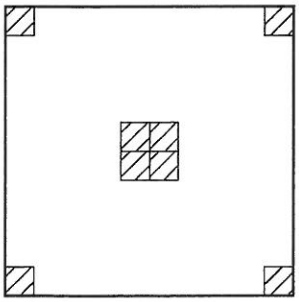
$\frac{\quad}{\quad} = 0.\_\_\_\_$

5. 

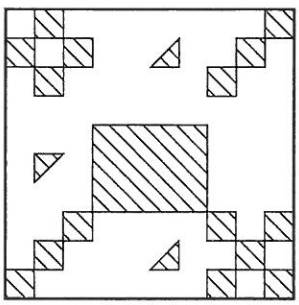
$\frac{\quad}{\quad} = 0.\_\_\_\_$

6. 

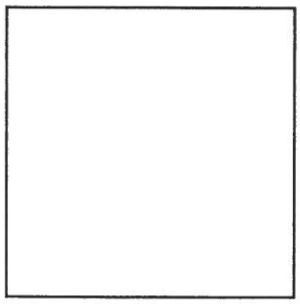
$\frac{\quad}{\quad} = 0.\_\_\_\_$

7. 

$\frac{\quad}{\quad} = 0.\_\_\_\_$

8. 

$\frac{\quad}{\quad} = 0.\_\_\_\_$

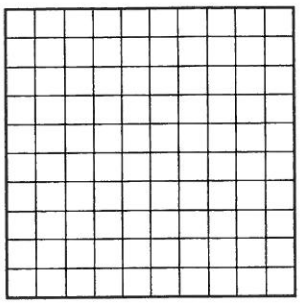
9. 

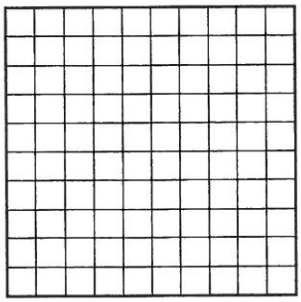
$\frac{\quad}{\quad} = 0.\_\_\_\_$

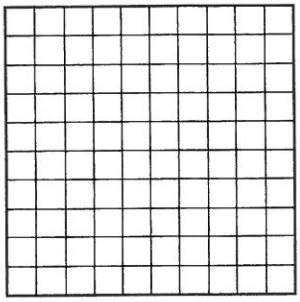
Name Date Time

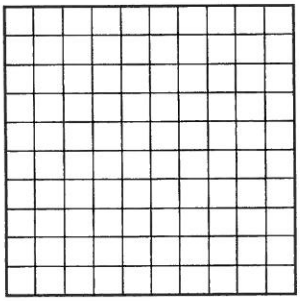
LESSON 5·6

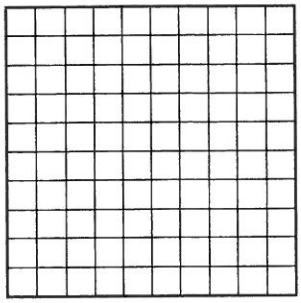
100-Grids

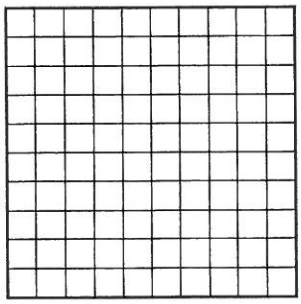








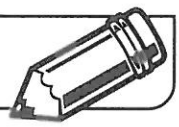




Name Date Time

LESSON 5•8

Solving Percent Number Stories



Solve.

1. Paul has 150 marbles in his collection. How many marbles are about 25% of the collection?

   _____

   About how many marbles are 66%? _____

2. Beatrice decided to sell some of her doll collection. She sold 20 dolls. This was 40% of her collection. How many dolls did she have left?

   _____

3. Each day, the bakery makes pastries: 25% are chocolate donuts, 37.5% are butter cookies, 25% are breakfast buns, and the rest are the daily special. There are 90 breakfast buns.

   How many pastries are made each day? _____

   What percent of each day's pastries are the daily special? _____

   How many of the daily special pastries are made? _____

4. After the first 85 days of school, a fifth-grade class had perfect attendance for 80% of that time. How many days did the class have perfect attendance?

   _____

5. Write a percent of story problem for your partner to solve. Remember that you must provide either the whole, or an amount and the percent of the whole that it represents.

   _____

   _____

   _____

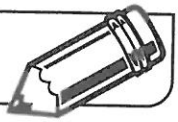
   _____

   _____

Name Date Time

LESSON 5·9

Finding Equivalent Fractions



1. Fill in the blanks to show how the multiplication rule or the division rule is used to find equivalent fractions.

   a. $\frac{6}{8} \times \frac{\square}{\square} = \frac{42}{56}$

   b. $\frac{72}{81} \div \frac{\square}{\square} = \frac{8}{9}$

   c. $\frac{56}{63} \div \frac{\square}{\square} = \frac{8}{9}$

   d. $\frac{3}{4} \times \frac{\square}{\square} = \frac{9}{12} \times \frac{\square}{\square} = \frac{27}{36} \times \frac{\square}{\square} = \frac{54}{72} \div \frac{\square}{\square} = \frac{6}{8} \div \frac{\square}{\square} = \frac{3}{4}$

2. Fill in the blanks to make equivalent fractions.

   a. $\frac{2}{6} = \frac{\square}{42}$

   b. $\frac{8}{56} = \frac{1}{\square}$

   c. $\frac{\square}{33} = \frac{1}{3}$

   d. $\frac{3}{\square} = \frac{9}{27}$

   e. $\frac{9}{4} = \frac{\square}{8}$

   f. $\frac{\square}{110} = \frac{12}{11}$

3. Circle T or F.

   a. $\frac{54}{72} > \frac{3}{4}$ T F

   b. $\frac{9}{12} = \frac{3}{4}$ T F

   c. $\frac{9}{8} < \frac{8}{9}$ T F

   d. $\frac{2}{6} = \frac{200}{600}$ T F

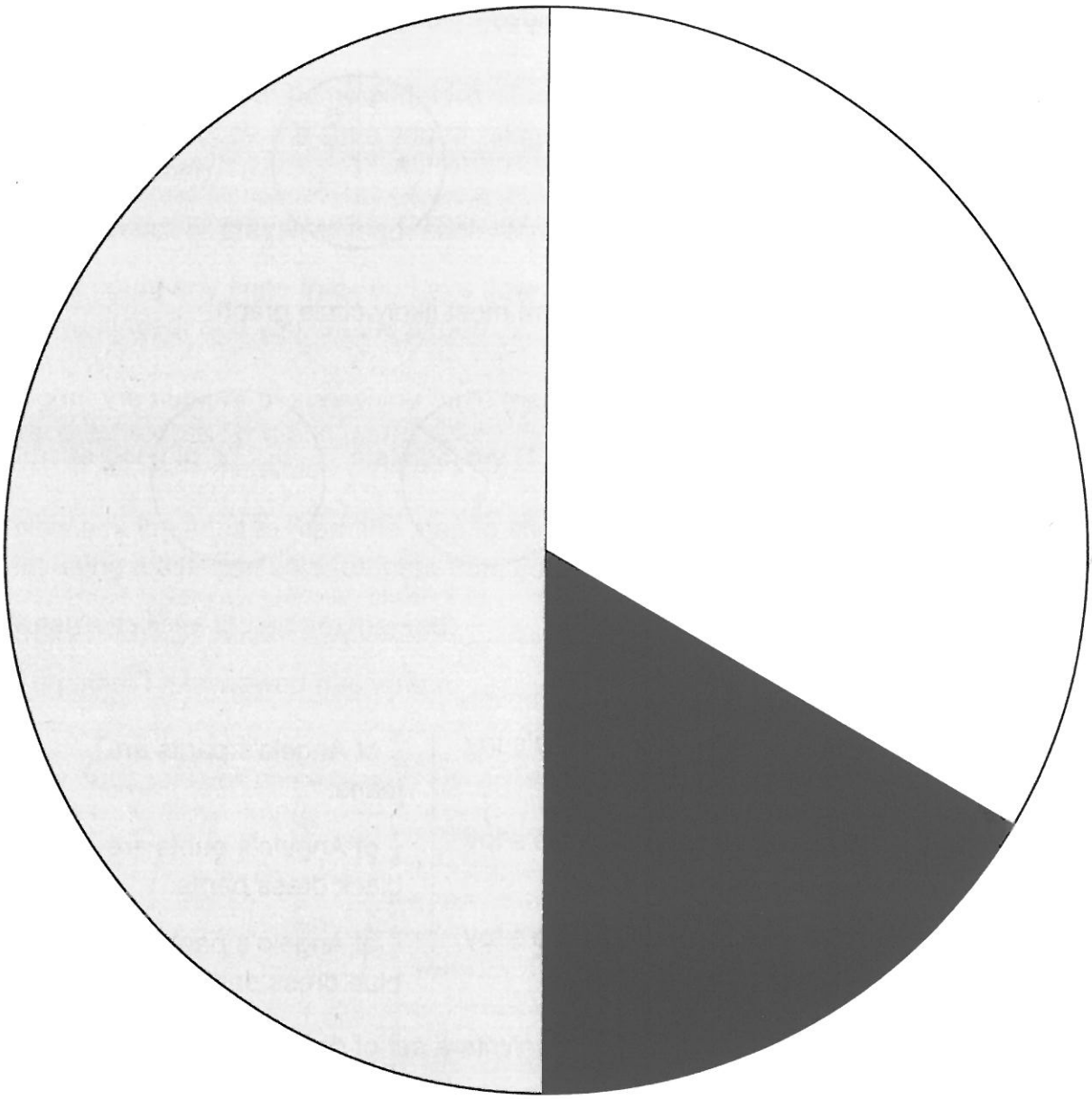
   e. $\frac{3}{4} = \frac{1}{4} + \frac{1}{2}$ T F

   f. $\frac{10}{4} = \frac{4}{4} + \frac{4}{4} + \frac{1}{2}$ T F

Name Date Time

LESSON 5·10

Circle Graph



Name Date # Time

STUDY LINK 5•11

What's in a Landfill?

People who study landfills have estimated the percent of landfill space (volume) taken up by paper, food, plastic, and so on.

Space in landfills taken up by:

Paper 50%

Food and yard waste 13%

Plastic 10%

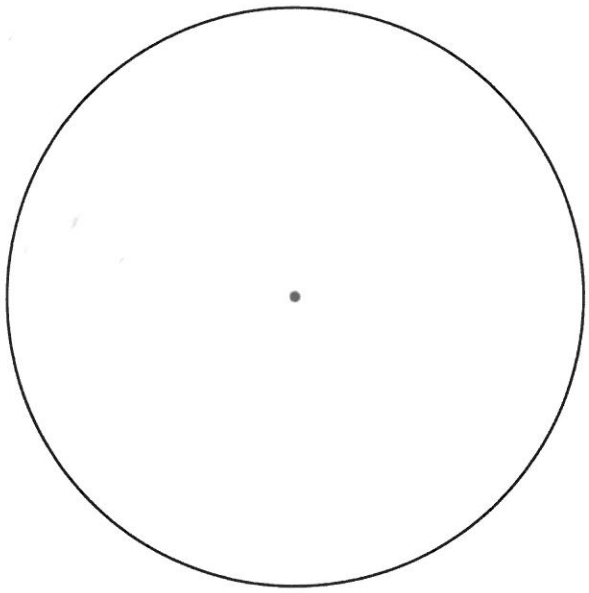
Metal 6%

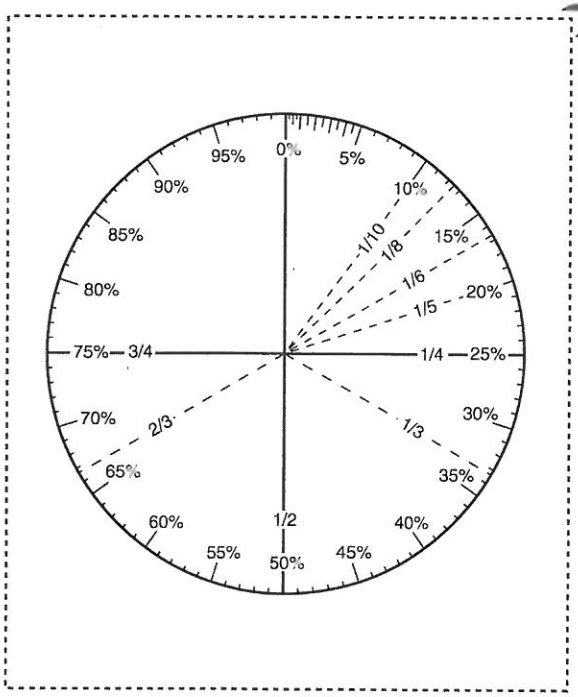
Glass 1%

Other waste 20%

Think of it this way:
For every 100 boxes of garbage hauled to the dump, expect that about 50 boxes could be filled with paper, 6 with metal, 1 with glass, and so on.

1. Cut out the Percent Circle. Use it to make a circle graph for the data in the table. (Remember to label the graph and give it a title.)





Practice

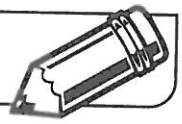
2. $23\overline{)391}$ _____ **3.** $17\overline{)391}$ _____

4. $43\overline{)387}$ _____ **5.** $37\overline{)259}$ _____

Name Date Time

LESSON 5•12

Mathematics Instruction in History



Throughout our nation's history, students have learned mathematics in different ways and have spent their time working on different kinds of problems. This is because people's views of what students can and should learn are constantly changing.

1. *1840s* It was discovered that children could be very good at mental arithmetic, and students began to solve mental arithmetic problems as early as age 4. A school in Connecticut reported that its arithmetic champion could mentally multiply 314,521,325 by 231,452,153 in $5\frac{1}{2}$ minutes.

   After studying arithmetic two hours per day for 7 to 9 years, 94% of eighth graders in Boston in 1845 could solve the following problem. Try to solve it.

   What is $\frac{1}{2}$ of $\frac{1}{3}$ of 9 hours and 18 minutes?

   _____
   (unit)

   Explain your solution: _____

   _____

   _____

   _____

2. *1870s* Many textbooks were step-by-step guides on how to solve various problems. Students were given problems and answers. They had to show how the rules in the textbook could be used to produce the given answers.

   Here is a problem from around 1870 (without the answer) given to students at the end of 6 to 8 years of elementary arithmetic study. Try to solve it.

   I was married at the age of 21. If I live 19 years longer,
   I will have been married 60 years. What is my age now? _____
   (unit)

   Explain your solution: _____

   _____

   _____

   _____

   _____