Name Date Time

STUDY LINK 5•1

Parts-and-Whole Fraction Practice

SRB 74 75 243

For the following problems, use counters or draw pictures to help you.

1. If 15 counters are the whole set, how many are $\frac{3}{5}$ of the set?

_______ counters

2. If 18 counters are the whole set, how many are $\frac{7}{9}$ of the set? _______ counters

3. If 20 counters are the whole set, what fraction of the set is 16 counters? _______________

4. If 50 counters are the whole set, what fraction of the set is 45 counters? _______________

5. If 35 counters are half of a set, what is the whole set? _______ counters

6. If 12 counters are $\frac{3}{4}$ of a set, what is the whole set? _______ counters

7. Gerald and Michelle went on a 24-mile bike ride.
By lunchtime, they had ridden $\frac{5}{8}$ of the total distance.

How many miles did they have left to ride after lunch? _______ miles

8. Jen and Heather went to lunch. When the bill came, Jen discovered that she had only \$8. Luckily, Heather had enough money to pay the other part, or $\frac{3}{5}$, of the bill.

a. How much did Heather pay? ______ **b.** How much was the total bill? ______

c. Explain how you figured out Heather's portion of the bill.

____

____

____

Practice

9. $3\overline{)42}$ ________ **10.** $3\overline{)420}$ ________

11. $30\overline{)420}$ ________ **12.** $30\overline{)4,200}$ ________

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

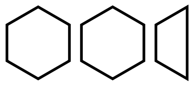
STUDY LINK 5·2

Fraction and Mixed-Number Practice

Unit
hexagon

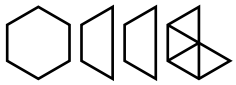
SRB 62 63

For the problems below, the hexagon is worth 1.
Write the mixed-number name and the fraction name shown by each diagram.

1. 

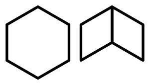
Mixed number ____________

Fraction ____________

2. 

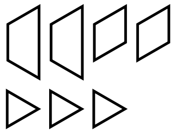
Mixed number ____________

Fraction ____________

3. 

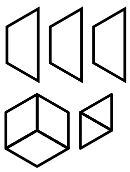
Mixed number ____________

Fraction ____________

4. 

Mixed number ____________

Fraction ____________

5. 

Mixed number ____________

Fraction ____________

6. Make up a mixed-number problem of your own in the space below.

Practice

7. $7\overline{)1,834} \rightarrow$ ____________

8. $6\overline{)196} \rightarrow$ ____________

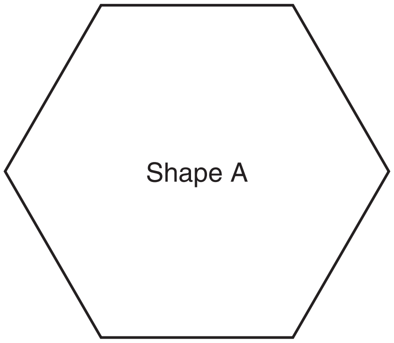
9. $8\overline{)984} \rightarrow$ ____________

10. $9\overline{)651} \rightarrow$ ____________

Name Date Time

LESSON 5•2

Pattern Block Fractions



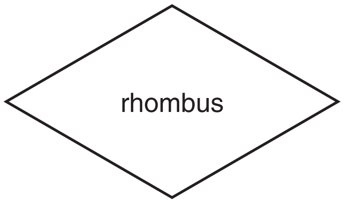
1. Cover Shape A with trapezoid blocks.

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.

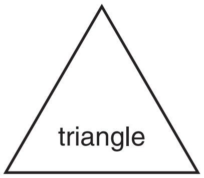


a. How many rhombus blocks does it take to cover Shape A? ____________

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.



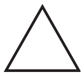
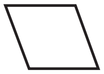
a. How many triangle blocks does it take to cover Shape A? ____________

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

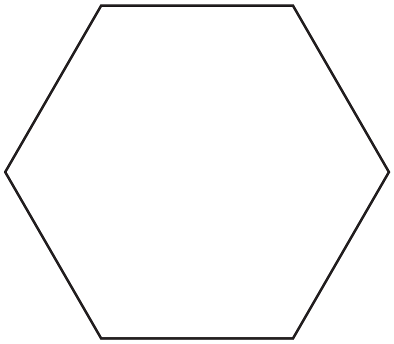
Use your , , and  pattern blocks to solve these problems.

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 __________.

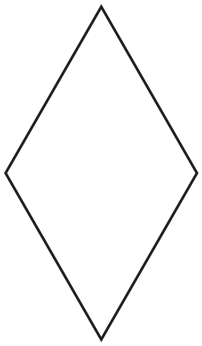
Use the figure you chose in Problem 1 to answer Problems 2–5.

2.



A hexagon is worth __________.

3.

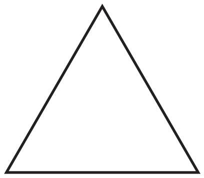


A rhombus is worth __________.

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? __________

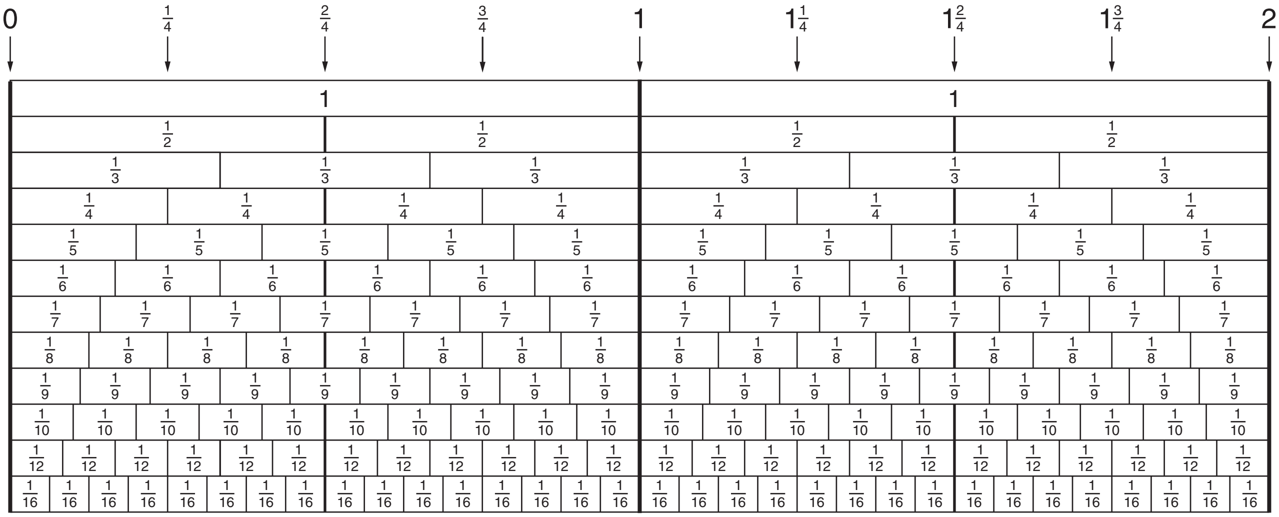
8. Write a number model to show how you calculated the value of the design.

____

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

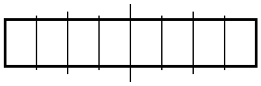
STUDY LINK 5·3

Fraction-Stick Problems

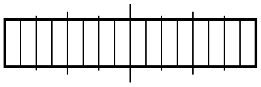
SRB 59

Shade the fraction sticks to help you find equivalent fractions.

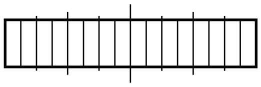
1. $\frac{1}{2} = \frac{\square}{8}$



2. $\frac{3}{4} = \frac{\square}{16}$

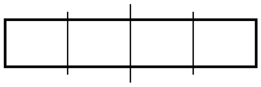


3. $\frac{\square}{4} = \frac{2}{8} = \frac{\square}{16}$

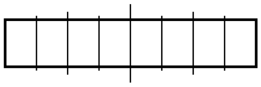


Shade the fraction sticks to help you solve the addition problems.

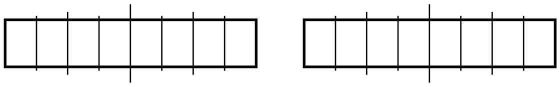
4. $\frac{1}{4} + \frac{3}{4} =$ ____________



5. $\frac{1}{2} + \frac{2}{8} =$ ____________



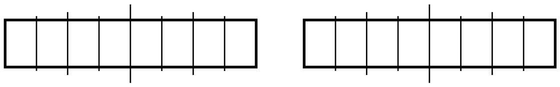
6. $\frac{1}{2} + \frac{3}{4} =$ ____________



Shade the fraction sticks to help you solve the fraction number stories.

7. Joe was baking a cake. He added $\frac{3}{4}$ cup of white sugar and $\frac{3}{8}$ cup of brown sugar. How much sugar did he use in all?

______________________ (unit)



8. On the back of this page, write a number story using fractions. Then write a number model to show how you solved it.

Practice

9. $3\overline{)891}$ ____________

10. $6\overline{)891}$ → ____________

11. $12\overline{)891}$ → ____________

12. $24\overline{)891}$ → ____________

Name Date Time

STUDY LINK 5•4

Equivalent Fractions

SRB 59

If the fractions are equivalent, write = in the answer blank.

If the fractions are not equivalent, write ≠ (not equal to) in the answer blank.

1. $\frac{3}{4}$ ______ $\frac{9}{12}$

2. $\frac{3}{10}$ ______ $\frac{1}{5}$

3. $\frac{7}{14}$ ______ $\frac{8}{15}$

4. $\frac{10}{12}$ ______ $\frac{5}{6}$

5. $\frac{16}{100}$ ______ $\frac{8}{50}$

6. $\frac{36}{72}$ ______ $\frac{1}{2}$

7. $\frac{7}{12}$ ______ $\frac{21}{36}$

8. $\frac{8}{3}$ ______ $\frac{16}{6}$

Fill in the boxes to complete and match the equivalent fractions.

Example: $\frac{\boxed{2}}{15} = \frac{6}{45}$

9. $\frac{3}{5} = \frac{\boxed{}}{10}$

10. $\frac{2}{3} = \frac{14}{\boxed{}}$

11. $\frac{44}{55} = \frac{\boxed{}}{5}$

12. $\frac{12}{\boxed{}} = \frac{3}{10}$

13. $\frac{35}{60} = \frac{7}{\boxed{}}$

14. $\frac{9}{16} = \frac{45}{\boxed{}}$

15. $\frac{9}{36} = \frac{\boxed{}}{108}$

16. $\frac{7}{\boxed{}} = \frac{1}{8}$

17. $\frac{30}{135} = \frac{\boxed{}}{27}$

18. $\frac{10}{16} = \frac{\boxed{}}{112}$

Practice

19. 7)$49.28 ______________

20. 15)$300.45 ______________

21. 21)367 → ______________

22. 8)644 → ______________

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?

____

____

____

____

____

____

____

____

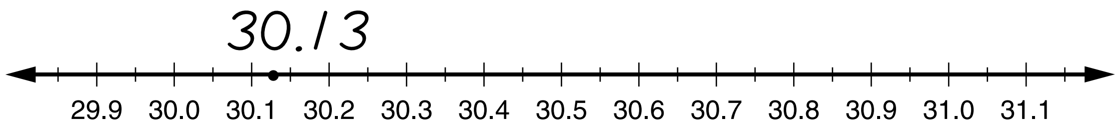
Name Date Time

STUDY LINK 5•5

Decimal Numbers

1. Mark each number on the number line. The first one is done for you.

30.13 30.72 31.05 29.94 30.38



2. Round the area of each country to the nearest tenth of a square kilometer.

Ten Smallest Countries		Area in Square Kilometers	Area Rounded to the Nearest Tenth of a Square Kilometer
1	Vatican City	0.44 km^2	km^2
2	Monaco	1.89 km^2	km^2
3	Nauru	20.72 km^2	km^2
4	Tuvalu	23.96 km^2	km^2
5	San Marino	60.87 km^2	km^2
6	Liechtenstein	160.58 km^2	km^2
7	Marshall Islands	181.30 km^2	km^2
8	St. Kitts and Nevis	296.37 km^2	km^2
9	Maldives	297.85 km^2	km^2
10	Malta	315.98 km^2	km^2

Source: *The Top 10 of Everything 2005*

Practice

Solve and write the fact family number sentences.

3. $32\overline{)768}$

_____ ÷ _____ = _____ _____ ÷ _____ = _____

_____ * _____ = _____ _____ * _____ = _____

Number Sense 1.5; Number Sense 2.2

Name Date Time

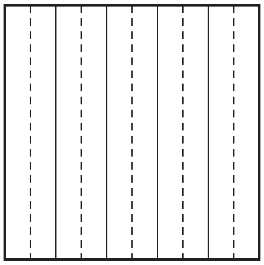
LESSON 5•5

Renaming Fractions as Decimals

Whole
large square

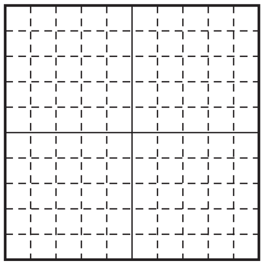
1. Fill in the missing numbers and shade the squares.
Each large square is worth 1.

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



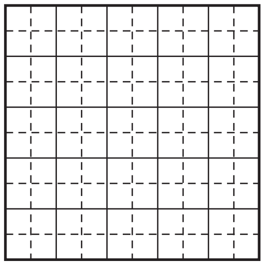
a. $\frac{4}{5} = \frac{\square}{10} = 0.$______

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



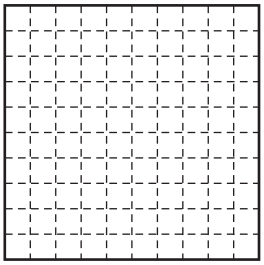
b. $\frac{1}{4} = \frac{\square}{100} = 0.$______

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



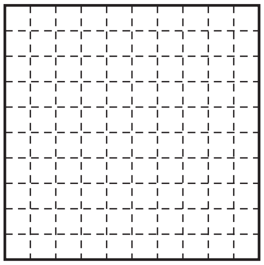
c. $\frac{5}{25} = \frac{\square}{100} = 0.$______

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



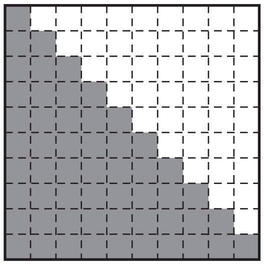
d. $\frac{1}{25} = \frac{\square}{100} = 0.$______

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.

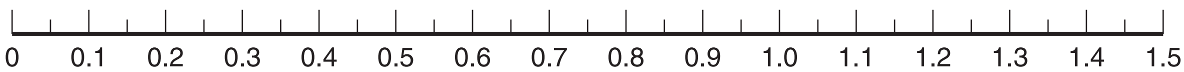


f. $\frac{\square}{\square} = 0.$______

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

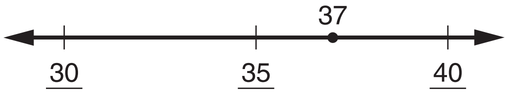
LESSON 5•5

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.

____

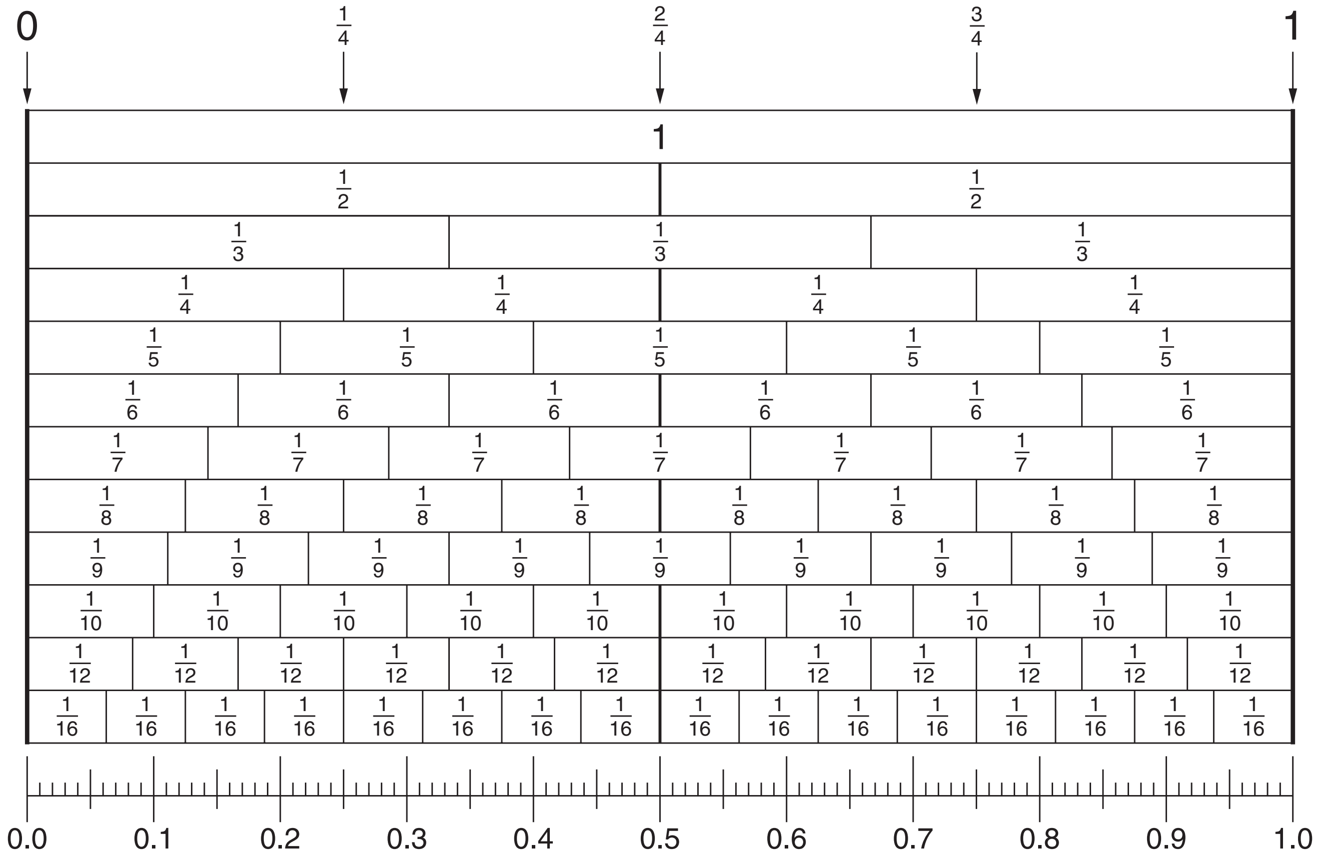
6. Round 1,009 to the nearest hundred.

____

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.

Numerator

Denominator	**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

STUDY LINK 5·6

Decimals, Fractions, and Mixed Numbers

SRB 63 83 89

1. Convert each decimal measurement to a mixed number.

Longest Road and Rail Tunnels in the U.S.	Decimal Length	Mixed-Number Length
Cascade Tunnel (Washington)	7.79 miles	______ miles
Flathead Tunnel (Montana)	7.78 miles	______ miles
Moffat Tunnel (Colorado)	6.21 miles	______ miles
Hoosac Tunnel (Massachusetts)	4.7 miles	______ miles
BART Transbay Tubes (San Francisco, CA)	3.6 miles	______ miles

Source: *The Top 10 of Everything 2005*

2. The longest one-word name of any place in America is Chargoggagoggmanchauggagoggchaubunagungamaugg.

This name for a lake near Webster, Massachusetts, is 45 letters long. It is a Native American name that means "You fish on your side, I'll fish on mine, and no one fishes in the middle." Use this word to answer the problems below.

a. What fraction of the word is made up of the letter *g*? ______ = ______

b. What fraction of the word is made up of the letter *a*? ______ = ______

c. What fraction of the word is made up of the letter *c*? ______ = ______

3. In the space above, write the decimal equivalents for the fractions in Problem 2.

Practice

4. $10\overline{)7{,}146} \rightarrow$ ______ **5.** $10\overline{)84} \rightarrow$ ______ **6.** $10\overline{)675} \rightarrow$ ______

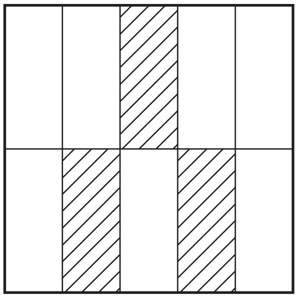
Name Date Time

LESSON 5•6

Fractions and Decimals

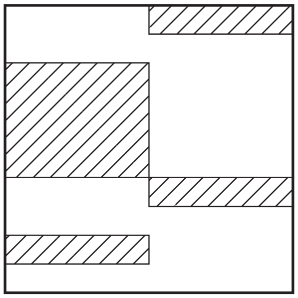
Write the fraction name and decimal name for the shaded portion of each square. Use your transparent 100-grid to check your answer. For Problem 9, color the grid to show a fraction and then write the fraction and decimal name for the shaded portion of the square.

1.



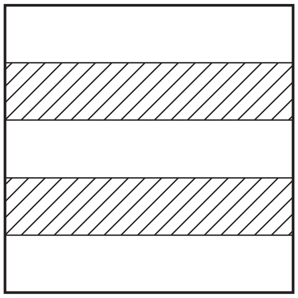
$\frac{3}{10}$ = 0.3

2.



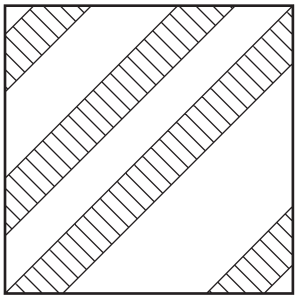
$\frac{\square}{\square}$ = 0.______

3.



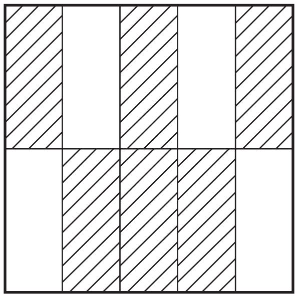
$\frac{\square}{\square}$ = 0.______

4.



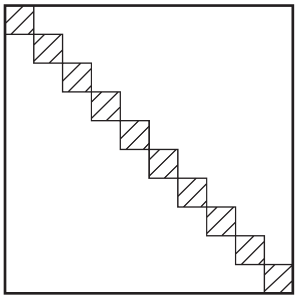
$\frac{\square}{\square}$ = 0.______

5.



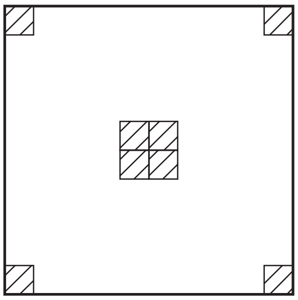
$\frac{\square}{\square}$ = 0.______

6.



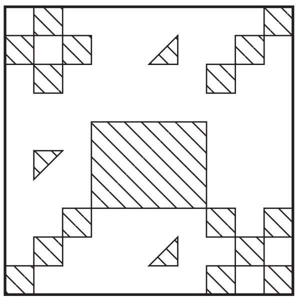
$\frac{\square}{\square}$ = 0.______

7.



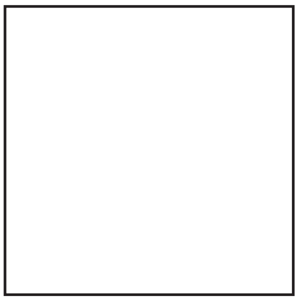
$\frac{\square}{\square}$ = 0.______

8.



$\frac{\square}{\square}$ = 0.______

9.

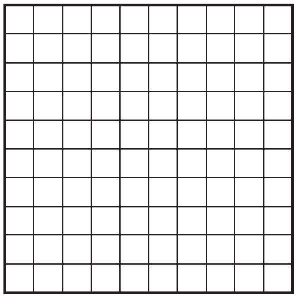


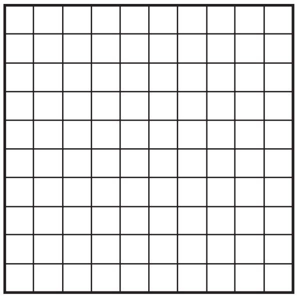
$\frac{\square}{\square}$ = 0.______

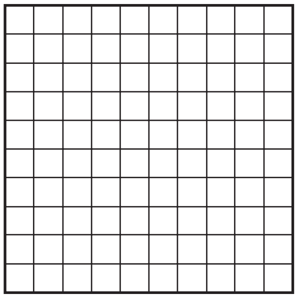
Name Date Time

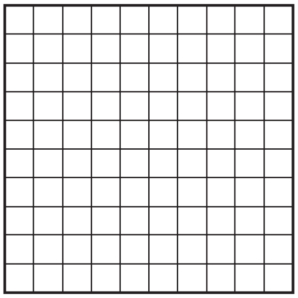
LESSON 5•6

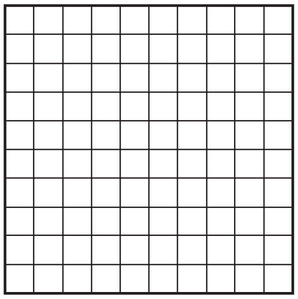
100-Grids

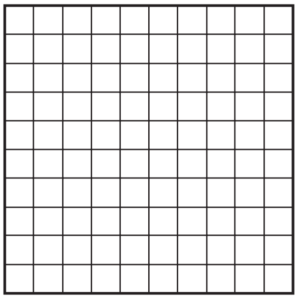












Name Date Time

STUDY LINK 5•7

Decimal Comparisons

SRB 32 33

Write three numbers between each pair of numbers.

1. 0 and 1 ________, ________, ________
2. 2 and 3 ________, ________, ________
3. 0.6 and 0.8 ________, ________, ________
4. 0.3 and 0.4 ________, ________, ________
5. 0.06 and 0.05 ________, ________, ________

Circle the correct answer to each question.

6. Which is closer to 0.6? 0.5 or 0.53
7. Which is closer to 0.3? 0.02 or 0.2
8. Which is closer to 0.8? 0.77 or 0.85
9. Which is closer to 0.75? 0.6 or $0.\overline{8}$
10. Which is closer to 0.04? 0.3 or 0.051
11. Arrange the decimals below in order from least to greatest.

0.12 0.05 0.2 0.78 0.6 0.043 0.1

_____ _____ _____ _____ _____ _____ _____

Practice

12. $9\overline{)\$63.54}$ ________

13. $45\overline{)287}$ → ________

14. $7\overline{)567}$ ________

15. $7\overline{)4{,}861}$ → ________

Name Date Time

STUDY LINK 5•8

Percent Problems

1. Convert the following fractions to decimals and percents. Round to the nearest whole percent.

SRB 52 66 83 89

Fraction	Decimal	Percent
$\frac{3}{4}$		
$\frac{14}{16}$		
$\frac{15}{25}$		
$\frac{17}{20}$		
$\frac{3}{8}$		

2. On the back of this page, explain how you could find the percent equivalent to $\frac{17}{20}$ without using a calculator.

3. Write the five fractions from Problem 1 in order from least to greatest.

_______ _______ _______ _______ _______

4. Katie spent 50% of her money on shoes for soccer. The shoes cost $65. How much money did Katie start with? _______________

5. Tom got 70% of the questions correct on a music test. If he got 7 questions correct, how many questions were on the test? _______________

Practice

6. $10\overline{)975} \rightarrow$ _______________

7. $20\overline{)975} \rightarrow$ _______________

8. $30\overline{)975} \rightarrow$ _______________

9. $40\overline{)975} \rightarrow$ _______________

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

STUDY LINK 5•9

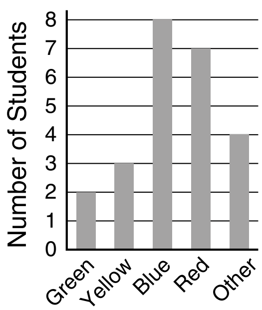
Graphs

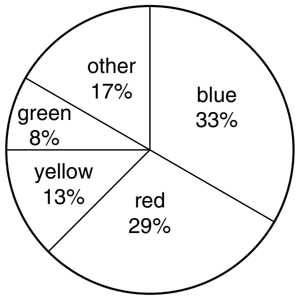
Brenda's class made a list of their favorite colors. Here are the results.

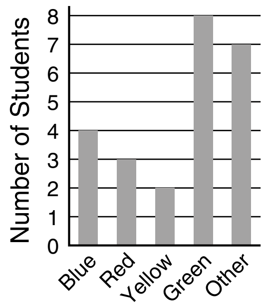
SRB 122 124 125

Blue 8 Red 7 Yellow 3 Green 2 Other 4

1. Circle each graph that correctly represents the data above. (There may be more than one.)



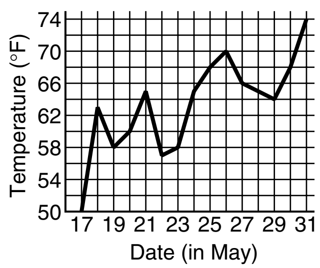




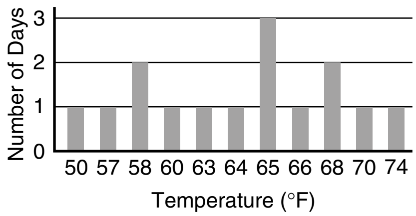
Marsha kept track of low temperatures. Here are the results for the end of May:

May 17	50°F	May 18	63°F	May 19	58°F	May 20	60°F
May 21	65°F	May 22	57°F	May 23	58°F	May 24	65°F
May 25	68°F	May 26	70°F	May 27	66°F	May 28	65°F
May 29	64°F	May 30	68°F	May 31	74°F		

Line Graph



Bar Graph



2. Which graph do you think is more helpful for answering the question, "On how many days was the low temperature 65°F?" ____________________

3. Which graph do you think is more helpful for showing trends in the temperature for the last two weeks of May? ____________________

4. On the back of this page, explain your choices for Problems 2 and 3.

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. $\frac{6 * \boxed{}}{8 * \boxed{}} = \frac{42}{56}$

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

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

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

2. Fill in the blanks to make equivalent fractions.

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

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

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

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

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

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

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

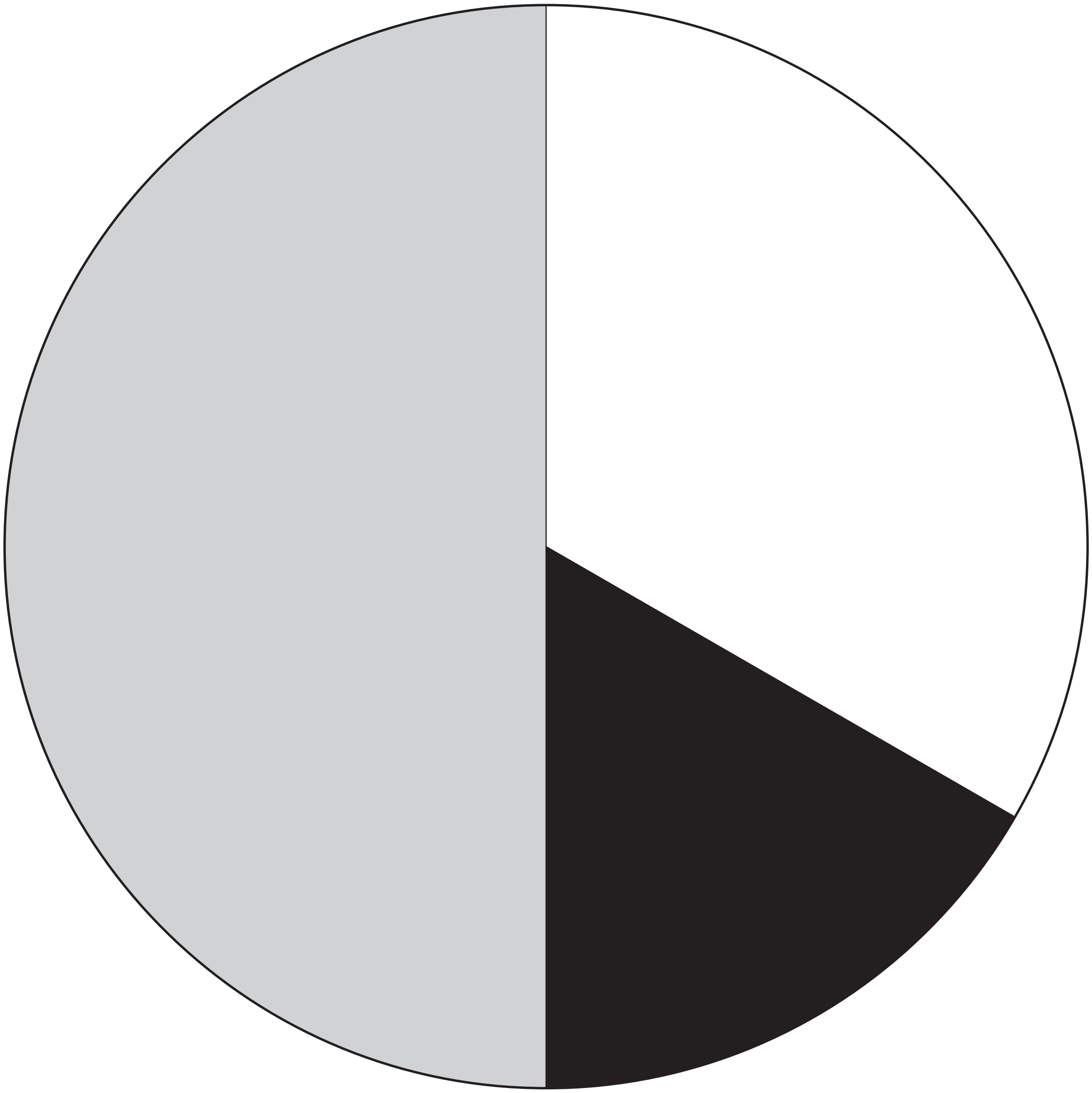
e. $\frac{3}{4} = \frac{1}{4} + \frac{1}{2}$ T F

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

Name Date Time

LESSON 5•10

Circle Graph



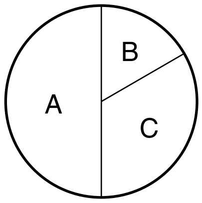
Name Date Time

STUDY LINK 5•10

Circle Graphs and Collecting Data

SRB 125 126

1. Estimate the percent of the circle for each piece of the graph at the right.

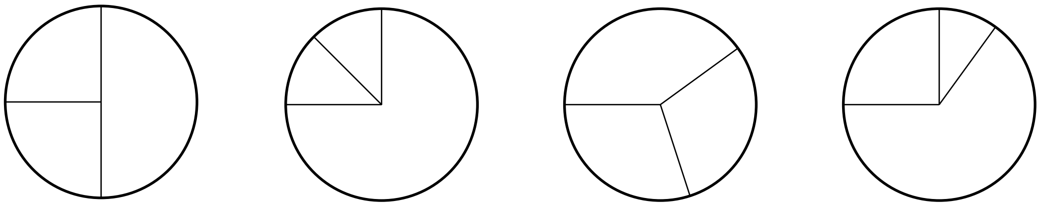


a. A is about ________ of the circle.

b. B is about ________ of the circle.

c. C is about ________ of the circle.

2. Draw a line connecting each data set with the most likely circle graph.



30% of Michel's class walks to school.	25% of Jeannene's toy cars are blue.	$\frac{1}{8}$ of Angelo's pants are jeans.
30% of Michel's class rides the bus.	10% of Jeannene's toy cars are striped.	$\frac{1}{8}$ of Angelo's pants are black dress pants.
40% of Michel's class rides in a car or van.	65% of Jeannene's toy cars are red.	$\frac{3}{4}$ of Angelo's pants are blue dress pants.

3. Circle the graph above that you did not use. Write a set of data to match that circle graph.

____

____

Practice

4. $6\overline{)3{,}798}$ ________

5. $7\overline{)8.145}$ ________

6. $2\overline{)21}$ → ________

7. $8\overline{)804}$ → ________

Name Date Time

STUDY LINK 5•10

Circle Graphs and Collecting Data *cont.*

The Number of States We've Been In

SRB 125 126

8. Talk with an adult at home and think of all the states you have visited. (Be sure to include the state you're living in.) Look at the map below to help you remember.

Use a pencil or crayon to mark each state you have visited.

Don't count any state that you have flown over in an airplane unless the plane landed, and you left the airport.

9. Count the number of states you have marked.

I have been in ________ states in my lifetime.

10. Now ask the adult to mark the map to show the states he or she has been in, using a different color or mark from yours.

Keep a tally as states are marked.

The adult I interviewed has visited ________ states.

Note: Alaska and Hawaii are not shown to scale.

Student and adult: This data is important for our next mathematics class. Please bring this completed Study Link back to school tomorrow.

Name Date Time

STUDY LINK 5•11

What's in a Landfill?

SRB 126

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%

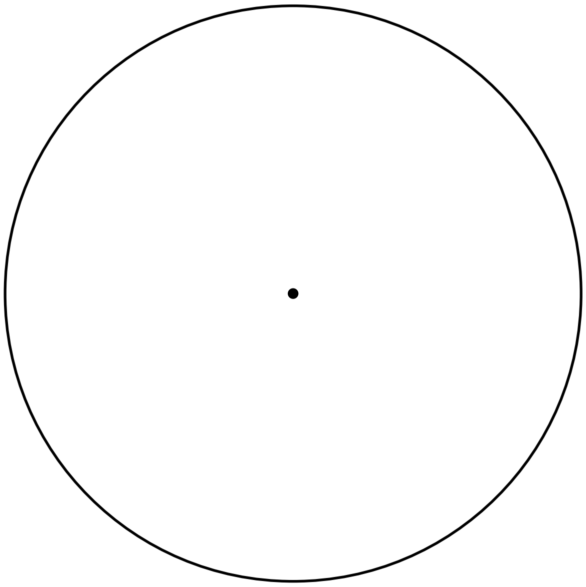
Metal 6%

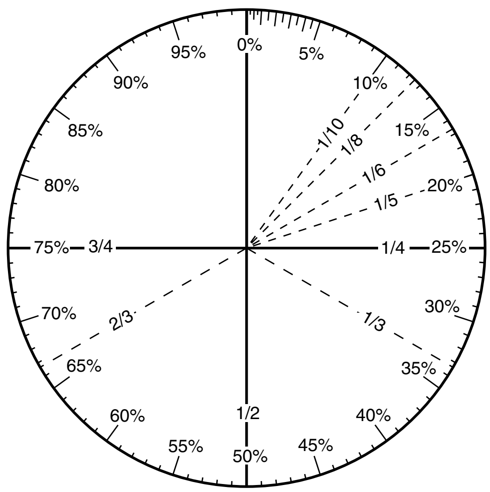
Glass 1%

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

STUDY LINK 5•12

Finding "Fractions of"

SRB 74

Solve.

1. Tomas ate $\frac{3}{8}$ of a bag of 24 cookies. Mona ate $\frac{2}{5}$ of a bag of 25 cookies. Who ate more cookies? Explain your answer.

2. On Thursday, 24 fifth-grade students came to school. That was only $\frac{2}{3}$ of the total class. The rest were home sick. How many students were sick? Explain your answer.

3. Mario was on a 21-mile hiking trail. He walked $\frac{3}{7}$ of the trail before stopping for lunch. How far did he walk before lunch? Explain your answer.

Practice

4. $52\overline{)156}$ ________

5. $24\overline{)576}$ ________

6. $13\overline{)286}$ ________

7. $22\overline{)528}$ ________

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: ______________________________

____

____

____

____

Name Date Time

STUDY LINK 5•13

Unit 6: Family Letter

Using Data; Addition and Subtraction of Fractions

The authors of *Everyday Mathematics* believe that students should work substantially with data. Unit 6 is designed to present and teach relevant data skills and concepts, allowing your child ample opportunities to practice organizing and analyzing the data that he or she collects.

The data that your child collects at first will usually be an unorganized set of numbers. After organizing the data using a variety of methods, he or she will study the **landmarks** of the data. The following terms are called landmarks because they show important features of the data.

- The **maximum** is the largest data value observed.
- The **minimum** is the smallest data value observed.
- The **range** is the difference between the maximum and the minimum.
- The **mode** is the most popular data value—the value observed most often.
- The **median** is the middle data value observed.
- The **mean,** commonly known as the average, is a central value for a set of data.

At the end of the unit, students will demonstrate their skills by conducting a survey of their peers, gathering and organizing the data, analyzing their results, and writing a summary report.

Your child will continue the American Tour by studying Native American measurements for length and distance, based on parts of the body. Students will convert these body measures to personal measures by measuring their fingers, hands, and arms in both metric and U.S. customary units. In addition, your child will learn how to read a variety of contour-type maps, such as climate, precipitation, and growing-seasons maps.

Finally, students will explore addition and subtraction of fractions by using paper slide rules, a clock face, and fraction sticks. They will learn to find common denominators and apply this skill to add and subtract fractions with unlike denominators.

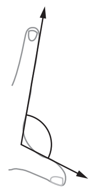
Please keep this Family Letter for reference as your child works through Unit 6.

STUDY LINK 5•13 **Unit 6: Family Letter** *cont.*

Vocabulary

Important terms in Unit 6:

angle of separation In *Everyday Mathematics,* the angle measure between spread fingers. The figure shows the angle of separation between a person's thumb and first finger.



Angle of separation

common denominator Any number except zero that is a multiple of the denominators of two or more fractions. For example, the fractions $\frac{1}{2}$ and $\frac{2}{3}$ have common denominators 6, 12, 18, and so on.

contour line A curve on a map through places where a certain measurement (such as temperature or elevation) is the same. Often, contour lines separate regions that have been colored differently to show a range of conditions.

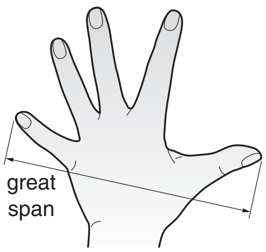
cubit An ancient unit of length, measured from the point of the elbow to the end of the middle finger. A cubit is about 18 inches.

decennial Occurring every 10 years.

fair game A game in which each player has the same chance of winning. If any player has an advantage or disadvantage, then the game is not fair.

fathom A unit used by people who work with boats and ships to measure depths underwater and lengths of cables. A fathom is now defined as 6 feet.

great span The distance from the tip of the thumb to the tip of the little finger (pinkie), when the hand is stretched as far as possible.



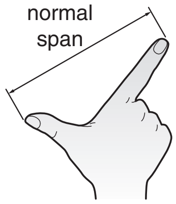
landmark A notable feature of a data set. Landmarks include the *median, mode, maximum, minimum,* and *range.*

line plot A sketch of data in which check marks, Xs, or other marks above a labeled line show the frequency of each value.

map legend (map key) A diagram that explains the symbols, markings, and colors on a map.

mode The value or values that occur most often in a set of data.

normal span The distance from the tip of the thumb to the tip of the first (index) finger of an outstretched hand. Also called *span*.



population In data collection, the group of people or objects that is the focus of the study.

range The difference between the *maximum* and *minimum* in a set of data.

sample A part of a population chosen to represent the whole population.

simplest form A fraction less than 1 is in simplest form if there is no number other than 1 that divides its numerator and denominator evenly. A mixed number is in simplest form if its fractional part is in simplest form.

stem-and-leaf plot A display of data in which digits with larger place values are "stems" and digits with smaller place values are "leaves."
Data list: 24, 24, 25, 26, 27, 27, 28, 31, 31, 32, 32, 36, 36, 36, 41, 41, 43, 45, 48, 50, 52

Stem-and-leaf plot

Stems (10s)	**Leaves** (1s)
2	4 4 5 6 7 7 8
3	1 1 2 2 6 6 6
4	1 1 3 5 8
5	0 2

survey A study that collects data.

Do-Anytime Activities

To work with your child on the concepts taught in this unit and in previous units, try these interesting and rewarding activities.

1. Have your child design and conduct an informal survey. Help him or her collect and organize the data, and then describe the data using data landmarks. Challenge your child to create different ways to present the data.

2. Encourage your child to develop his or her own set of personal measures for both metric and U.S. customary units.

Building Skills through Games

In this unit, your child will work on his or her understanding of angles and the addition and subtraction of fractions by playing the following games. For detailed instructions, see the *Student Reference Book.*

Divisibility Dash See *Student Reference Book,* page 302. This is a game for two or three players. Game materials include 4 each of the number cards 0–9 as well as 2 each of the number cards 2, 3, 5, 6, 9, and 10. This game provides practice in recognizing multiples and using divisibility rules in a context that also develops speed.

Frac-Tac-Toe See *Student Reference Book,* pages 309–311. This is a game for two players. Game materials include 4 each of the number cards 0–10, pennies or counters of two colors, a calculator, and a gameboard. The gameboard is a 5-by-5 number grid that resembles a bingo card. Several versions of the gameboard are shown in the *Student Reference Book. Frac-Tac-Toe* helps students practice converting fractions to decimals and percents. In Unit 6, students practice fraction/decimal conversions.

Fraction Capture See *Math Journal,* page 198. This is a game for two players and requires 2 six-sided dice and a gameboard. Partners roll dice to form fractions and then attempt to capture squares on a *Fraction Capture* gameboard. This game provides practice in finding equivalent fractions and in adding fractions.

As You Help Your Child with Homework

As your child brings assignments home, you might want to go over the instructions together, clarifying them as necessary. The answers listed below will guide you through this unit's Study Links.

Study Link 6•1

3. a. 59 **b.** 24 **c.** 33
d. 36 **e.** 39.5

5. 18.43 **6.** 16

Study Link 6•2

2. a. cm; ft **b.** ounces; gal; liters
c. m; miles **d.** cm; ft; mm
e. kg; lb; grams

3. 2,686 **6.** 141.63

Study Link 6•3

1. 73; maximum **2.** 19 **3.** 53

4. Sample answer: Cross off the highest and lowest values—31 and 73. Continue by crossing off the highest and lowest values remaining, so that only one number, 53, remains.

5. 3,286 **8.** 65,250

Study Link 6•4

1. Tapes and CDs **2.** Books and magazines

3. Movie tickets **4.** 5,593

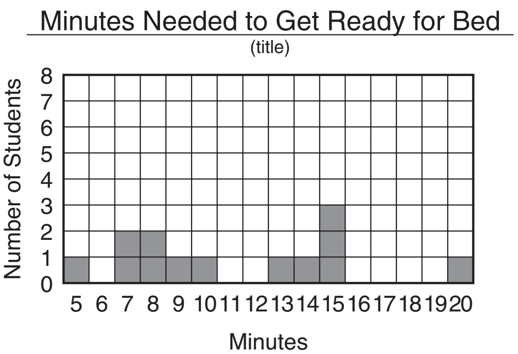
5. 16,539 **6.** 582 R3 **7.** 75,896

Study Link 6•5

Sample answers given for Problems 1–3.

1. 5, 7, 7, 8, 8, 9, 10, 13, 14, 15, 15, 15, 20

2.



3. The number of minutes it takes to get ready for bed

5. 443 **7.** 1,839

Study Link 6•6

1. Sample answer: Ages of the oldest people we know
Title: The Oldest People Our Class Knows
Unit: Years

4. a. 32 **b.** 99 **c.** 66 **d.** 78.5

5. 12,495 **7.** 8,484

Study Link 6•7

1. California; Arizona **2.** Montana; Washington

4. 2,086 **6.** 81

Study Link 6•8

1. $\frac{10}{14}$, or $\frac{5}{7}$ **3.** $\frac{6}{15}$, or $\frac{2}{5}$

5. 9,384 **7.** 2,952

Study Link 6•9

1. $\frac{22}{15}$, or $1\frac{7}{15}$ **2.** $\frac{1}{18}$

3. $\frac{9}{4}$, or $2\frac{1}{4}$ **4.** 4; $7\frac{3}{4}$

5. $5\frac{5}{6}$

Study Link 6•10

1. $\frac{18}{22} - \frac{11}{22} = \frac{7}{22}$ **2.** $\frac{20}{36} - \frac{9}{36} = \frac{11}{36}$

3. $\frac{21}{30} + \frac{8}{30} = \frac{29}{30}$ **4.** $\frac{21}{30} - \frac{8}{30} = \frac{13}{30}$

5. $\frac{19}{18}$, or $1\frac{1}{18}$ **6.** $\frac{59}{42}$, or $1\frac{17}{42}$

7. $\frac{1}{6}$ **8.** $\frac{3}{4}$

9. $\frac{2}{12}$, or $\frac{1}{6}$ **10.** $\frac{1}{2}$

11. $\frac{1}{3}$ **12.** $\frac{23}{12}$, or $1\frac{11}{12}$

13. $\frac{23}{12}$, or $1\frac{11}{12}$ **14.** $\frac{19}{12}$, or $1\frac{7}{12}$