

Study Links

Common Core Units 4-6

Everyday Math Grade 5



Name: _____

Teacher: _____



Division

Unit 4 begins with a review of division facts and the relationship between division and multiplication. Emphasis is on fact families. A person who knows that $4 \times 5 = 20$ also knows the related facts $5 \times 4 = 20$, $20 \div 4 = 5$, and $20 \div 5 = 4$.

We will develop strategies for dividing mentally. Challenge your child to a game of *Division Dash* to help him or her practice. You'll find the rules in the *Student Reference Book*, page 303.

In *Fourth Grade Everyday Mathematics*, students were introduced to a method of long division called the partial-quotients division algorithm. This algorithm is easier to learn and apply than the traditional long-division method. It relies on "easy" multiplication, and it can be quickly employed by students who struggle with traditional computation.

In this method, a series of partial answers (partial quotients) are obtained, and then added to get the final answer (the quotient). After your child has worked with this method, you might ask him or her to explain the example below:

$$\begin{array}{r}
 12 \overline{)158} \\
 \underline{-120} \quad 10 \\
 38 \\
 \underline{-36} \quad 3 \\
 2 \quad 13
 \end{array}$$

↑
↑
Remainder **Quotient**

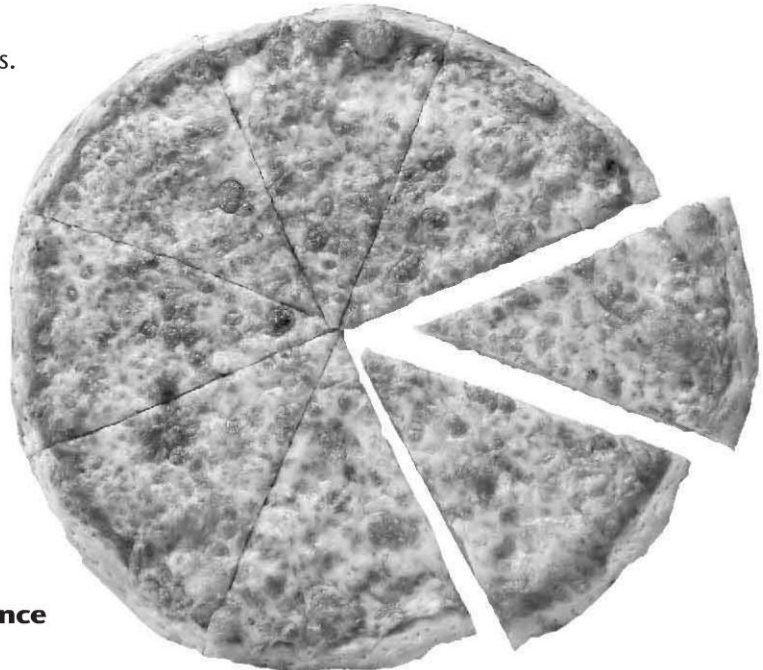
In the coming unit, we will review the partial-quotients algorithm and extend it to decimals.

Your child will practice using this division algorithm, as well as others, if he or she chooses. The partial-quotients division algorithm and another method called column division are described in the *Student Reference Book*.

When we solve division number stories, special attention will be placed on interpreting the remainder in division.

The American Tour will continue as the class measures distances on maps and uses map scales to convert the map distances to real-world distances between cities, lengths of rivers, and so on.

Please keep this Family Letter for reference as your child works through Unit 4.



Vocabulary

Important terms in Unit 4:

dividend In division, the number that is being divided. For example, in $35 \div 5 = 7$, the dividend is 35.

divisor In division, the number that divides another number. For example, in $35 \div 5 = 7$, the divisor is 5.

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

map scale The ratio of a distance on a map, globe, or drawing to an actual distance.

number sentence Two expressions with a relation symbol ($=$, $<$, $>$, \neq , \leq , or \geq). For example, $5 + 5 = 10$ and $6 * (43 + 7) = 300$ are number sentences. Compare to *open sentence*.

open sentence A *number sentence* with one or more *variables*. For example, $x + 3 = 5$ is an open sentence.

quotient The result of dividing one number by another number. For example, in $35 \div 5 = 7$, the quotient is 7.

remainder The amount left over when one number is divided by another number. For example, if 38 books are divided into 5 equal piles, there are 7 books per pile, with 3 books remaining. In symbols, $38 \div 5 \rightarrow 7 \text{ R}3$.

variable A letter or other symbol that represents a number. A variable can represent one specific number. For example, in the number sentence $5 + n = 9$, only $n = 4$ makes the sentence true. A variable may also stand for many different numbers. For example, $x + 2 < 10$ is true if x is any number less than 8.

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. Provide your child with opportunities to look at maps from various parts of the country. Ask him or her to explain the map legend and map scale, and to find the distances between two cities or places of interest.
2. Read the book *A Remainder of One*, by Elinor J. Pinczes.
3. Play *Division Dash*, *First to 100*, *Divisibility Dash*, *Division Top-It* or *Name that Number* as described in the *Student Reference Book*.
4. Ask your child to write number stories that can be solved using division. Help your child solve those problems, and then identify how the quotient and remainder are used to answer the question in the number story.

Building Skills through Games

In Unit 4, your child will practice division as well as other skills by playing these and other games. For detailed instructions, see the *Student Reference Book*.

Divisibility Dash See *Student Reference Book*, page 302

This is a game for two to three players and requires a set of number cards. Playing *Divisibility Dash* provides practice recognizing multiples and using divisibility rules in a context that also develops speed.

Division Dash See *Student Reference Book*, page 303

This is a game for one or two players. Each player will need a calculator. Playing *Division Dash* helps students practice division and mental calculation.

Division Top-It See *Student Reference Book*, page 334

This is a game for two to four players and requires number cards. Playing *Division Top-It* provides practice recognizing multiples and applying division facts and extended facts.

First to 100 See *Student Reference Book*, page 308

This is a game for two to four players and requires 32 Problem Cards and a pair of six-sided dice. Players answer questions after substituting numbers for the variable on Problem Cards. The questions offer practice on a variety of mathematical topics.

Name That Number See *Student Reference Book*, page 325

This is a game for two or three players using the Everything Math Deck or a complete deck of number cards. This game provides a review of operations with whole numbers.

STUDY LINK
4•1

Uses of Division



Use multiplication and division facts to solve the following problems mentally.

Remember: Break the number into two or more friendly parts.

Example: How many 4s in 71?

Break 71 into smaller, friendly numbers. Here are two ways.

- ◆ 40 and 31. Ask yourself: *How many 4s in 40?* (10) *How many 4s in 31?* (7 and 3 left over) Think: *What multiplication fact for 4 has a product near 31?* ($4 * 7 = 28$)
Total = 17 and 3 left over.
- ◆ 20, 20, 20, and 11. Ask yourself: *How many 4s in 20?* (5) *How many 4s in three 20s?* (15) *How many 4s in 11?* (2 and 3 left over) Total = 17 and 3 left over.

So 71 divided by 4 equals 17 with 3 left over.

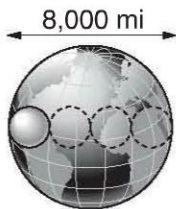
1. 57 divided by 3 equals _____.

_____ (friendly parts for 57)

2. 96 divided by 8 equals _____.

_____ (friendly parts for 96)

3. The diameter of Earth, about 8,000 miles, is about 4 times the diameter of the moon. What is the approximate diameter of the moon?



_____ unit

4. The weight of an object on Earth is 6 times heavier than its weight on the moon. An object that weighs 30 lb on Earth weighs how many pounds on the moon?

_____ unit

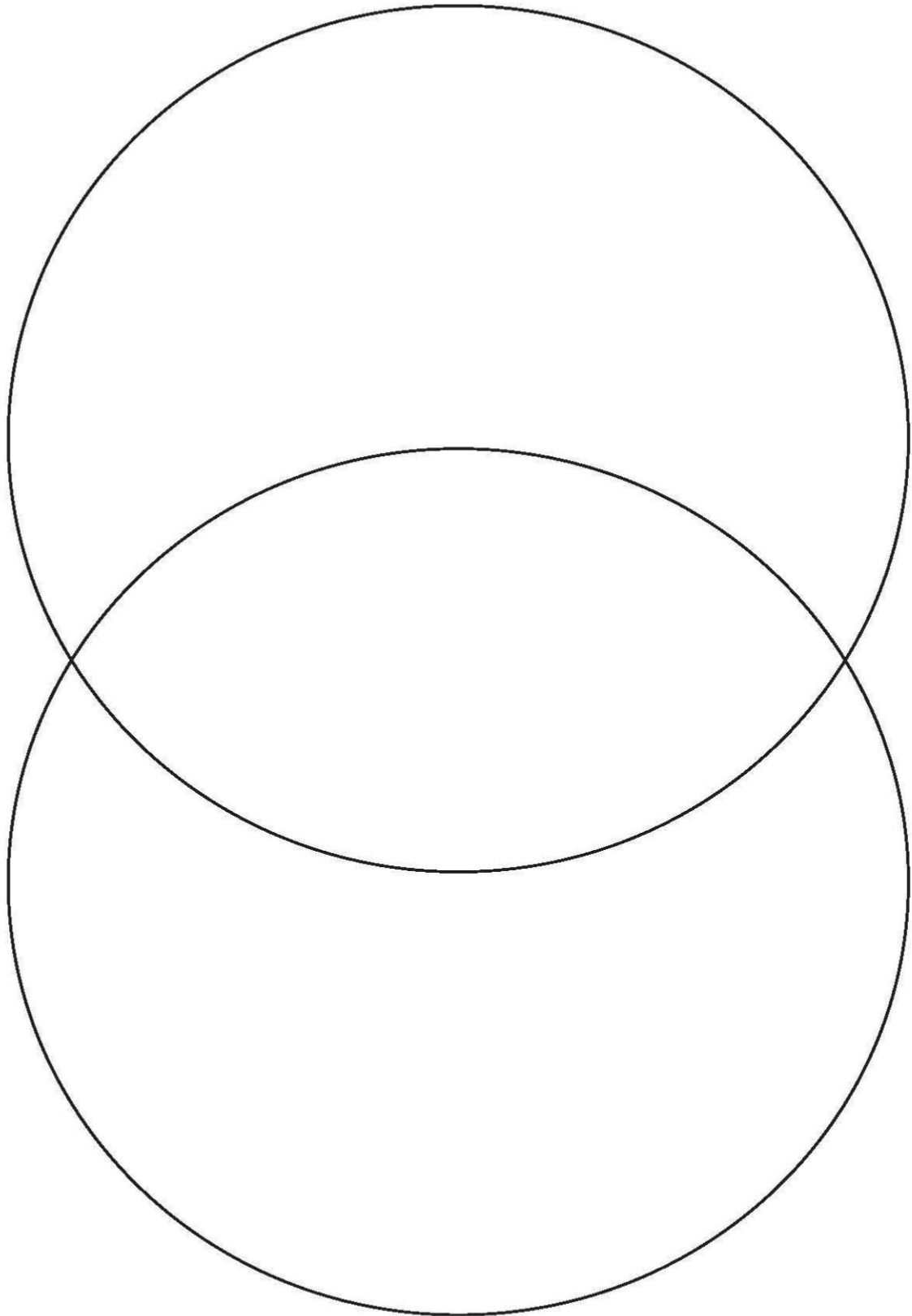
Practice

Solve. Then write the other problems in the fact families.

5. $1,803 - 925 =$ _____

6. $498 + 377 =$ _____

Venn Diagram



STUDY LINK
4•2

Division



Here is the partial-quotients algorithm using a friendly numbers strategy.

$$7 \overline{)237}$$

$$\begin{array}{r} -210 \\ \hline 27 \end{array}$$

$$\begin{array}{r} -21 \\ \hline 6 \end{array}$$

↑

↑

Remainder **Quotient** **Answer: 33 R6**

Rename dividend (use multiples of the divisor):

$$237 = 210 + 21 + 6$$

How many 7s are in 210? 30

30 The first partial quotient. $30 * 7 = 210$

Subtract. 27 is left to divide.

How many 7s are in 27? 3

3 The second partial quotient. $3 * 7 = 21$

Subtract. 6 is left to divide.

33 Add the partial quotients: $30 + 3 = 33$

1. Another way to rename 237 with multiples of 7 is

$$237 = 70 + 70 + 70 + 21 + 6$$

If the example had used this name for 237, what would the partial quotients have been?

2. $6 \overline{)166}$

Answer: _____

3. $214 / 5$

Answer: _____

4. $485 \div 15$

Answer: _____

5. $17 \overline{)408}$

Answer: _____

Practice

6. $3,817 + 168 =$ _____

Check: _____ - _____ = _____

7. $52,517 - 281 =$ _____

Check: _____ + _____ = _____

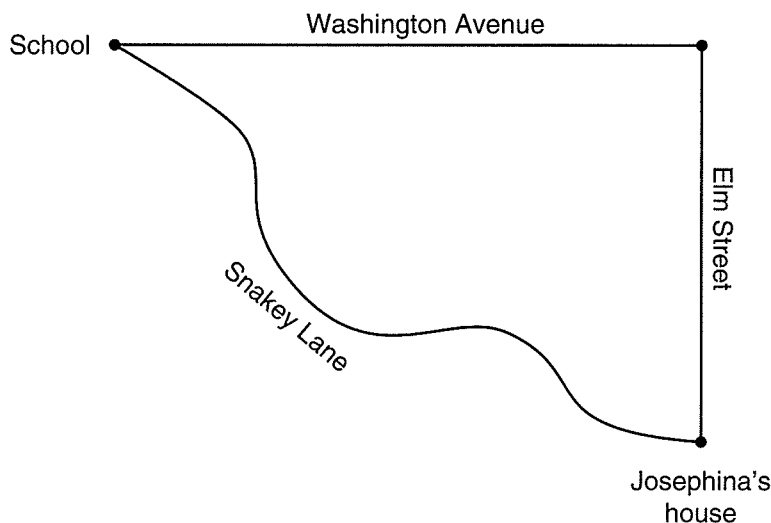
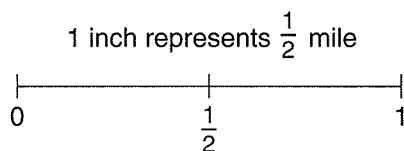
STUDY LINK
4•3

Distance to School



There are two ways to go from Josephina's house to school. She can take Elm Street and then Washington Avenue. She can also take Snakey Lane.

Use the map and scale below to answer the questions.



1. Josephina started walking from home to school along Elm Street.

a. How far would Josephina walk before she turned onto Washington Avenue?

b. How far would she be from school when she turned the corner?

2. Suppose Josephina could take a straight path from her house to school. Estimate the distance.

a. Draw and measure a straight line on the map from Josephina's house to the school.

b. Use the scale to measure this distance in miles.

Practice

3. $376 - 188 =$ _____

Check: _____ + _____ = _____

4. $3,997 + 151 =$ _____

Check: _____ - _____ = _____



STUDY LINK
4•4

Division



Here is an example of the partial-quotients algorithm using an “at least...not more than” strategy.

$\begin{array}{r} 8 \overline{)185} \\ - 80 \\ \hline 105 \\ - 80 \\ \hline 25 \\ - 24 \\ \hline 1 \end{array}$	<p>Begin estimating with multiples of 10.</p> <p>How many 8s are in 185? At least 10.</p> <p>10 The first partial quotient. $10 * 8 = 80$ Subtract. 105 is left to divide.</p> <p>How many 8s are in 105? At least 10.</p> <p>10 The second partial quotient. $10 * 8 = 80$ Subtract. 25 is left to divide.</p> <p>How many 8s are in 25? At least 3.</p> <p> 3 The third partial quotient. $3 * 8 = 24$ Subtract. 1 is left to divide.</p> <p> 1 23 Add the partial quotients: $10 + 10 + 3 = 23$</p>
<p style="margin: 0;">↑ ↑</p>	

Remainder Quotient Answer: 23 R1

Solve.

1. $639 \div 9$

Answer: _____

2. $954 \div 18$

Answer: _____

3. $1,990 / 24$

Answer: _____

4. $972 / 37$

Answer: _____

5. Robert is making a photo album. 6 photos fit on a page. How many pages will he need for 497 photos? _____ pages

Practice

6. $2,746 + 68 =$ _____

Check: _____ - _____ = _____

7. $3,461 - 165 =$ _____

Check: _____ + _____ = _____

STUDY LINK
4•5

Estimate and Calculate Quotients



For each problem:

- ◆ Make a magnitude estimate of the quotient. Ask yourself:
Is the answer in the tenths, ones, tens, or hundreds?
- ◆ Circle a box to show the magnitude of your estimate.
- ◆ Write a number sentence to show how you estimated.
- ◆ If there is a decimal point, ignore it. Divide the numbers.
- ◆ Use your magnitude estimate to place the decimal point in the final answer.
- ◆ Check that your final answer is reasonable.

1. $6\overline{)78.6}$

0.1s	1s	10s	100s
------	----	-----	------

How I estimated: _____

Answer: _____

2. $3\overline{)387}$

0.1s	1s	10s	100s
------	----	-----	------

How I estimated: _____

Answer: _____

3. $\$29.52 \div 8$

0.1s	1s	10s	100s
------	----	-----	------

How I estimated: _____

Answer: _____

4. $989 \div 43$

0.1s	1s	10s	100s
------	----	-----	------

How I estimated: _____

Answer: _____

5. $845 / 5$

0.1s	1s	10s	100s
------	----	-----	------

How I estimated: _____

Answer: _____

6. $15.84 / 9$

0.1s	1s	10s	100s
------	----	-----	------

How I estimated: _____

Answer: _____

Practice

7. $8.54 + 6.004 =$ _____

Check: _____ - _____ = _____

STUDY LINK
4•6

Division Number Stories with Remainders



For each number story draw a picture or write a number sentence on the back of this page. Then divide to solve the problem. Decide what to do about the remainder. Explain what you did.

Example:

You need to set up benches for a picnic. Each bench seats 7 people. You expect 25 people to attend. How many benches do you need?

25 ÷ 7 = b

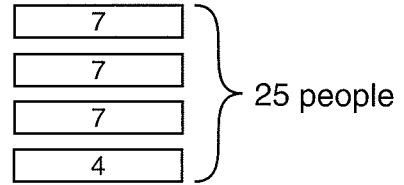
Circle what you did with the remainder.

Ignored it Reported it as a fraction or decimal Rounded the answer up

Why? 3 benches seat 21 people. One more bench is needed.

How many benches?

7 seats per bench



4 benches

- It costs \$50.00 to be a member of a soccer team. The team plays 8 games during the season. What is the cost per game? \$ _____

Circle what you did with the remainder.

Ignored it Reported it as a fraction or decimal Rounded the answer up

Why? _____

- Lynn is having a party. Pizzas cost \$8.00 each. How many pizzas can she buy with \$60.00? _____ pizzas

Circle what you did with the remainder.

Ignored it Reported it as a fraction or decimal Rounded the answer up

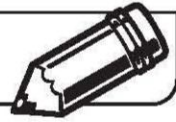
Why? _____

Practice

3. $31 \div 2 \rightarrow$ _____

4. $629 \times 84 =$ _____



LESSON
11•6**Adding and Subtracting Measurements****Example 1: Add.**

$$\begin{array}{r} 6 \text{ lb} \quad 7 \text{ oz} \\ + 3 \text{ lb} \quad 11 \text{ oz} \\ \hline 9 \text{ lb} \quad 18 \text{ oz} = 10 \text{ lb} \quad 2 \text{ oz} \end{array}$$

Because 18 oz > 1 lb, rename 18 oz as 1 lb 2 oz. So the sum in simplest form is 9 lb + 1 lb + 2 oz, or 10 lb 2 oz.

Example 2: Subtract.

$$\begin{array}{r} 9 \text{ ft} \quad 5 \text{ in.} \\ - 6 \text{ ft} \quad 8 \text{ in.} \\ \hline \end{array}$$

Because 8 in. > 5 in., rename 9 ft 5 in. as 8 ft 17 in. so that you can subtract the inches.

$$\begin{array}{r} 8 \quad 17 \\ \cancel{9} \text{ ft} \quad \cancel{5} \text{ in.} \\ - 6 \text{ ft} \quad 8 \text{ in.} \\ \hline 2 \text{ ft} \quad 9 \text{ in.} \end{array}$$

Add or subtract. When you add, be sure your answer is in simplest form. When you subtract, you may have to rename in order to have enough of a given unit to subtract.

1.
$$\begin{array}{r} 10 \text{ ft} \quad 9 \text{ in.} \\ + 10 \text{ ft} \quad 7 \text{ in.} \\ \hline \end{array}$$

2.
$$\begin{array}{r} 6 \text{ gal} \quad 3 \text{ qt} \\ + 5 \text{ gal} \quad 3 \text{ qt} \\ \hline \end{array}$$

3.
$$\begin{array}{r} 8 \text{ yd} \quad 1 \text{ ft} \\ - 3 \text{ yd} \quad 2 \text{ ft} \\ \hline \end{array}$$

4.
$$\begin{array}{r} 7 \text{ ft} \quad 0 \text{ in.} \\ - 1 \text{ ft} \quad 9 \text{ in.} \\ \hline \end{array}$$

5.
$$\begin{array}{r} 89 \text{ lb} \quad 10 \text{ oz} \\ + 76 \text{ lb} \quad 15 \text{ oz} \\ \hline \end{array}$$

6.
$$\begin{array}{r} 20 \text{ qt} \quad 1 \text{ pt} \\ - 19 \text{ qt} \quad 2 \text{ pt} \\ \hline \end{array}$$

Convert the measurements so that their units match the unit given in the answer. Then add or subtract.

7. 10 m + 15 cm = _____ cm **8.** 8 m + 8 cm + 8 mm = _____ mm

9. 50 kg - 50 g = _____ g **10.** 10,000 L - 2 kL = _____ kL

STUDY LINK
11•6**Units of Volume and Capacity**

Write $>$, $<$, or $=$ to compare the measurements below.

1. 5 cups _____ 1 quart 2. 30 mL _____ 30 cm³ 3. 1 quart _____ 1 liter
 4. 15 pints _____ 8 quarts 5. 100 cm³ _____ 1 gallon 6. 10 cups _____ 5 pints

Circle the unit you would use to measure each of the following.

7. The volume of a square pyramid

gallons cubic inches ounces meters

8. The amount of milk a fifth grader drinks in a week

gallons milliliters ounces meters

9. The amount of water used to fill a swimming pool

gallons milliliters ounces meters

10. The amount of penicillin given in a shot

gallons milliliters liters meters

11. The volume of a rectangular prism

gallons cubic centimeters liters meters

12. Would you think of volume or capacity if you wanted to know how much juice a jug holds? _____

13. Would you think of volume or capacity if you wanted to know how much closet space a stack of boxes would take up? _____

Practice

14. $-200 + (-50) =$ _____ 15. $685 * 201 =$ _____
 16. $13\frac{1}{5} - 2\frac{4}{5} =$ _____ 17. $3.84 \div 8 =$ _____

STUDY LINK
4•7

Variables



For Problems 1–3:

- ◆ Find the value of x in the first number sentence.
- ◆ Use this value to complete the second number sentence.

1. $x =$ number of days in a week

$$x^2 = \underline{\hspace{2cm}}$$

2. $x = \frac{1}{10}$ of 100

$$x * 78 = \underline{\hspace{2cm}}$$

3. $x =$ largest sum possible with 2 six-sided dice

$$598 + x = \underline{\hspace{2cm}}$$

4. Count the number of letters in your first name and in your last name.

a. My first name has _____ letters. b. My last name has _____ letters.

c. Find the product of these 2 numbers. Product = _____

Answer the questions in Problems 5–11 by replacing x with the product you found in Problem 4.

5. Is x a prime or a composite number? _____

6. Is $\frac{x}{30}$ less than 1? _____

7. Which is larger, $3 * x$, or $x + 100$? _____

8. What is the median and the range for this set of 3 weights: 30 pounds, 52 pounds, x pounds? _____

9. There are 200 students at Henry Clissold School. $x\%$ speak Spanish. How many students speak Spanish? _____

10. $(3x + 5) - 7 =$ _____

11. True or false: $x^2 > 30 * x$ _____

Practice

12. $3,817 + 168 =$ _____

13. $52,517 - 281 =$ _____



LESSON
4•8**Self Assessment**Progress
Check 4

Think about each skill listed below. Assess your own progress by checking the most appropriate box.

Skills	I can do this on my own and explain how to do it.	I can do this on my own.	I can do this if I get help or look at an example.
1. Find multiples, and use them to rename numbers.			
2. Know and use multiplication facts, related division facts, and extended facts.			
3. Divide using a friendly number strategy with the partial-quotients algorithm.			
4. Divide using an “at least...not more than strategy” with the partial-quotients algorithm.			
5. Make magnitude estimates to correctly place the decimal point in quotients.			
6. Measure and draw line segments to the nearest $\frac{1}{2}$ inch.			
7. Estimate distances using a map scale.			
8. Write an open number sentence for number stories.			
9. Determine what to do with a remainder.			



Fractions, Decimals, and Percents

Unit 5 focuses on naming numbers as fractions, decimals, and percents. Your child will use pattern blocks to review basic fraction and mixed-number concepts as well as notations. Your child will also formulate rules for finding equivalent fractions.

In *Fourth Grade Everyday Mathematics*, your child learned to convert easy fractions, such as $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{10}$, and $\frac{3}{4}$, to equivalent decimals and percents. For example, $\frac{1}{2}$ can be renamed as 0.5 or 50%. Your child will now learn (with the use of a calculator) how to rename any fraction as a decimal and as a percent.

Unit 5 also introduces two new games: *Estimation Squeeze*, to practice estimating products; and *Frac-Tac-Toe*, to practice converting fractions to decimals and percents. These games, like others introduced earlier, are used to reinforce arithmetic skills. Both games use simple materials (calculator, number cards, and pennies or other counters) so you can play them at home.

Your child will study data about the past and compare it with current information as the American Tour continues.

Please keep this Family Letter for reference as your child works through Unit 5.



Vocabulary

Important terms in Unit 5:

bar graph A graph that uses horizontal or vertical bars to represent data.

circle graph A graph in which a circle and its interior are divided through its center into parts to show the parts of a set of data. The whole circle represents the whole set of data.

denominator The number below the line in a fraction. In a fraction representing a whole, or ONE, divided into equal parts, the denominator is the total number of equal parts. In the fraction $\frac{a}{b}$, b is the denominator.

equivalent fractions Fractions that have different denominators but name the same amount. For example, $\frac{1}{2}$ and $\frac{4}{8}$ are equivalent fractions.

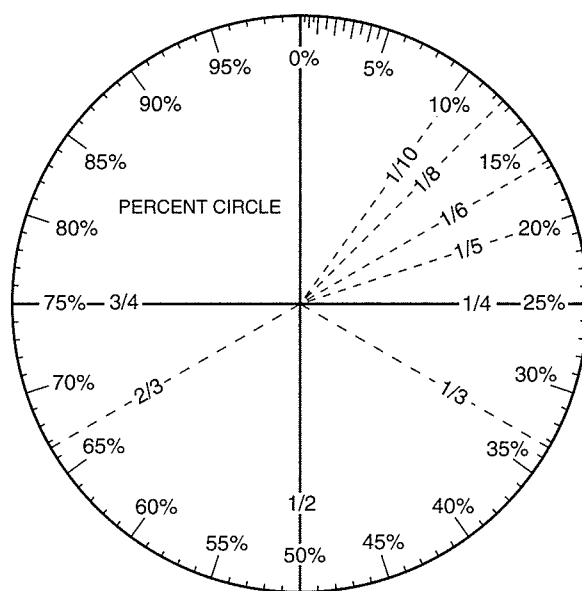
improper fraction A fraction whose numerator is greater than or equal to its denominator. For example, $\frac{4}{3}$, $\frac{5}{2}$, $\frac{4}{4}$, and $\frac{24}{12}$ are improper fractions. In *Everyday Mathematics*, improper fractions are sometimes called “top-heavy” fractions.

mixed number A number that is written using both a whole number and a fraction. For example, $2\frac{1}{4}$ is a mixed number equal to $2 + \frac{1}{4}$.

numerator The number above the line in a fraction. In a fraction representing a whole, or ONE, divided into equal parts, the numerator is the number of equal parts that are being considered. In the fraction $\frac{a}{b}$, a is the numerator.

percent (%) Per hundred, or out of a hundred. For example, *48% of the students in the school are boys* means that, on average, 48 out of every 100 students in the school are boys.

Percent Circle A tool on the Geometry Template that is used to measure or draw figures that involve percents, such as *circle graphs*.



repeating decimal A decimal in which one digit or a group of digits is repeated without end. For example, $0.333\dots$ and $0.\overline{147}$ are repeating decimals.

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. Help your child find fractions, decimals, and percents in the everyday world—in newspaper advertisements, on measuring tools, in recipes, in the sports section of the newspaper, and so on.
2. Over a period of time, have your child record daily temperatures in the morning and in the evening. Keep track of the temperatures in a chart. Then have your child make a graph from the data. Ask questions about the data. For example, have your child find the differences in temperatures from morning to evening or from one day to the next.
3. Practice using percents in the context of tips. For example, have your child calculate $\frac{1}{10}$ or 10% of amounts of money. Invite your child to find the tip the next time the family goes out for dinner.
4. Ask your child to identify 2-dimensional and 3-dimensional shapes around the house.

Building Skills through Games

In Unit 5, your child will practice operations and computation skills by playing the following games. For detailed instructions, see the *Student Reference Book*.

Estimation Squeeze See *Student Reference Book*, page 304.

This is a game for two players who use a single calculator. The game provides practice in estimating products.

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.

Fraction Of See *Student Reference Book*, pages 313 and 314.

This is a game for two players. Game materials include 1 deck each of *Fraction Of* Fraction Cards and Set Cards, the *Fraction Of* Gameboard, and a record sheet. This game provides practice with multiplication of fractions and whole numbers.

Fraction/Percent Concentration See *Student Reference Book*, page 315.

This game helps students memorize some of the easy fraction/percent equivalencies. Two or three players use 1 set of *Fraction/Percent Concentration* tiles and a calculator to play.

Fraction Top-It See *Student Reference Book*, page 316.

This game is for 2–4 players. Game materials include 1 deck of 32 Fraction Cards. This game provides practice with comparing fractions.

STUDY LINK
5•1
Parts-and-Whole Fraction Practice


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. $30\overline{)4,200}$ _____

STUDY LINK
5•2
Fraction and Mixed-Number Practice

Unit

hexagon



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. $7 \overline{)1,834}$ _____

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

9. $8 \overline{)984}$ _____

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

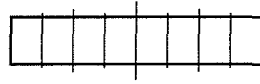
STUDY LINK
5•3

Fraction-Stick Problems

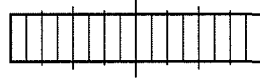


Shade the fraction sticks to help you find equivalent fractions.

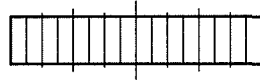
1. $\frac{1}{2} = \frac{\square}{8}$



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



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

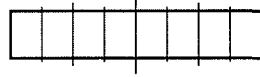


Shade the fraction sticks to help you solve the addition problems.

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



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



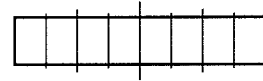
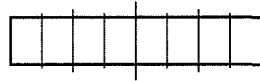
6. $\frac{1}{2} + \frac{3}{4} =$ _____



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. $6\overline{)891} \rightarrow$ _____

11. $12\overline{)891} \rightarrow$ _____

12. $24\overline{)891} \rightarrow$ _____

STUDY LINK
5•4

Equivalent Fractions



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

If the fractions are not equivalent, write \neq (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. $7 \overline{) \$49.28}$ _____

20. $15 \overline{) \$300.45}$ _____

21. $21 \overline{) 367} \rightarrow$ _____

22. $8 \overline{) 644} \rightarrow$ _____

STUDY LINK
5•5

Decimal Numbers

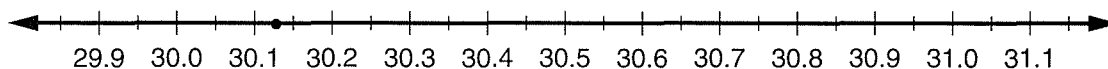


1. Mark each number on the number line. The first one is done for you.

30.13 30.72 31.05 29.94 30.38



30.13



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. $32 \overline{)768}$

$$\begin{array}{l} \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \underline{\hspace{2cm}} * \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \underline{\hspace{2cm}} * \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \end{array}$$

STUDY LINK
5•6
Decimals, Fractions, and Mixed Numbers


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. $10\overline{)675} \rightarrow$ _____

STUDY LINK
5•7

Decimal Comparisons



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. $45\overline{)287} \rightarrow$ _____

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

15. $7\overline{)4,861} \rightarrow$ _____

STUDY LINK
5•8

Percent Problems



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

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. $40\overline{)975} \rightarrow$ _____

STUDY LINK
5•9

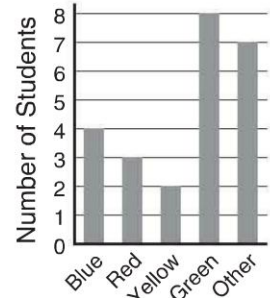
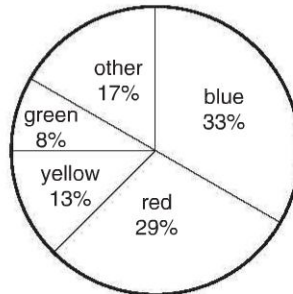
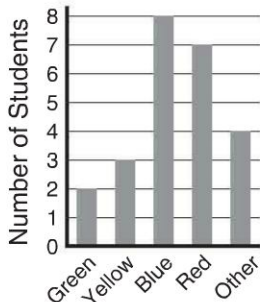
Graphs



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

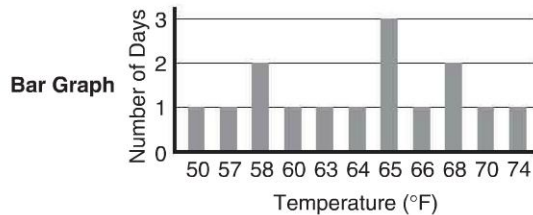
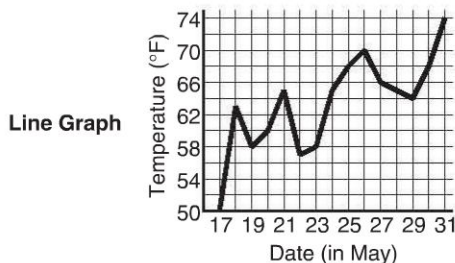
Blue 8 Red 7 Yellow 3 Green 2 Other 4

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		



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.

STUDY LINK
5•10

Circle Graphs and Collecting Data

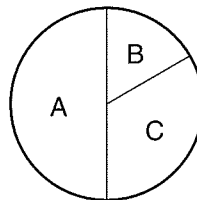


1. Estimate the percent of the circle for each piece of the graph at the right.

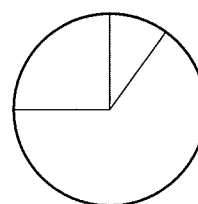
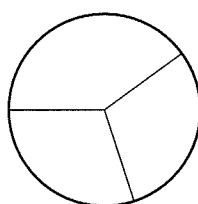
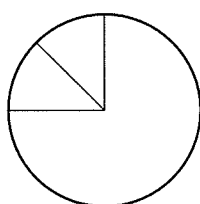
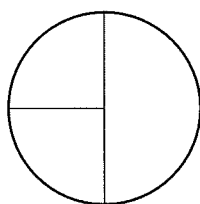
a. A is about _____ of the circle.

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.

30% of Michel's class rides the bus.

40% of Michel's class rides in a car or van.

25% of Jeannene's toy cars are blue.

10% of Jeannene's toy cars are striped.

65% of Jeannene's toy cars are red.

$\frac{1}{8}$ of Angelo's pants are jeans.

$\frac{1}{8}$ of Angelo's pants are black dress pants.

$\frac{3}{4}$ 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. $2 \overline{)21} \rightarrow$ _____

7. $8 \overline{)804} \rightarrow$ _____

STUDY LINK
5•10

Circle Graphs and Collecting Data *cont.*



The Number of States We've Been In



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.

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 some of the Unit 6 Study Links.

Study Link 6•1

2. ✓ 3. ✓ 5. ✓ 7. $\frac{1}{19}$
 9. $\frac{7}{26}$ 11. $\frac{3}{4}$ 13. $12\frac{1}{2}$ lb 14. $38\frac{1}{4}$ in.
 15. $67\frac{1}{2}$ in.³ 16. 81 17. -2 18. -67

Study Link 6•2

1. $\frac{4}{5}$ 3. 1 5. 1 7. $\frac{5}{98}$
 9. 10 10. 14 11. 17 12. 13.56
 13. 589.36 14. 13

Study Link 6•3

1. a. $46 + (-19) = 27$ c. $-5 + 6.8 = 1.8$
 2. a. -29 c. $-2\frac{1}{5}$ e. $-3\frac{1}{4}$ g. -18.2
 3. a. (-2) c. $2\frac{1}{4}$ e. -3.7 g. $-\frac{7}{16}$
 4. 2 5. 11 6. 8 7. -6

Study Link 6•4

1. -60 3. -6 5. -5 7. -6
 9. -1,150 11. -54 13. -2 15. $-\frac{5}{9}$
 17. -2 19. a. 36 b. 77

Study Link 6•4a

7. 5.75 8. 0 9. 6.5 10. $\frac{84}{9}$
 11. 2.75 12. $8\frac{1}{2}$ 17. 4 18. 14
 19. 5

Study Link 6•6

1. 21 3. $\frac{21}{32}$ 5. 72 7. 1
 9. 28 11. 3 12. 23 13. 6, 1
 14. 2, 1 15. 4, 4

Study Link 6•7

1. a. $17 < 27$; $3 * 15 < 100$; $(5 - 4) * 20 = 20$;
 $12 \neq 12$

2. a. true b. false c. false d. true

3. a. $(28 - 6) + 9 = 31$ b. $20 < (40 - 9) + 11$

c. $(36/6) / 2 < 12$ d. $4 * (8 - 4) = 16$

4. a. $60 - 14 = 50$; false b. $90 = 3 * 30$; true

c. $21 + 7 < 40$; true d. $\sqrt{36} > \frac{1}{2} * 10$; true

5. 0.92 6. 3.51 7. 251.515

Study Link 6•8

1. a. $b = 19$ b. $n = 24$ c. $y = 3$ d. $m = \frac{1}{5}$

2. a. $\frac{x}{6} = 10$; $x = 60$ b. $200 - 7 = n$; $n = 193$

c. $b * 48 = 2,928$; $b = 61$

3. a. Sample answer: $(3 * 11) + (12 - 9)$

4. 54 5. 3.6 6. 121

Study Link 6•9

1. 1 2. $1\frac{1}{2}$ 3. 5 4. 1

7. 10 8. $\frac{1}{4}$ 9. $\frac{2}{3}$ 10. $\frac{1}{2}$

Study Link 6•10

1. $k - 4 = 5$; $3k - 12 = 15$; $20k - 12 = 15 + 17k$

2. Multiply by 2; M 2

3. Add $5m$; A $5m$

Subtract $3q$; S $3q$

Divide by 2; D 2

Add 5; A 5

Subtract 6; S 6

Study Link 6•11

1. $k = 12$ 3. $x = 1$ 5. $r = 2$

Study Link 6•12

1. a. $15 \neq 3 * 7$ b. $x + 5 = 75$

c. $\frac{9}{9} + 13 \leq 14$

2. a. $200 \div (4 * 5) = 10$

b. $16 + 2^2 - (5 + 3) = 12$

3. a. 46 b. 18 c. 0 d. 8

4. a. $x = -1$ b. $y = 6.5$

6. \$0.25; \$0.21 7. 1; 1.28 8. 800; 781

STUDY LINK
5•12
Finding “Fractions of”


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. $52 \overline{)156}$ _____

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

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

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

LESSON
5•13**Self Assessment**Progress
Check 5

Think about each skill listed below. Assess your own progress by checking the most appropriate box.

Skills	I can do this on my own and explain how to do it.	I can do this on my own.	I can do this if I get help or look at an example.
1. Find equivalent fractions.			
2. Convert between fractions and mixed numbers.			
3. Convert between fractions and percents.			
4. Add fractions using fraction sticks.			
5. Order and compare fractions.			
6. Estimate the value of circle graph sectors.			
7. Measure sectors of a circle graph.			
8. Construct circle graphs from data.			



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 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.



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.

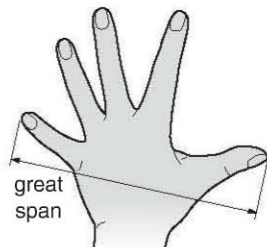
cubit An ancient unit of length, measured from the point of the elbow to the end of the middle finger. A cubit is about 18 inches.

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.



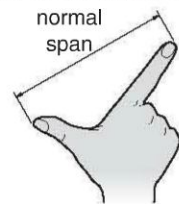
landmark A notable feature of a data set. Landmarks include the *median*, *mode*, *maximum*, *minimum*, and *range*.

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.

STUDY LINK
6•1

The Standing Long Jump

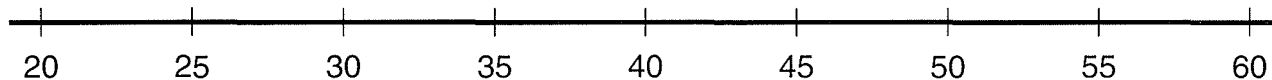


Ms. Perez’s physical education class participated in the standing long jump. Following are the results rounded to the nearest inch.

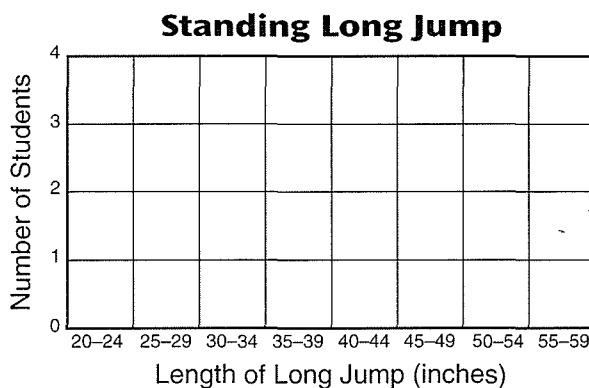


24 35 33 48 33 48 27 35 27 55 43 24
55 33 52 33 29 59 26 59 48 37 42 42

1. Organize these data on the line plot below.



2. Make a bar graph for these data.



3. Find the following landmarks for the standing long jump data:

- a. Maximum: _____ in.
- b. Minimum: _____ in.
- c. Mode: _____ in.
- d. Median: _____ in.
- e. Mean (average): _____ in. (Use a calculator. Add the distances and divide the sum by the number of jumps. Round to the nearest tenth.)

Practice

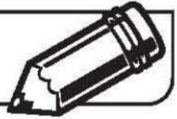
4. $48 * 29 =$ _____

5. 98.25
 $- 79.82$



6. $24 \overline{)384}$

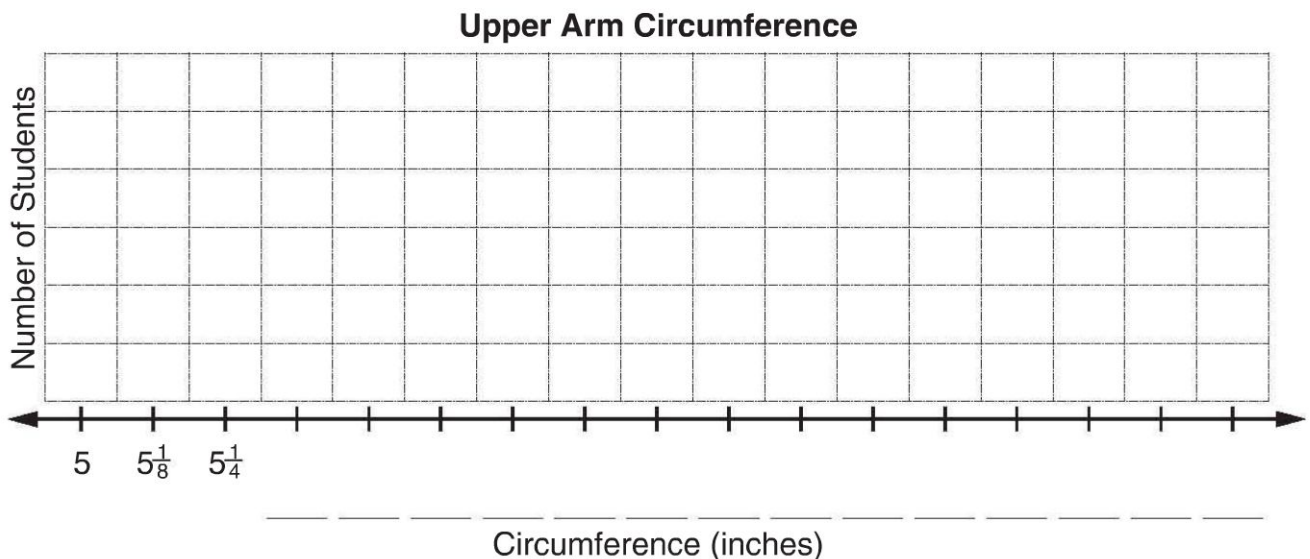
7. $767.5 + 30.82 =$ _____

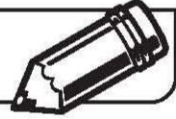
LESSON
6•1**Arm Circumference Data**

Sometimes measurements need to be very precise. When a blood pressure reading is taken, it is important that the proper cuff size is used. Blood pressure cuffs come in different sizes and are adjustable. Using a blood pressure cuff that is too small or too large can lead to inaccurate results. Before doing a blood pressure screening of the members of the fifth-grade running club, the school nurse measured the circumference of each student's upper arm to the nearest $\frac{1}{8}$ inch. Measurements are shown in the table below.

Student	Upper Arm Circumference (to the nearest $\frac{1}{8}$ in.)	Student	Upper Arm Circumference (to the nearest $\frac{1}{8}$ in.)
Jason	$5\frac{1}{4}$	Robin	$6\frac{3}{8}$
Mike	$6\frac{1}{8}$	Javon	6
Kylie	$6\frac{1}{2}$	Beatrice	$5\frac{1}{4}$
Peter	$6\frac{1}{8}$	Charlie	$6\frac{1}{8}$
Diego	5	Shawn	$6\frac{3}{8}$
Juan Carlos	6	India	6
Lisa	$5\frac{1}{2}$	Katy	$6\frac{3}{8}$
Pamela	7		

Make a line plot in the grid below to display the arm circumference measurements. Begin by completing the labeling of the x-axis. Use these data and the completed line plot to answer the questions on the next page.



LESSON
6•1**Arm Circumference Data** *continued*

Use the line plot on *Math Masters*, page 186A to answer the questions.

1. What is the minimum arm circumference of the students in the fifth-grade running club? _____ in.
2. How much smaller is Kylie's upper arm circumference than the club's maximum? _____ in.
3. What is the range in arm circumference of the members of the fifth-grade running club? _____ in.
4. **a.** What is the median of the data set? _____ in.
b. How much greater is the median arm circumference than the minimum arm circumference? _____ in.
5. What is the mode (or modes) for the data set?

6. What is the mean arm circumference measurement? _____ in.
7. On the day of the blood pressure screening, the nurse brought a cuff that is made for people with arm circumferences between $5\frac{1}{8}$ in. and $6\frac{3}{4}$ in. What fraction of the fifth-grade running club was able to use that cuff?

8. Suppose a new member, Denise, joins the club. The circumference of her upper arm is $6\frac{1}{2}$ in. Tell whether each of these club's landmarks will increase, decrease, or stay the same. Determine your answers without doing any calculations.
 - a. Mean: _____
 - b. Median: _____
 - c. Mode: _____

STUDY LINK
6•2

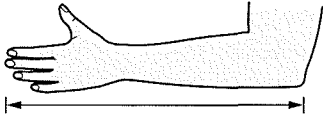
Standard and Nonstandard Units



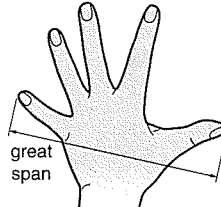
1. Use your body measures to find three objects that are about the size of each measurement below.



a. 1 cubit



b. 1 great span



c. 1 finger width



2. For each problem below, mark the unit or units you *could* use to measure the object.

- | | | | | |
|--------------------------------|---------------------------|------------------------------|---------------------------|------------------------------|
| a. Height of your ceiling | <input type="radio"/> cm | <input type="radio"/> ft | <input type="radio"/> lb | <input type="radio"/> miles |
| b. Amount of milk in a pitcher | <input type="radio"/> cm | <input type="radio"/> ounces | <input type="radio"/> gal | <input type="radio"/> liters |
| c. Depth of the ocean | <input type="radio"/> m | <input type="radio"/> ounces | <input type="radio"/> gal | <input type="radio"/> miles |
| d. Length of a bee | <input type="radio"/> cm | <input type="radio"/> ft | <input type="radio"/> mm | <input type="radio"/> liters |
| e. Weight of a nickel | <input type="radio"/> in. | <input type="radio"/> kg | <input type="radio"/> lb | <input type="radio"/> grams |

Practice

3. $34 * 79 =$ _____

4.
$$\begin{array}{r} 8,201 \\ -2,190 \\ \hline \end{array}$$

5. $6 \overline{)4,152}$

6. $59.46 + 82.17 =$ _____



STUDY LINK
6•3

Reading a Stem-and-Leaf Plot



Use the information below to answer the questions.



Jamal was growing sunflowers. After eight weeks, he measured the height of his sunflowers in inches. He recorded the heights in the stem-and-leaf plot below.

1. How tall is the tallest sunflower? _____ in.

Which landmark is the height of the tallest flower? Circle its name.

minimum mode

maximum mean

2. How many sunflowers did Jamal measure? _____ sunflowers.

3. What is the mode for his measurements? _____ in.

4. Explain how to find the median for his measurements.

Height of Sunflowers (inches)

Stems (10s)	Leaves (1s)
3	9 1
4	7 6 9 2 9
5	2 3 3 5 2 8 7 3
6	5 3 4
7	3

Practice

5. $62 * 53 =$ _____

6.
$$\begin{array}{r} 6,711 \\ - 4,140 \\ \hline \end{array}$$

7. $22 \overline{)398} \rightarrow$ _____

8. $725 * 90 =$ _____



STUDY LINK
6•4

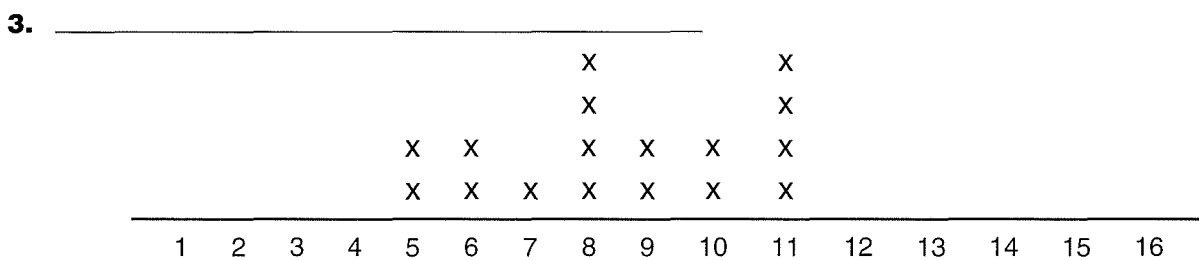
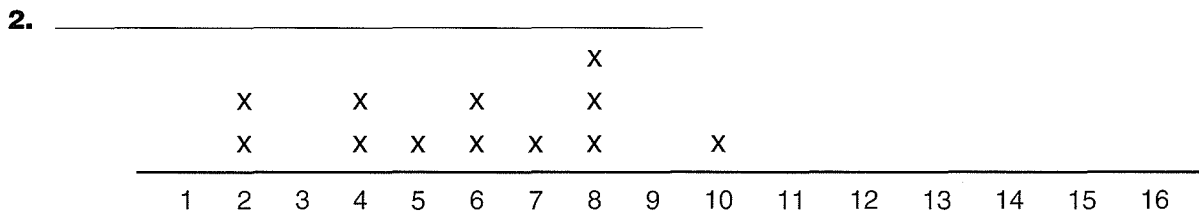
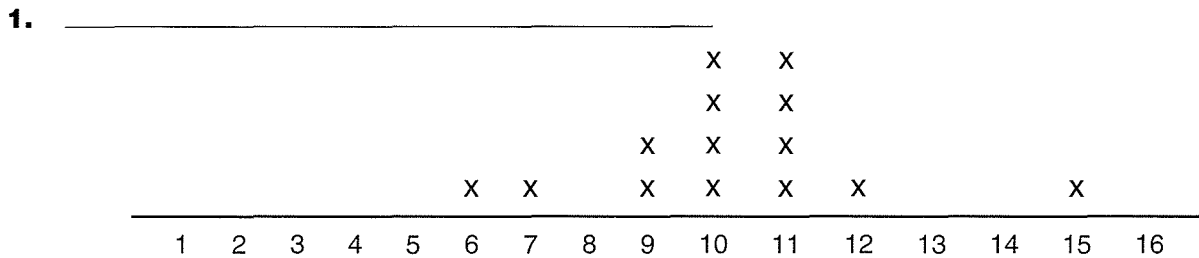
How Much Do Students Spend?



A fifth-grade class collected data about class spending per month on various items. Below are some of the results.

- ◆ A median amount of \$6 per month was spent for books and magazines.
- ◆ A median amount of \$10 per month was spent for tapes and CDs.
- ◆ A median amount of \$8 per month was spent for movie tickets.

The number-line plots below display the data. Match the plots with the items: books and magazines, tapes and CDs, and movie tickets.


Practice

4. $119 * 47 =$ _____

5.
$$\begin{array}{r} 9,402 \\ + 7,137 \\ \hline \end{array}$$

6. $9 \overline{)5,241} \rightarrow$ _____

7. $9,487 * 8 =$ _____

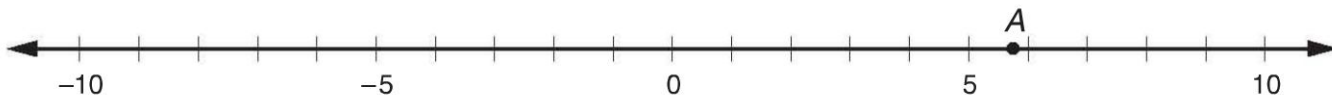


STUDY LINK
6•4a

Absolute Value



Plot and label the following points on the number line. The first one has been done for you.



1. Point A: 5.75

2. Point B: $\frac{0}{10}$

3. Point C: -6.5

4. Point D: $\frac{84}{9}$

5. Point E: -2.75

6. Point F: $-8\frac{1}{2}$

Find the absolute value of each of the numbers you plotted.

7. $|5.75| =$ _____

8. $|\frac{0}{10}| =$ _____

9. $|-6.5| =$ _____

10. $|\frac{84}{9}| =$ _____

11. $|-2.75| =$ _____

12. $|-8\frac{1}{2}| =$ _____

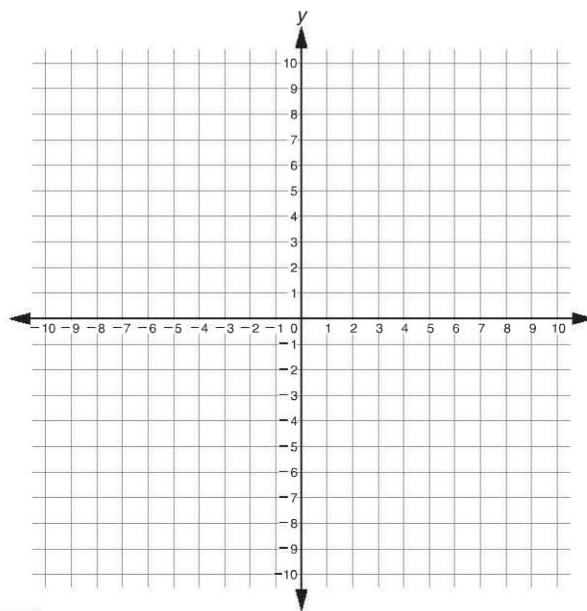
Plot the following points on the coordinate grid.

13. Point A: (-3,-6)

14. Point B: (1,-6)

15. Point C: (-3,8)

16. Point D: (-8,8)



Use absolute value to find the distance between the given points. Show how you solved each problem.

17. A and B _____

18. A and C _____

19. C and D _____

STUDY LINK
6•5
Constructing a Graph from Landmarks


1. Make up a list of data with the following landmarks:

mode: 15 minimum: 5 median: 10 maximum: 20



Use at least 10 numbers.

2. Draw and label a bar graph to represent your data.

(title)

3. Describe a situation in which these data might actually occur.
- _____
- _____

Practice

4. $305 * 29 =$ _____

5. $524 - 81 =$ _____

6. $671 * 132 =$ _____

7. $7,356 \div 4 =$ _____

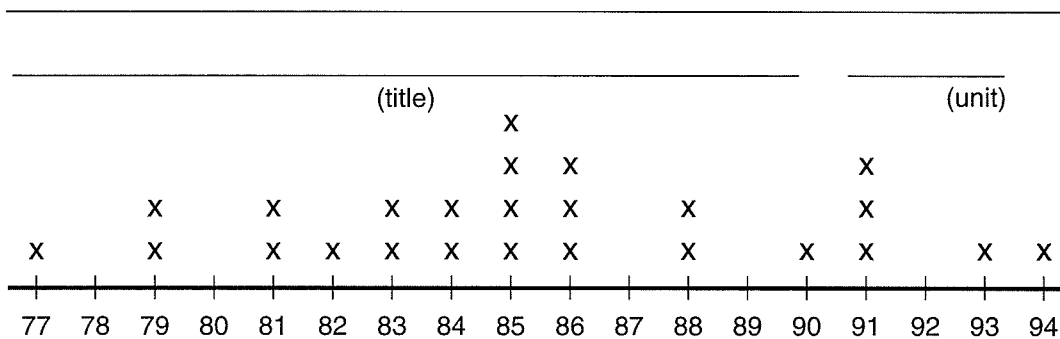


STUDY LINK
6•6

Data Analysis



1. Describe a situation in which the data in the line plot below might occur. Then give the plot a title and a unit.

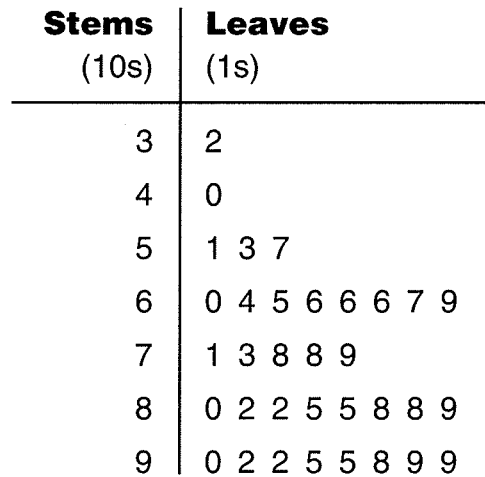


2. Find the following landmarks for the data in the line plot.

- a.** minimum: _____ **b.** maximum: _____ **c.** mode: _____ **d.** median: _____

3. Describe a situation in which the data in the stem-and-leaf plot shown below might occur. Then give the plot a title and a unit.

_____ (title)
_____ (unit)



4. Find the following landmarks for the data in the stem-and-leaf plot.

- a.** minimum: _____ **b.** maximum: _____
c. mode: _____ **d.** median: _____

Practice

5. $245 \times 51 =$ _____

6. $764 + 37 =$ _____

7. $2,121 \times 4 =$ _____

8. $1,976 \div 38 =$ _____



STUDY LINK
6•7

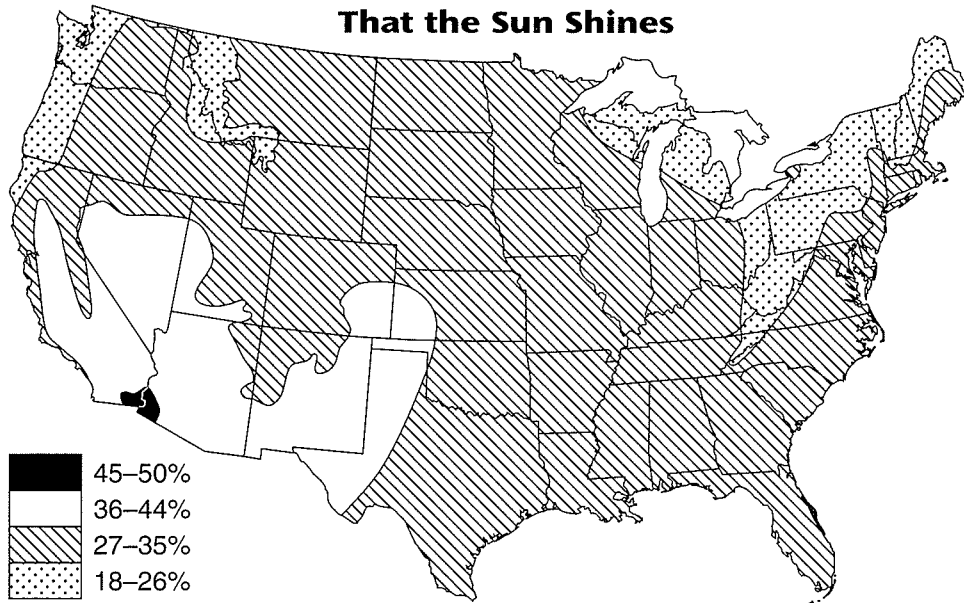
Contour Map



Study the map below to answer the questions.



**Percent of Total Hours in a Year
That the Sun Shines**



- States where at least part of the state has sunny days more than 45% of the time.
 Washington California Arizona New York
- States that border Canada where at least some part of the state has days that are NOT sunny at least 31% of the time.
 California Montana Nebraska Washington
- Make up your own question about the map. Answer your question.

Practice

4. $149 * 14 =$ _____

5. $134 * 29 =$ _____

6. $2,997 \div 37 =$ _____

7.
$$\begin{array}{r} 3,682 \\ -1,590 \\ \hline \end{array}$$



STUDY LINK
6•8

Calculating with Fraction Sticks



Solve. Use the fraction sticks to help you.



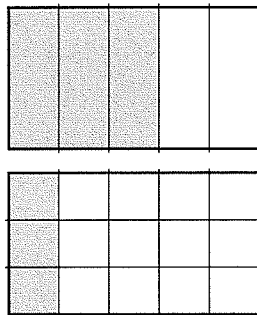
1. $\frac{3}{7} + \frac{4}{14} =$ _____



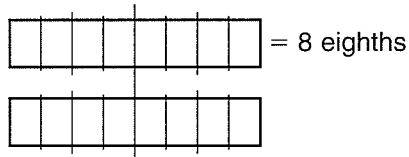
2. $1\frac{1}{2} + 2\frac{3}{4} =$ _____



3. $\frac{3}{5} - \frac{3}{15} =$ _____



4. Write an open number sentence and solve. Shade in the fraction stick to help you.



Practice


Show your work.

5. $408 * 23 =$ _____

6. $0.85 + 0.3 =$ _____

7. $492 * 6 =$ _____

8. $45 \overline{)2,297} \rightarrow$ _____

STUDY LINK
6•8

Estimating with Fractions



Circle the best estimate for each situation described below.

1. The sum of $\frac{3}{4}$ and $\frac{18}{19}$ is closest to

0 1 2

2. The sum of $\frac{1}{11}$ and $\frac{1}{15}$ is closest to

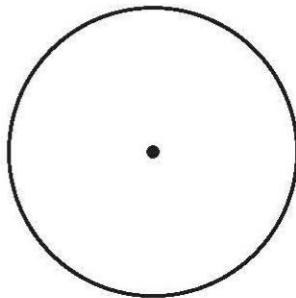
0 1 2

3. The sum of $\frac{9}{10}$ and $\frac{1}{32}$ is

less than 1 greater than 1

4. Use the circle below to draw a spinner as follows:

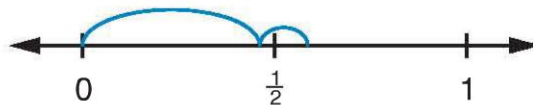
- ◆ Shade a red sector that is more than $\frac{1}{8}$ of the circle, but less than $\frac{1}{4}$ of the circle.
- ◆ Shade a blue sector that is more than $\frac{1}{4}$ of the circle, but less than $\frac{1}{2}$ the circle.



The total amount of the circle that is shaded is

less than $\frac{3}{4}$ equal to $\frac{3}{4}$ greater than $\frac{3}{4}$

5. The number line below shows an estimate for the sum of $\frac{6}{13}$ and $\frac{1}{8}$. Explain why the sum is greater than $\frac{1}{2}$.



LESSON
6•8**Comparing Fractions with $\frac{1}{2}$** 

Use the Fraction Cards from *Math Journal 2*, Activity Sheets 5–7.
Sort the cards into three piles.

- ◆ Fractions less than $\frac{1}{2}$
- ◆ Fractions equal to $\frac{1}{2}$
- ◆ Fractions greater than $\frac{1}{2}$

Place the cards next to one another to check your work. When you are finished,
write the fractions in each pile in the correct box below.

Less than $\frac{1}{2}$

Equal to $\frac{1}{2}$

Greater than $\frac{1}{2}$

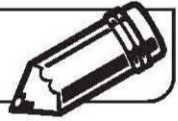
Name _____

Date _____

Time _____

LESSON
6•8

Math Log



Name _____

Date _____

Time _____

Top-It Record Sheet



Round	Player 1	>, <, =	Player 2
Sample			
1			
2			
3			
4			
5			



Name _____

Date _____

Time _____

Top-It Record Sheet



Round	Player 1	>, <, =	Player 2
Sample			
1			
2			
3			
4			
5			

STUDY LINK
6•9

Adding and Subtracting Fractions



Multiplication Rule

To find a fraction equivalent to a given fraction, multiply the numerator and the denominator of the fraction by the same number.

$$\frac{a}{b} = \frac{a * n}{b * n}$$

Example 1: $\frac{4}{9} - \frac{1}{3} = ?$

$$\frac{1}{3} = \frac{2}{6} = \left(\frac{3}{9}\right) = \frac{4}{12} = \frac{5}{15} = \frac{6}{18} = \dots$$

9 is a common denominator.

$$\frac{4}{9} - \frac{1}{3} = \frac{4}{9} - \frac{3}{9} = \frac{1}{9}$$

Example 2: $\frac{5}{8} + \frac{2}{5} = ?$

$$\frac{5}{8} = \frac{10}{16} = \frac{15}{24} = \frac{20}{32} = \left(\frac{25}{40}\right) = \frac{30}{48} = \dots$$

$$\frac{2}{5} = \frac{4}{10} = \frac{6}{15} = \frac{8}{20} = \frac{10}{25} = \frac{12}{30} = \frac{14}{35} = \left(\frac{16}{40}\right) = \frac{18}{45} = \dots$$

Both fractions can be rewritten with the common denominator 40.

$$\frac{5}{8} + \frac{2}{5} = \frac{25}{40} + \frac{16}{40} = \frac{41}{40}, \text{ or } 1\frac{1}{40}$$

Find a common denominator. Then add or subtract.

1. $\frac{2}{3} + \frac{4}{5} =$ _____

2. $\frac{8}{9} - \frac{5}{6} =$ _____

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

4. Lisa was 4 feet $10\frac{1}{2}$ inches tall at the end of fifth grade. During the year, she had grown $2\frac{3}{4}$ inches. How tall was Lisa at the start of fifth grade?

_____ feet _____ in.

5. Bill was baking two different kinds of bread. One recipe called for $3\frac{1}{2}$ cups of flour. The other called for $2\frac{1}{3}$ cups of flour. How much flour did Bill need in all?

_____ cups

STUDY LINK
6•10

Fractions



Find a common denominator. Then add or subtract.

1. $\frac{9}{11} - \frac{1}{2} =$ _____

2. $\frac{5}{9} - \frac{1}{4} =$ _____

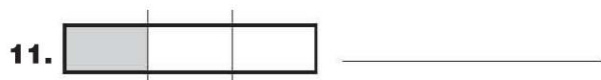
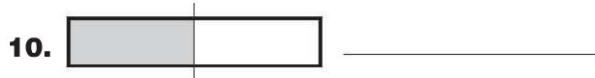
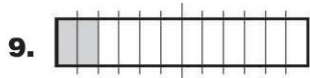
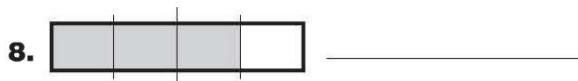
3. $\frac{7}{10} + \frac{4}{15} =$ _____

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

5.
$$\begin{array}{r} \frac{3}{2} \\ - \frac{4}{9} \\ \hline \end{array}$$

6.
$$\begin{array}{r} \frac{5}{6} \\ + \frac{4}{9} \\ \hline \end{array}$$

Write the fraction represented by the shaded part of each fraction stick.



12. The sum of the five fractions in Problems 7–11 is _____.

Use the information on Kwame's shopping list to fill in the blanks below.

13. He plans to buy _____ pounds of meat.

14. He plans to buy _____ pounds of cheese.

Kwame's Shopping List

$\frac{1}{2}$ pound ham

$\frac{3}{4}$ pound roast beef

$\frac{2}{3}$ pound turkey

$\frac{2}{3}$ pound Swiss cheese

$\frac{1}{4}$ pound Parmesan cheese

$\frac{2}{3}$ pound cheddar cheese

LESSON
6•11**Self Assessment**Progress
Check 6

Think about each skill listed below. Assess your own progress by checking the most appropriate box.

Skills	I can do this on my own and explain how to do it.	I can do this on my own.	I can do this if I get help or look at an example.
1. Read stem-and-leaf plots.			
2. Make stem-and-leaf plots.			
3. Explain how sample size affects results.			
4. Find common denominators.			
5. Add and subtract fractions with like denominators.			
6. Add and subtract fractions with unlike denominators.			
7. Convert between fractions, decimals, and percents.			