Study Links

Common Core Units 1-3

Everyday Math Grade 5

Name: _____

Teacher: _____

Number Poetry

Many poems have been written about mathematics. They are poems that share some of the ways that poets think about numbers and patterns.

1. Read the examples below.

2. The ideas in the examples are some of the ideas you have studied in *Everyday Mathematics.* Subtraction is one of these ideas. Name as many other ideas from the examples as you can on the back of this page.

Examples:

Arithmetic is where numbers fly like pigeons in and out of your head.
Arithmetic tells you how many you lose or win if you know how many you had before you lost or won.

from "Arithmetic" by Carl Sandburg

A square is neither a line
nor circle; it is timeless.
Points don't chase around
a square. Firm, steady,
it sits there and knows
its place. A circle
won't be squared.

from "Finding Time" by JoAnne Growney

Second Poem: "123"

.
1
12
123
1-32
1-21
1-10
2
21
21-31
2131
21-31-231
121
1
.

from "Asparagus X Plus Y"
by Ken Stange

How many seconds in an hour?
How many in a day?
What size are the planets in the sky?
How far to the Milky Way?

How fast does lightning travel?
How slow do feathers fall?
How many miles to Istanbul?
Mathematics knows it all!

from "Marvelous Math" by Rebecca Kai Dotlich

3. Use a number pattern to make your own poem on the back of this page.

2

STUDY LINK 1·1

Unit 1: Family Letter

Introduction to *Fifth Grade Everyday Mathematics*

Welcome to *Fifth Grade Everyday Mathematics.* This curriculum was developed by the University of Chicago School Mathematics Project to offer students a broad background in mathematics.

The features of the program described below are to help familiarize you with the structure and expectations of *Everyday Mathematics.*

A problem-solving approach based on everyday situations Students learn basic math skills in a context that is meaningful by making connections between their own knowledge and experience and mathematics concepts.

Frequent practice of basic skills Students practice basic skills in a variety of engaging ways. In addition to completing daily review exercises covering a variety of topics and working with multiplication and division fact families in different formats, students play games that are specifically designed to develop basic skills.

An instructional approach that revisits concepts regularly Lessons are designed to take advantage of previously learned concepts and skills and to build on them throughout the year.

A curriculum that explores mathematical content beyond basic arithmetic Mathematics standards around the world indicate that basic arithmetic skills are only the beginning of the mathematical knowledge students will need as they develop critical-thinking skills. In addition to basic arithmetic, *Everyday Mathematics* develops concepts and skills in the following topics—number and numeration; operations and computation; data and chance; geometry; measurement and reference frames; and patterns, functions, and algebra.

Everyday Mathematics provides you with ample opportunities to monitor your child's progress and to participate in your child's mathematical experiences. Throughout the year, you will receive Family Letters to keep you informed of the mathematical content your child is studying in each unit. Each letter includes a vocabulary list, suggested Do-Anytime Activities for you and your child, and an answer guide to selected Study Link (homework) activities.

Please keep this Family Letter for reference as your child works through Unit 1.

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Fifth Grade Everyday Mathematics emphasizes the following content:

Number and Numeration Understand the meanings, uses, and representations of numbers; equivalent names for numbers, and common numerical relations.

Operations and Computation Make reasonable estimates and accurate computations; understand the meanings of operations.

Data and Chance Select and create appropriate graphical representations of collected or given data; analyze and interpret data; understand and apply basic concepts of probability.

Geometry Investigate characteristics and properties of 2- and 3-dimensional shapes; apply transformations and symmetry in geometric situations.

Measurement and Reference Frames Understand the systems and processes of measurement; use appropriate techniques, tools, units, and formulas in making measurements; use and understand reference frames.

Patterns, Functions, and Algebra Understand patterns and functions; use algebraic notation to represent and analyze situations and structures.

Unit 1: Number Theory

In Unit 1, students study properties of whole numbers by building on their prior work with multiplication and division of whole numbers.

Students will collect examples of arrays to form a class Arrays Museum. To practice using arrays with your child at home, use any small objects, such as beans, macaroni, or pennies.

Building Skills through Games

In Unit 1, your child will practice operations and computation skills by playing the following games. Detailed instructions for each game are in the *Student Reference Book*.

Factor Bingo This game involves 2 to 4 players and requires a deck of number cards with 4 each of the numbers 2–9, a drawn or folded 5-by-5 grid and 12 pennies or counters for each player. The goal of the game is to practice the skill of recognizing factors.

Factor Captor See *Student Reference Book*, page 306. This is a game for 2 players. Materials needed include a *Factor Captor* Grid, 48 counters the size of a penny, scratch paper, and a calculator. The

goal of the game is to strengthen the skill of finding the factors of a number.

Multiplication Top-It See *Student Reference Book*, page 334. This game requires a deck of cards with 4 each of the numbers 1–10 and can be played by 2–4 players. *Multiplication Top-It* is used to practice the basic multiplication facts.

Name That Number See *Student Reference Book*, page 325. This game involves 2 or 3 players and requires a complete deck of number cards. *Name That Number* provides practice with computation and strengthens skills related to number properties.

4

Vocabulary

Important terms in Unit 1:

composite number A counting number greater than 1 that has more than two *factors*. For example, 4 is a composite number because it has three factors: 1, 2, and 4.

divisible by If the larger of two counting numbers can be divided by the smaller with no remainder, then the larger is divisible by the smaller. For example, 28 is divisible by 7 because 28 / 7=4 with no remainder.

exponent The small, raised number in exponential notation that tells how many times the base is used as a *factor.*

Example:

$5^2 \leftarrow$ exponent $\quad 5^2 = 5 * 5 = 25.$

$10^3 \leftarrow$ exponent $\quad 10^3 = 10 * 10 * 10 = 1,000.$

$2^4 \leftarrow$ exponent $\quad 2^4 = 2 * 2 * 2 * 2 = 16.$

factor One of two or more numbers that are multiplied to give a *product.*

$$3 * 5 = 15 \qquad 15 * 1 = 15$$
Factors Product   Factors Product

factor rainbow A way to show factor pairs in a list of all the factors of a number. A factor rainbow can be used to check whether a list of factors is correct.

Factor rainbow for 16: 1 2 4 8 16
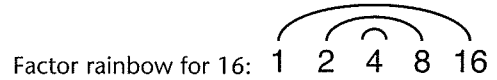
number model A number sentence or expression that models a number story or situation. For example, a number model for the array below is $4 * 3 = 12.$

prime number A whole number that has exactly two factors: itself and 1. For example, 5 is a prime number because its only factors are 5 and 1.

product The result of multiplying two or more numbers, called *factors.*

rectangular array A rectangular arrangement of objects in rows and columns such that each row has the same number of objects and each column has the same number of objects.
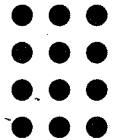
square number A number that is the product of a counting number multiplied by itself. For example, 25 is a square number, because $25 = 5 * 5.$
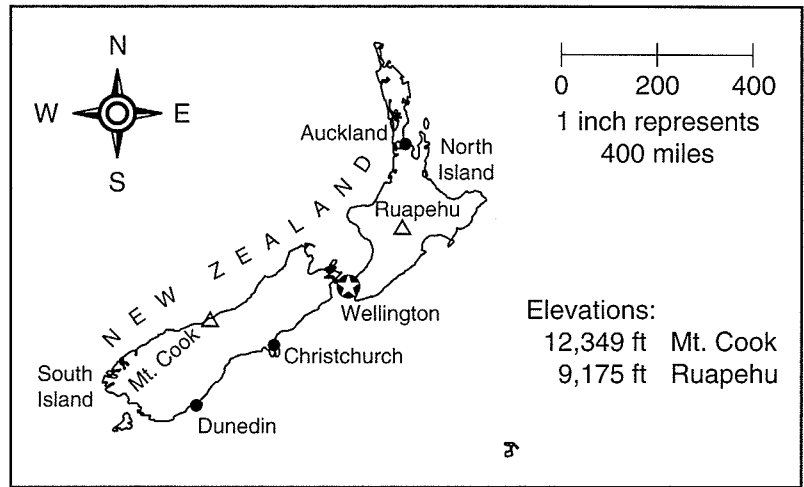
STUDY LINK
2·1 | **Estimation**

SRB
247

Class Medians for: Step Length _____ Steps in 1 Minute _____

A group of fifth-grade students in New Zealand are going camping. They will hike from Wellington to Ruapehu. Then they will follow a trail for another $\frac{1}{2}$ mile to their campsite. Use the map on this page (Scale: 1 inch = 400 miles) as well as your class median step length, and number of steps in 1 minute, to make the following estimates. (*Reminder:* 1 mile = 5,280 feet)

N
W ← ⊕ → E
S

0   200   400
1 inch represents 400 miles

Auckland ● North Island

NEW ZEALAND

Ruapehu △

Wellington

South Island   Mt. Cook

Christchurch

Dunedin

Elevations:
12,349 ft   Mt. Cook
9,175 ft   Ruapehu

1. About how many miles is it from Wellington to Ruapehu? _____
   (unit)

2. About how many miles is it from Wellington to the campsite? _____
   (unit)

3. About how long would it take the students to arrive at their campsite, if they don't make any stops? _____
   (unit)

4. Each day, the students will hike for 12 hours and take 12 hours for stops to eat, rest, and sleep. If they leave at 7:00 A.M. on a Monday morning, at about what time, and on what day would you expect them to arrive at their campsite?

   Time: About _____ Day: _____

Try This

5. Suppose the students take a bus from Wellington to Mt. Cook and then hike to a campsite at the top of the mountain. Would they have to hike more or less than the distance they hiked to their campsite at Ruapehu?

Practice

6. 48 * 15 = _____

7. 24,029 + 26,840 + 39,492 = _____

8. 36 / 3 = _____

9. 35 − 17 = _____

33

STUDY LINK
2·2

Number Hunt

Reminder: A means *Do not use a calculator.*

SRB
13-17

Use the numbers in the following table to answer the
questions below. You may not use a number more than once.

1. Circle two numbers whose sum is 832.

2. Make an X in the boxes containing three
   numbers whose sum is 57.

3. Make a check mark in the boxes containing
   two prime numbers whose sum is 42.

19	85.2	533	571
88.2	525	20	17.5
400	261	20.5	125
7	23	901	30

4. Make a star in the boxes containing two numbers whose sum is 658.

5. Make a triangle in the boxes containing two numbers whose sum is 105.7.
   Explain how you found the answer.

_____

_____

_____

_____

Solve Problems 6–9 using any method you want. Show your work in the space below.

6. 3,804 + 768 = _____

7. 2.83 + 1.57 = _____

8. 33 + 148 + 65 = _____

9. 1.055 + 0.863 = _____

Practice

10. 73 − 26 = _____

11. 727 − 519 = _____

12. 27 ÷ 9 = _____

13. 4)‾34‾ → _____

36

Top-It Record Sheet

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

✂ -

Top-It Record Sheet

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

STUDY LINK 2·3 | **Another Number Hunt**

Use the numbers in the following table to answer the questions below.
You may not use a number more than once.

17	15	9	75.03
100.9	803	25	451
1,500	5,000	1	3,096
299	703	75.3	40.03

1. Circle two numbers whose difference is 152.

2. Make an X in the boxes of two numbers whose difference is 25.6.

3. Make a check mark in the boxes of two numbers whose difference is greater than 1,000.

4. Make a star in the boxes of two numbers whose difference is less than 10.

5. Make a triangle in the boxes of two numbers whose difference is equal to the sum of 538 and 259.

6. Use diagonal lines to shade the boxes of two numbers whose difference is equal to 4^2.

Subtract. Show your work for one problem on the grid below.

7. $247 - 186 =$ _____

8. _____ $= 405 - 268$

9. $24.5 - 18.7 =$ _____

10. _____ $= 62.7 - 43.85$

Practice

11. $48 \div 8 =$ _____

12. $81,447 + 2,571 =$ _____

13. $\$451.17 + \$2.81 =$ _____

14. $14 * 7 =$ _____

15. $98 \div 7 =$ _____

STUDY LINK
2·4 | **Open Sentences and Number Stories**

Read each problem. Fill in the blanks and solve the problem.

1. Althea and her brother collect baseball cards. Althea has 148 cards. Her brother has 127 cards. How many cards do they have altogether?

   a. List the numbers needed to solve the problem. _____

   b. Describe what you want to find. _____

   c. Open number sentence: _____

   d. Solution: _____   **e.** Answer: _____
                                                                    (unit)

2. Mark bought a hamburger for $3.89 and a drink for $1.49. If he paid with a $20 bill, how much change did he receive?

   a. List the numbers needed to solve the problem. _____

   b. Describe what you want to find. _____

   c. Open number sentence: _____

   _____

   d. Solution: _____   **e.** Answer: _____
                                                             (unit)

3. Fran has four pieces of ribbon. Each piece of ribbon is a different length: 0.6 meters long, 1.15 meters long, 1.35 meters long, and 0.925 meters long. How many meters of ribbon does Fran have in all?

   a. List the numbers needed to solve the problem.

   _____

   b. Describe what you want to find. _____

   c. Open number sentence:

   _____

   d. Solution: _____

   e. Answer: _____
                          (unit)

43

STUDY LINK
2·5

Comparing Reaction Times

Use your Grab-It Gauge. Collect reaction-time data from two people at home. At least one of these people should be an adult.

SRB
114

1.

Person 1	
Left	**Right**

2.

Person 2	
Left	**Right**

3. Median times:

Left hand _____

Right hand _____

4. Median times:

Left hand _____

Right hand _____

5. How do the results for the two people compare to your class data?

_____

_____

_____

Practice

6. $2,683 + 2,939 =$ _____

7. $3,702 * 8 =$ _____

8. $604 - 86 =$ _____

9. $39 \div 3 =$ _____

46

High-Number Toss: Decimal Version Record Sheet

Circle the winning number for each round. Fill in the Score column each time you have the winning number.

Player 1 _____   **Player 2** _____
              (Name)   (Name)

Round	Player 1	<, >, =	Player 2	Score
Sample	0. _6_ _5_ _4_	<	0. _7_ _5_ _3_	0.753 − 0.654 0.099
1	0.___ ___ ___		0.___ ___ ___	
2	0.___ ___ ___		0.___ ___ ___	
3	0.___ ___ ___		0.___ ___ ___	
4	0.___ ___ ___		0.___ ___ ___	
5	0.___ ___ ___		0.___ ___ ___	
			Total Score	

511

STUDY LINK 2·6

How Likely Is Rain?

Many years ago, weather reports described the chances of rain with phrases such as *very likely, unlikely,* and *extremely unlikely.* Today, the chances of rain are almost always reported as percents. For example, "There is a 50% chance of rain tonight."

1. Use the Probability Meter Poster to translate phrases into percents.

Phrase	Percent
Unlikely	30%
Very likely	
Very unlikely	
Likely	
Extremely unlikely	

2. Use the Probability Meter Poster to translate percents into phrases.

Percent	Phrase
30%	Unlikely
5%	
99%	
20%	
80%	
35%	
65%	
45%	

CERTAIN

IMPOSSIBLE

49
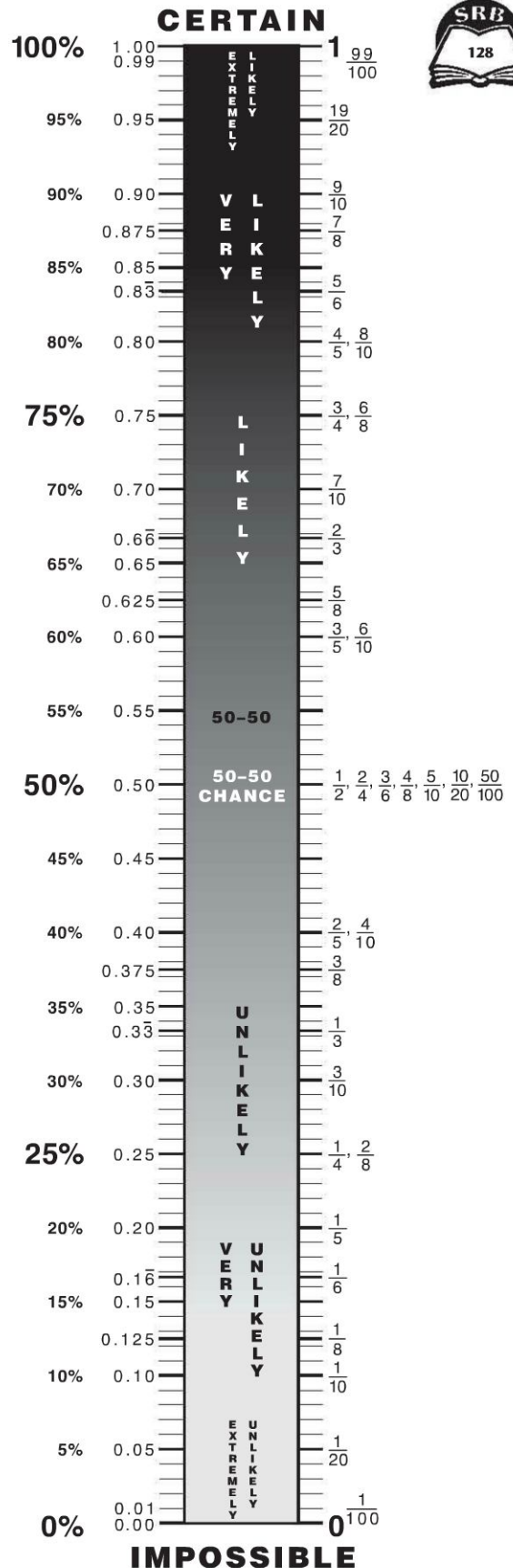
STUDY LINK 2·7 | Magnitude Estimates

A **magnitude estimate** is a very rough estimate. It tells whether the exact answer falls in the tenths, ones, tens, hundreds, thousands, and so on. For each problem, make a magnitude estimate. Ask yourself: *Is the answer in the tenths, ones, tens, hundreds, thousands, or ten-thousands?* Circle the appropriate box. Do not solve the problems.

SRB
250

Example: 18 * 21

10s	100s	1,000s	10,000s

$20 * 20 = 400$

How I estimated

1. 73 * 28

10s	100s	1,000s	10,000s

How I estimated

2. 12 * 708

10s	100s	1,000s	10,000s

How I estimated

3. 98 * 105

10s	100s	1,000s	10,000s

How I estimated

4. 17 * 2.2

10s	100s	1,000s	10,000s

How I estimated

5. 2.6 * 3.9

0.1s	1s	10s	100s

How I estimated

Try This

6. Use the digits 4, 5, 6, and 8. Make as many factor pairs as you can that have a product between 3,000 and 5,000. Use a calculator to solve the problems.

LESSON 2·7   # Using Multiplication Patterns
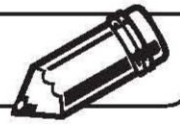
Find information about **Powers of 10** on page 5 of your *Student Reference Book.* Study the example below. Then try to use the same strategy to solve Problems 1 and 2.

$20 * 300 = (2 * 10) * (3 * 100)$	Write each factor in expanded form.
$= 2 * 10 * 3 * 100$	Remove the parentheses.
$= 2 * 3 * 10 * 100$	Use the Commutative Property so that the powers of 10 are together.
$= (2 * 3) * (10 * 100)$	Multiply the basic fact, and multiply the powers of 10.
$= 6 * 1,000$	Multiply the partial products.
$= 6,000$	

Solve the problems. Show your work.

1. $900 * 70 =$ _____   **2.** $500 * 6,000 =$ _____

3. Explain why you think counting zeros works in solving multiplication problems involving powers of 10.

_____

_____

_____

_____

4. Use what you know about counting zeros in multiplication to help you figure out the missing numbers below.

$4,200 *$ _____ $= 840,000$

_____ $* 40 = 2,000,000$

$250 *$ _____ $= 50,000,000$

5. On the back of this page, write two problems of your own that can be solved by counting zeros.

STUDY LINK 2·8

Estimating and Multiplying

- ◆ For each problem, make a magnitude estimate.
- ◆ Circle the appropriate box. Do not solve the problem.
- ◆ Then choose 3 problems to solve. Show your work on the grid.

SRB
247

1. 8 * 19 _____

10s	100s	1,000s	10,000s

_____

How I estimated

2. 155 * 6 _____

10s	100s	1,000s	10,000s

_____

How I estimated

3. 37 * 58 _____

10s	100s	1,000s	10,000s

_____

How I estimated

4. 5 * 4.2 _____

10s	100s	1,000s	10,000s

_____

How I estimated

5. 9.3 * 2.8 _____

10s	100s	1,000s	10,000s

_____

How I estimated

55

STUDY LINK 2·9 | **Multiply with the Lattice Method**

For each problem:

◆ Make a magnitude estimate. Circle the appropriate box.

◆ Solve using the lattice method. Show your work in the grids.

1. 94 * 73 = _____

10s	100s	1,000s	10,000s
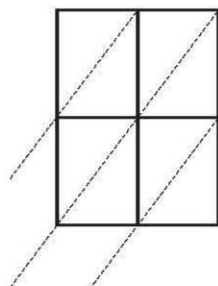
2. 24 * 3.7 = _____

0.1s	1s	10s	100s
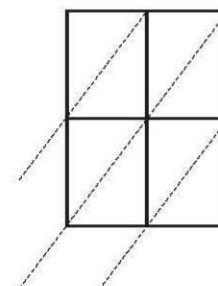
3. 5.4 * 6.18 = _____

0.1s	1s	10s	100s
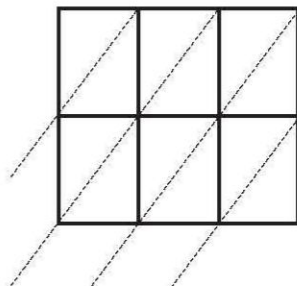
4. 384 * 261 = _____

100s	1,000s	10,000s	100,000s
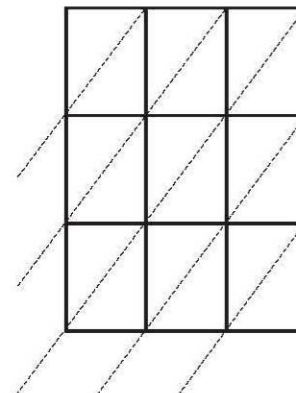
5. 17.7 * 19.3 = _____

0.1s	1s	10s	100s
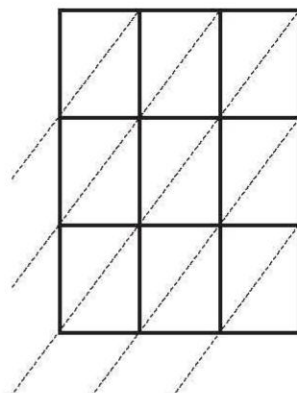
Practice

6. 7,402 + 2,587 = _____

7. 37 ÷ 7 → _____

8. 328 − 237 = _____

9. $15.75 + $3.25 = _____

59

STUDY LINK 2·10 Place-Value Puzzles

Millions			Thousands			Ones		
Hundred-millions	Ten-millions	Millions	Hundred-thousands	Ten-thousands	Thousands	Hundreds	Tens	Ones

Use the clues to solve the puzzles.

Puzzle 1

◆ The value of the digit in the **thousandths** place is equal to the sum of the measures of the angles in a triangle (180°) divided by 30.

◆ If you multiply the digit in the **tens** place by 1,000; the answer will be 9,000.

◆ Double 35. Divide the result by 10. Write the answer in the **tenths** place.

◆ The **hundreds**-place digit is $\frac{1}{2}$ the value of the digit in the thousandths place.

◆ When you multiply the digit in the **ones** place by itself, the answer is 0.

◆ Write a digit in the **hundredths** place so that the sum of all six digits in this number is 30.

What is the number? _____ _____ _____ . _____ _____ _____

Puzzle 2

◆ Double 12. Divide the result by 8. Write the answer in the **thousands** place.

◆ If you multiply the digit in the **hundredths** place by 10, your answer will be 40.

◆ The **tens**-place digit is a prime number. If you multiply it by itself, the answer is 49.

◆ Multiply 7 and 3. Subtract 12. Write the answer in the **thousandths** place.

◆ Multiply the digit in the hundredths place by the digit in the thousands place. Subtract 7 from the result. Write the digit in the **tenths** place.

◆ The digit in the **ones** place is an odd digit that has not been used yet.

◆ The value of the digit in the **hundreds** place is the same as the number of sides of a quadrilateral.

What is the number? _____ , _____ _____ _____ . _____ _____ _____

Check: The sum of the answers to both puzzles is 3,862.305.

| **Practice** |

3. 7,772 + 1,568 = _____

4. 472 − 228 = _____

5. 826 * 54 = _____

6. 59 / 3 → _____

LESSON 2·10

Using Place Value to Compare Powers of 10
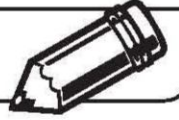
1 meter	10 decimeters	100 centimeters	1,000 millimeters
1 centimeter	0.01 meter	0.1 decimeter	10 millimeters

Use the information in the conversion table to respond to each statement below. Complete each statement with one of the following phrases:

10 times, 100 times, $\frac{1}{10}$ of, $\frac{1}{100}$ of

1. 1 meter is _____ the size of a decimeter.

2. 1 centimeter is _____ the size of a meter.

3. 1 centimeter is _____ the size of a millimeter.

4. 1 decimeter is _____ the size of a meter.

5. 1 millimeter is _____ the size of a decimeter.

Write two of your own statements using the information in the table.

6. _____

   _____

7. _____

   _____

Complete the table below by making the appropriate conversions.

	millimeters	centimeters	decimeters	meters
8.	9,743			
9.				3
10.		175		

11. In Problem 10, explain what happens to the value of the digit 5 when you go from millimeters to centimeters, and then from decimeters to meters.

   _____

   _____

   _____

LESSON 2·11 | Self Assessment

Progress Check 2

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 this.	I can do this on my own.	I can do this if I get help or look at an example.
1. Add and subtract whole numbers and decimals.			
2. Convert between U.S. customary units of length.			
3. Identify the place value of digits.			
4. Identify multiplication errors.			
5. Make magnitude estimates.			
6. Explain usefulness of making an estimate.			
7. Describe probabilities using words or phrases.			
8. Write numbers in expanded notation.			
9. Find the landmarks for a data set.			

STUDY LINK 2·11

Unit 3: Family Letter

Geometry Explorations and the American Tour

In Unit 3, your child will set out on the American Tour, a yearlong series of mathematical activities examining historical, demographic, and environmental features of the United States. The American Tour activities will develop your child's ability to read, interpret, critically examine, and use mathematical information presented in text, tables, and graphics. These math skills are vital in our technological age.

Many American Tour activities rely on materials in the American Tour section of the *Student Reference Book.* This section—part historical atlas and part almanac—contains maps, data, and other information from a wide range of sources: the U.S. Census Bureau, the National Weather Service, and the National Geographic Society.

Unit 3 also will review some geometry concepts from earlier grades while introducing and expanding on others. In *Fourth Grade Everyday Mathematics,* students used a compass to construct basic shapes and create geometric designs. In this unit, your child will extend these skills and explore concepts of congruent figures (same size, same shape), using a compass and straightedge. In addition, students will use another tool, the Geometry Template. It contains protractors and rulers for measuring, as well as cutouts for drawing a variety of geometric figures.

Finally, students will explore the mathematics and art of tessellations—patterns of shapes that cover a surface without gaps or overlaps. They will use math tools to create their own designs.

You can help your child by asking questions about information presented in newspaper and magazine tables and graphics. Also, the world is filled with many 2-dimensional and 3-dimensional geometric forms: angles, line segments, curves, cubes, cylinders, spheres, pyramids, and so on. Many wonderful geometric patterns can be seen in nature as well as in the things that people create. It will be helpful for you and your child to look for and talk about geometric shapes throughout the year.

Please keep this Family Letter for reference as your child works through Unit 3.

Vocabulary

Important terms in Unit 3:

acute angle An angle with a measure greater than 0 degrees and less than 90 degrees.
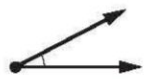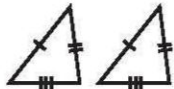
Acute angle

adjacent angles Two angles with a common side and vertex that do not otherwise overlap. In the diagram, angles 1 and 2 are adjacent angles. Angles 2 and 3, angles 3 and 4, and angles 4 and 1 are also adjacent.
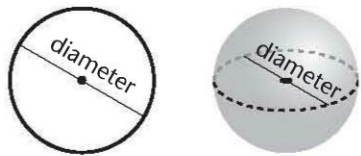
Adjacent angles

**congruent** Having exactly the same shape and size.

Congruent triangles

diameter A line segment that passes through the center of a circle (or sphere) and has endpoints on the circle (or sphere); also, the length of this line segment. The diameter of a circle or sphere is twice the length of its radius.

Equilateral triangles

equilateral triangle A triangle with all three sides the same length. In an equilateral triangle, all three angles have the same measure.
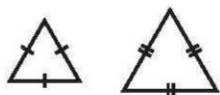
Equilateral triangles

obtuse angle An angle with a measure greater than 90 degrees and less than 180 degrees.

Obtuse angle

radius A line segment from the center of a circle (or sphere) to any point on the circle (or sphere); also, the length of this line segment.

center
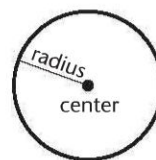
right angle An angle with a measure of 90 degrees.

Right angle

tessellation An arrangement of shapes that covers a surface completely without overlaps or gaps. Also called *tiling*.
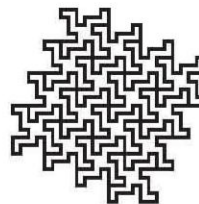
A tessellation

vertical (opposite) angles The angles made by intersecting lines that do not share a common side. Vertical angles have equal measures. In the diagram, angles 2 and 4 are a pair of vertical angles. Angles 1 and 3 are another pair of vertical angles.
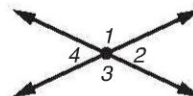
Vertical angles

Building Skills through Games

In Unit 3, your child will practice geometry and computation skills by playing the following games. For detailed instructions, see the *Student Reference Book.*

Angle Tangle See *Student Reference Book,* page 296
Two players will need a protractor and a straightedge to play this game. Playing *Angle Tangle* gives students practice in drawing and measuring angles.

High-Number Toss: Decimal Version See *Student Reference Book,* page 321
This game practices concepts of place value and standard notation. It requires 2 players and number cards 0–9 (4 of each).

Multiplication Top-It See *Student Reference Book,* page 334
This game practices the basic multiplication facts. It requires a deck of cards with 4 each of the numbers 1–10, and can be played by 2–4 players.

Polygon Capture See *Student Reference Book,* page 328
This game uses 16 polygons and 16 Property Cards, and is played by partners or 2 teams each with 2 players. *Polygon Capture* practices identifying properties of polygons related to sides and angles.

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. Together, read the book *A Cloak for the Dreamer* by Marilyn Burns.

2. When you are at home or at a store, ask your child to identify different types of polygons such as triangles, squares, pentagons, and hexagons.

3. Visit the Web site for the U.S. Bureau of the Census at http://www.census.gov/. Have your child write three interesting pieces of information that he or she learned from the Web site.

4. Look for examples of bar graphs in newspapers or magazines. Ask your child to explain the information shown by a graph.

65

STUDY LINK 1·2 — More Array Play

A **rectangular array** is an arrangement of objects in rows and columns. Each row has the same number of objects, and each column has the same number of objects. We can write a multiplication number model to describe a rectangular array.
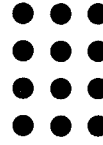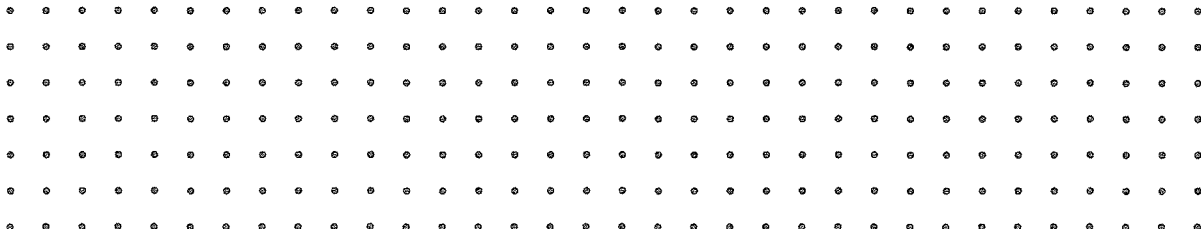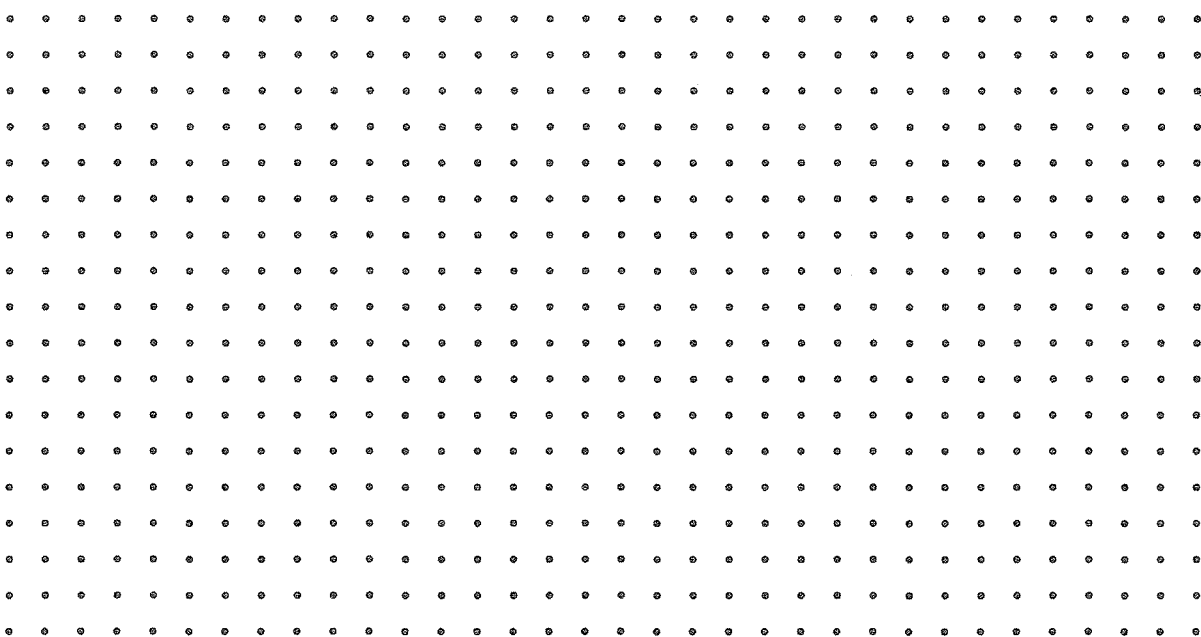
$4 * 3 = 12$

For each number below, use pennies or counters to make as many different arrays as possible. Draw each array on the grid with dots. Write the number model next to each array.

1. 5

2. 14

3. 18

Practice

4. $487 + 308 =$ _____

5. $679 - 408 =$ _____

6. $14 * 7 =$ _____

7. $164 * 6 =$ _____

8. $45 \div 9 =$ _____

8

STUDY LINK 1·3

Number Models for Arrays

Complete the chart. You will need to find each missing part and write it in the correct space.

	Array	Number Model	Factors	Product
1		6 * 4 = _____	6, 4	
2			2, 12	
3		3 * 8 = _____		
4			1, 15	
5				15
6				5

Reminder: Look for examples of arrays and bring them to school.

Practice

7. 12 / 3 = _____

8. 1,288 + 2,631 = _____

9. 307 * 9 = _____

10. 306 − 147 = _____

12

LESSON 1·3 — Multiplication Facts

A List					
3 * 6 = 18					
6 * 3 = 18					
3 * 7 = 21					
7 * 3 = 21					
3 * 8 = 24					
8 * 3 = 24					
3 * 9 = 27					
9 * 3 = 27					
4 * 6 = 24					
6 * 4 = 24					
4 * 7 = 28					
7 * 4 = 28					
4 * 8 = 32					
8 * 4 = 32					
4 * 9 = 36					
9 * 4 = 36					
5 * 7 = 35					
7 * 5 = 35					
5 * 9 = 45					
9 * 5 = 45					
6 * 6 = 36					
6 * 7 = 42					
7 * 6 = 42					
6 * 8 = 48					
8 * 6 = 48					
6 * 9 = 54					
9 * 6 = 54					
7 * 7 = 49					
7 * 8 = 56					
8 * 7 = 56					
7 * 9 = 63					
9 * 7 = 63					
8 * 8 = 64					
8 * 9 = 72					
9 * 8 = 72					
9 * 9 = 81					

B List					
3 * 3 = 9					
3 * 4 = 12					
4 * 3 = 12					
3 * 5 = 15					
5 * 3 = 15					
4 * 4 = 16					
4 * 5 = 20					
5 * 4 = 20					
5 * 5 = 25					
5 * 6 = 30					
6 * 5 = 30					
5 * 8 = 40					
8 * 5 = 40					
6 * 10 = 60					
10 * 6 = 60					
7 * 10 = 70					
10 * 7 = 70					
8 * 10 = 80					
10 * 8 = 80					
9 * 10 = 90					
10 * 9 = 90					
10 * 10 = 100					

Bonus Problems					
11 * 11 = 121					
11 * 12 = 132					
5 * 12 = 60					
12 * 6 = 72					
7 * 12 = 84					
12 * 8 = 80					
9 * 12 = 108					
10 * 12 = 120					
5 * 13 = 65					
15 * 7 = 105					
12 * 12 = 144					
6 * 14 = 84					

STUDY LINK 1·4 | **Factors**

To find the factors of a number, ask yourself: *Is 1 a factor of the number? Is 2 a factor? Is 3 a factor?* Continue with larger numbers. For example, to find all the factors of 15, ask yourself these questions.

	Yes/No	Number Sentence	Factor Pair
Is 1 a factor of 15?	Yes	1 * 15 = 15	1, 15
Is 2 a factor of 15?	No		
Is 3 a factor of 15?	Yes	3 * 5 = 15	3, 5
Is 4 a factor of 15?	No		

1. You don't need to go any further. Can you tell why?

_____

_____

_____

So the factors of 15 are 1, 3, 5, and 15.

List as many factors as you can for each of the numbers below.

2. 25 _____

3. 28 _____

4. 42 _____

5. 100 _____

Practice

6. 8,417 + 1,134 = _____

7. 73 − 25 = _____

8. 6,924 * 6 = _____

9. 634 − 193 = _____

10. 56 / 8 = _____

14

STUDY LINK 1·5 | Divisibility Rules

◆ All even numbers are divisible by 2.

◆ A number is divisible by 3 if the sum of its digits is divisible by 3.

◆ A number is divisible by 6 if it is divisible by both 2 and 3.

◆ A number is divisible by 9 if the sum of its digits is divisible by 9.

◆ A number is divisible by 5 if it ends in 0 or 5.

◆ A number is divisible by 10 if it ends in 0.

1. Use divisibility rules to test whether each number is divisible by 2, 3, 5, 6, 9, or 10.

Number	Divisible...					
	by 2?	by 3?	by 6?	by 9?	by 5?	by 10?
998,876						
5,890						
36,540						
33,015						
1,098						

A number is divisible by 4 if the tens and ones digits form a number that is divisible by 4.

Example: 47,836 is divisible by 4 because 36 is divisible by 4.

It isn't always easy to tell whether the last two digits form a number that is divisible by 4. A quick way to check is to divide the number by 2 and then divide the result by 2. It's the same as dividing by 4, but is easier to do mentally.

Example: 5,384 is divisible by 4 because 84 / 2 = 42 and 42 / 2 = 21.

2. Place a star next to any number in the table that is divisible by 4.

Practice

3. 250 * 7 = _____

4. 1,931 + 4,763 + 2,059 = _____

5. (20 + 30) * 5 = _____

6. 78 ÷ 6 = _____

15

LESSON 1·3

Multiplication Facts

A List					
3 * 6 = 18					
6 * 3 = 18					
3 * 7 = 21					
7 * 3 = 21					
3 * 8 = 24					
8 * 3 = 24					
3 * 9 = 27					
9 * 3 = 27					
4 * 6 = 24					
6 * 4 = 24					
4 * 7 = 28					
7 * 4 = 28					
4 * 8 = 32					
8 * 4 = 32					
4 * 9 = 36					
9 * 4 = 36					
5 * 7 = 35					
7 * 5 = 35					
5 * 9 = 45					
9 * 5 = 45					
6 * 6 = 36					
6 * 7 = 42					
7 * 6 = 42					
6 * 8 = 48					
8 * 6 = 48					
6 * 9 = 54					
9 * 6 = 54					
7 * 7 = 49					
7 * 8 = 56					
8 * 7 = 56					
7 * 9 = 63					
9 * 7 = 63					
8 * 8 = 64					
8 * 9 = 72					
9 * 8 = 72					
9 * 9 = 81					

B List					
3 * 3 = 9					
3 * 4 = 12					
4 * 3 = 12					
3 * 5 = 15					
5 * 3 = 15					
4 * 4 = 16					
4 * 5 = 20					
5 * 4 = 20					
5 * 5 = 25					
5 * 6 = 30					
6 * 5 = 30					
5 * 8 = 40					
8 * 5 = 40					
6 * 10 = 60					
10 * 6 = 60					
7 * 10 = 70					
10 * 7 = 70					
8 * 10 = 80					
10 * 8 = 80					
9 * 10 = 90					
10 * 9 = 90					
10 * 10 = 100					

Bonus Problems					
11 * 11 = 121					
11 * 12 = 132					
5 * 12 = 60					
12 * 6 = 72					
7 * 12 = 84					
12 * 8 = 80					
9 * 12 = 108					
10 * 12 = 120					
5 * 13 = 65					
15 * 7 = 105					
12 * 12 = 144					
6 * 14 = 84					

STUDY LINK 1·6 | Prime and Composite Numbers

A **prime number** is a whole number that has exactly two factors—1 and the number itself. A **composite number** is a whole number that has more than two factors.

For each number:

◆ List all of its factors.

◆ Write whether the number is prime or composite.

◆ Circle all of the factors that are prime numbers.

	Number	Factors	Prime or Composite?
1	11		
2	18		
3	24		
4	28		
5	36		
6	49		
7	50		
8	70		
9	100		

Practice

10. $4{,}065 + 2{,}803 + 2{,}954 =$ _____

11. $392 - 158 =$ _____

12. $1{,}532 * 14 =$ _____

13. $39 / 4 \rightarrow$ _____

14. $48 * 15 =$ _____

17

STUDY LINK 1·7

Exploring Square Numbers

A **square number** is a number that can be written as the product of a number multiplied by itself. For example, the square number 9 can be written as 3 * 3.

● ● ●
● ● ●
● ● ●
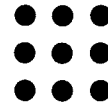
$9 = 3 * 3 = 3^2$

Fill in the missing numbers.

1. $4 * 4 =$ _____

2. _____ $= 7 * 7$

3. _____ $* 6 = 36$

4. $8^2 =$ _____

5. $5^2 =$ _____

6. _____ $= 9^2$

Write a number model to describe each array.

● ● ● ● ● ● ● ● ●
● ● ● ● ● ● ● ● ●
● ● ● ● ● ● ● ● ●
● ● ● ● ● ● ● ● ●

● ● ● ● ●
● ● ● ● ●
● ● ● ● ●
● ● ● ● ●
● ● ● ● ●
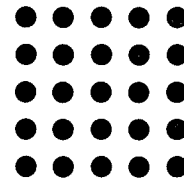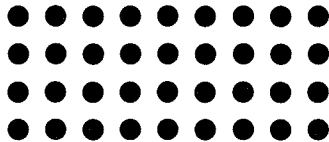
7. Number model: _____

8. Number model: _____

9. **a.** Which of the arrays above shows a square number? _____

b. Explain your answer.

_____

_____

_____

Practice

10. $97 * 43 =$ _____

11. $4,006 - 2,675 =$ _____

12. $1,416 + 8,348 =$ _____

13. $725 - 414 =$ _____

STUDY LINK 1·8

Factor Rainbows, Squares, and Square Roots

1. List all the factors of each square number. Make a **factor rainbow** to check your work. Then fill in the missing numbers.

SRB 271

Reminder: In a factor rainbow, the product of each connected factor pair should be equal to the number itself. For example, the factor rainbow for 16 looks like this:

1 2 4 8 16
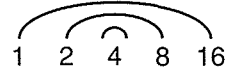
$1 * 16 = 16$ $2 * 8 = 16$ $4 * 4 = 16$

Example:	
4: 1, 2, 4 $\widehat{124}$ $2^2 = 4$ The square root of 4 is 2.	**9:** $\_\_^2 = 9$ The square root of 9 is ___.
25: $\_\_^2 = 25$ The square root of 25 is ___.	**36:** $\_\_^2 = 36$ The square root of 36 is ___.

2. Do all square numbers have an odd number of factors? _____

Unsquare each number. The result is its square root. Do not use the square root key $\boxed{\sqrt{}}$ on your calculator.

3. $\_\_\_\_^2 = 121$

4. $\_\_\_\_^2 = 2{,}500$

The square root of 121 is _____.

The square root of 2,500 is _____.

Practice

5. 4,318
     + 1,901

6. 36
     × 85

7. 2,852
     ×   5

8. 50 ÷ 6 → _____

9. 333 − 291 = _____

22

Top-It Record Sheet

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

✂ -

Top-It Record Sheet

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

STUDY LINK 1·9

Exponents

An **exponent** is a raised number that shows how many times the number to its left is used as a factor.

Examples:

5^2 ← exponent 5^2 means 5 * 5, which is 25.

10^3 ← exponent 10^3 means 10 * 10 * 10, which is 1,000.

2^4 ← exponent 2^4 means 2 * 2 * 2 * 2, which is 16.

1. Write each of the following as a factor string. Then find the product.

Example: $2^3 = 2*2*2 = 8$ **a.** $10^4 = $ _____ = _____

b. $7^2 = $ _____ = _____   **c.** $20^3 = $ _____ = _____

2. Write each factor string using an exponent.

Example: $6 * 6 * 6 * 6 = 6^4$ **a.** $11 * 11 = $ _____

b. $9 * 9 * 9 = $ _____   **c.** $50 * 50 * 50 * 50 = $ _____

3. Write each of the following as a factor string that does *not* have any exponents. Then use your calculator to find the product.

Example: $2^3 * 3 = 2*2*2*3 = 24$

a. $2 * 3^3 * 5^2 = $ _____ = _____

b. $2^4 * 4^2 = $ _____ = _____

4. Write the prime factorization of each number. Then write it using exponents.

Example: $18 = 2 * 3 * 3 = 2 * 3^2$

a. $40 = $ _____ = _____

b. $90 = $ _____ = _____

Practice

5. $6,383 - 1,342 = $ _____   **6.** $48 * 15 = $ _____

7. $7)\overline{354} \rightarrow$ _____   **8.** $50,314 + 48,826 = $ _____

9. $84 \div 7 = $ _____   **10.** $701 * 68 = $ _____

24

LESSON 1·10 **Self Assessment**   Progress
                                                        Check 1

Think about each skill listed below. Assess your 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. Rename numbers written in exponential notation as repeated factor expressions.			
2. Rename numbers written in exponential notation as standard notation.			
3. Find and identify prime and composite numbers.			
4. Know the basic multiplication facts with rapid recall.			
5. Use divisibility tests to find factors and divisors.			
6. Read and write whole numbers through billions and decimals through thousandths.			
7. Factor numbers.			

Unit 2: Family Letter

Estimation and Calculation

Computation is an important part of problem solving. Many of us were taught that there is just one way to do each kind of computation. For example, we may have learned to subtract by borrowing, without realizing that there are many other methods of subtracting numbers.

In Unit 2, students will investigate several methods for adding, subtracting, and multiplying whole numbers and decimals. Students will also take on an Estimation Challenge in Unit 2. For this extended problem, they will measure classmates' strides, and find a median length for all of them. Then they will use the median length to estimate how far it would take to walk to various destinations.

Throughout the year, students will practice using estimation, calculators, as well as mental and paper-and-pencil methods of computation. Students will identify which method is most appropriate for solving a particular problem. From these exposures to a variety of methods, they will learn that there are often several ways to accomplish the same task and achieve the same result. Students are encouraged to solve problems by whatever method they find most comfortable.

Computation is usually not the first step in the problem-solving process. One must first decide what numerical data are needed to solve the problem and which operations need to be performed. In this unit, your child will continue to develop his or her problem-solving skills with a special focus on writing and solving equations for problems.
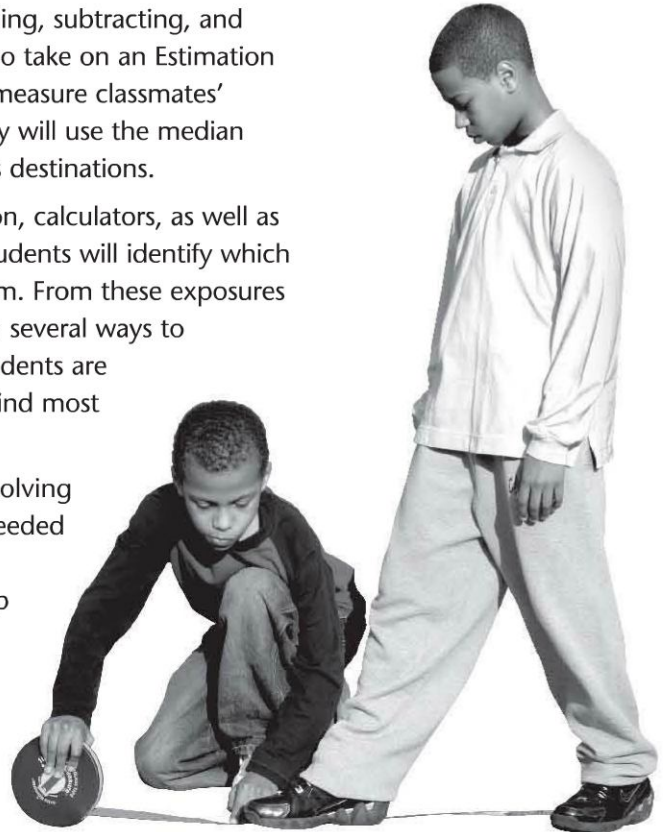
Please keep this Family Letter for reference as your child works through Unit 2.

Vocabulary

Important terms in Unit 2:

Estimation Challenge A problem for which it is difficult, or even impossible, to find an exact answer. Your child will make his or her best estimate and then defend it.

magnitude estimate A rough estimate. A magnitude estimate tells whether an answer should be in the tens, hundreds, thousands, and so on.

Example: Give a magnitude estimate for 56 ∗ 32

Step 1: Round 56 to 60.

Step 2: Round 32 to 30.

60 ∗ 30 = 1,800, so a magnitude estimate for 56 ∗ 32 is in the thousands.

10s	100s	1,000s	10,000s

maximum The largest amount; the greatest number in a set of data.

mean The sum of a set of numbers divided by the number of numbers in the set. The mean is often referred to simply as the average.

median The middle value in a set of data when the data are listed in order from smallest to largest or vice versa. If there is an even number of data points, the median is the *mean* of the two middle values.

minimum The smallest amount; the smallest number in a set of data.

partial-sums addition A method, or algorithm, for adding in which sums are computed for each place (ones, tens, hundreds, and so on) separately and are then added to get a final answer.

	268
	+ 483
1. Add 100s	600
2. Add 10s	140
3. Add 1s	+ 11
4. Add partial sums.	751

Partial-sums algorithm

place value A number system that values a digit according to its position in a number. In our number system, each place has a value ten times that of the place to its right and one-tenth the value of the place to its left. For example, in the number 456, the 4 is in the hundreds place and has a value of 400.

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

reaction time The amount of time it takes a person to react to something.

trade-first subtraction A method, or algorithm, for subtracting in which all trades are done before any subtractions are carried out.

Example: 352 − 164

100s	10s	1s		100s	10s	1s
	4	12			14	
3	5̸	2̸		2	4̸	12
−1	6	4		3̸	5̸	2̸
				−1	6	4
				1	8	8

Trade 1 ten for 10 ones.   Trade 1 hundred for 10 tens and subtract in each column.

30

Building Skills through Games

In Unit 2, your child will practice computation skills by playing these games. Detailed instructions are in the *Student Reference Book.*

Addition Top-It See *Student Reference Book,* page 333. This game for 2 to 4 players requires a calculator and 4 each of the number cards 1–10, and provides practice with place–value concepts and methods of addition.

High-Number Toss See *Student Reference Book,* pages 320 and 321. Two players need one six-sided die for this game. *High-Number Toss* helps students review reading, writing, and comparing decimals and large numbers.

Multiplication Bull's-Eye See *Student Reference Book,* page 323. Two players need 4 each of the number cards 0–9, a six-sided die, and a calculator to play this game. *Multiplication Bull's Eye* provides practice in estimating products.

Number Top-It See *Student Reference Book,* page 326. Two to five players need 4 each of the number cards 0–9 and a Place-Value Mat. Students practice making large numbers.

Subtraction Target Practice See *Student Reference Book,* page 331. One or more players need 4 each of the number cards 0–9 and a calculator. In this game, students review subtraction with multidigit whole numbers and decimals.

Do-Anytime Activities

To work with your child on the concepts taught in Units 1 and 2, try these activities:

1. When your child adds or subtracts multidigit numbers, talk about the strategy that works best. Try not to impose the strategy that works best for you! Here are some problems to try:

$467 + 343 =$ _____   _____ $= 761 + 79$

$894 - 444 =$ _____ $842 - 59 =$ _____

2. As you encounter numbers while shopping or on license plates, ask your child to read the numbers and identify digits in various places—thousands place, hundreds place, tens place, ones place, tenths place, and hundredths place.

31

STUDY LINK 3·1 Population Data

State	1850	1900	1950	2000
Ohio	1,980,000	4,158,000	7,947,000	11,319,000
Indiana	988,000	2,516,000	3,934,000	6,045,000
Illinois	851,000	4,822,000	8,712,000	12,051,000
Michigan	398,000	2,421,000	6,372,000	9,679,000
Wisconsin	305,000	2,069,000	3,435,000	5,326,000
Minnesota	6,000	1,751,000	2,982,000	4,830,000
Iowa	192,000	2,232,000	2,621,000	2,900,000
Missouri	682,000	3,107,000	3,955,000	5,540,000

1. Which state had the largest population growth from 1850 to 2000? _____

2. Record the population figures for this state below the timeline.

1850 ⌒→ 1900 ⌒→ 1950 ⌒→ 2000

_____ _____ _____ _____
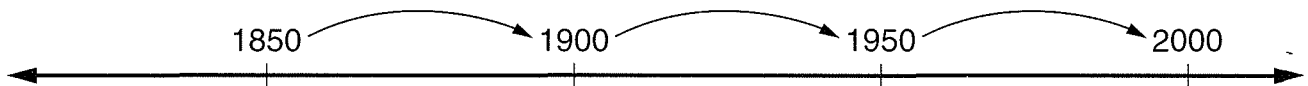
Find the increases for this state for each of the following time spans:

3. 1850–1900 _____   **4.** 1900–1950 _____

5. 1950–2000 _____

6. Are these increases similar or different? Explain.

_____

_____

Estimate the state's population:

7. In 2050 _____   **8.** In 2025 _____

Practice

9.   69,452
      + 15,679

10.   178
       − 139

11.   43
       * 14

12. 58 ÷ 7→ _____

68

LESSON 3·1 Education and Earnings *continued*
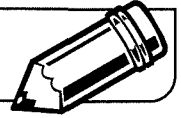
Use the Education and Earnings table to answer the following questions.

1. Describe the relationship between number of years of education and income.

_____

_____

2. Compare the number of householders who did not graduate from high school in 1980 with the number in 1990. Describe any changes that occurred.

_____

_____

_____

_____

_____

3. What would you expect to be the number of householders who do not graduate from high school in 2010?

_____

_____

_____

4. How does the number of householders who did not graduate from high school in 1990 compare to the number of householders who graduated from college?

_____

_____

_____

_____

High-Number Toss: Decimal Version **Record Sheet**

Circle the winning number for each round. Fill in the Score column each time you have the winning number.

Player 1 _____ **Player 2** _____
              (Name)   (Name)

Round	Player 1	<, >, =	Player 2	Score
Sample	0._6_ _5_ _4_	<	0._7_ _5_ _3_	0.753 – 0.654 0.099
1	0.___ ___ ___		0.___ ___ ___	
2	0.___ ___ ___		0.___ ___ ___	
3	0.___ ___ ___		0.___ ___ ___	
4	0.___ ___ ___		0.___ ___ ___	
5	0.___ ___ ___		0.___ ___ ___	
			Total Score	

STUDY LINK 3·2

An Unofficial Census

In 1991, author Tom Heymann took an unofficial U.S. census. The table shows how many people believed various common sayings, based on the sample of the population that he surveyed.

	Saying	Number Who Believe Saying Is True
A	Look before you leap.	175,104,000
B	The grass is always greener on the other side of the fence.	69,312,000
C	Haste makes waste.	153,216,000
D	Beauty is only skin deep.	149,568,000
E	Don't cry over spilled milk.	160,512,000
F	The early bird catches the worm.	136,800,000
G	A penny saved is a penny earned.	155,040,000
H	Don't count your chickens before they hatch.	169,632,000

Source: *The Unofficial U.S. Census,* by Tom Heymann. Ballantine Books, 1991

1. Which saying had the largest number of believers? _____

2. How many more people believed saying E than saying G? _____

3. Which saying had about 100 million more believers than saying B? _____

4. **a.** About $\frac{7}{10}$ of the U.S. population in 1991 believed
   saying A to be true. What was the total population? _____

   b. About what percent of the total
   population believed saying F to be true? _____

Practice

5. 256
   − 148

6. 26,551
   + 2,558

7. 36
   ∗ 27

8. 54 ÷ 3 = _____

9. 74 ÷ 8 → _____

72
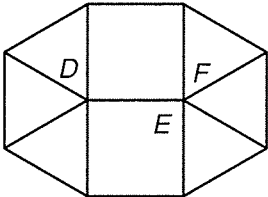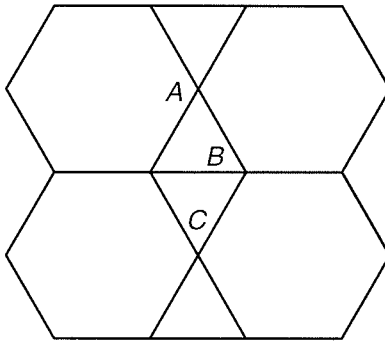
STUDY LINK
3·3 **Finding Angle Measures**

Figure out the angle measures for the labeled angles in the patterns below.
Remember that there are 360° in a circle and 180° in a straight line. Use the
Geometry Template, or cut out the shapes at the bottom of this page to help you.
Do not use a protractor.
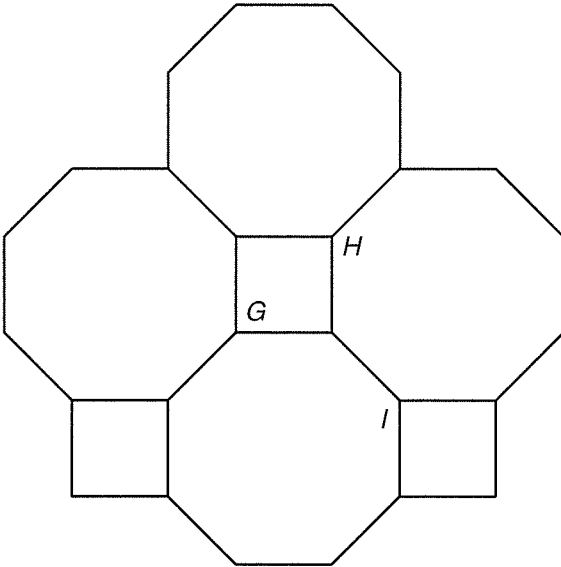
1.

m∠D = _____

m∠E = _____

m∠F = _____

2.

m∠A = _____

m∠B = _____
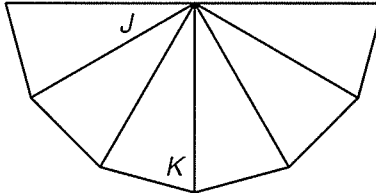
m∠C = _____

3.

m∠G = _____

m∠H = _____

m∠I = _____

4.

m∠J = _____

m∠K = _____

5. On the back of this page, explain how
you found the measure of ∠I.

75
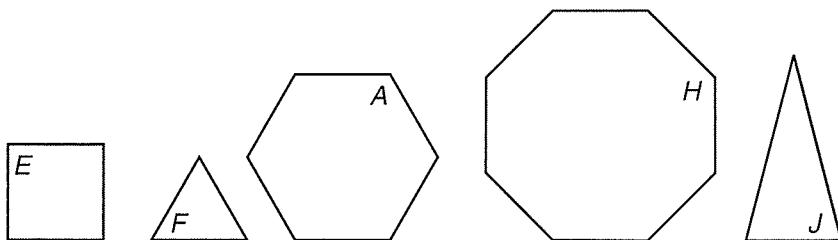
STUDY LINK 3·4 Angle Measures

SRB 204–205

Find the approximate measure of each angle at the right.

1. measure of ∠CAT = _____

2. m∠BAR = _____

3. m∠RAT = _____

4. m∠CAB = _____

5. m∠BAT = _____

6. m∠CAR = _____
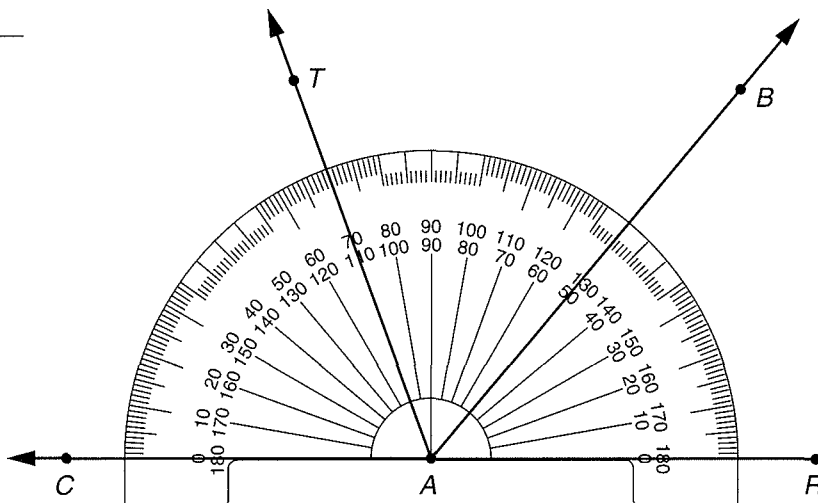
Find the approximate measure of each angle at the right.

7. m∠MEN = _____

8. m∠DEN = _____

9. m∠MET = _____

10. m∠MED = _____

11. m∠TEN = _____
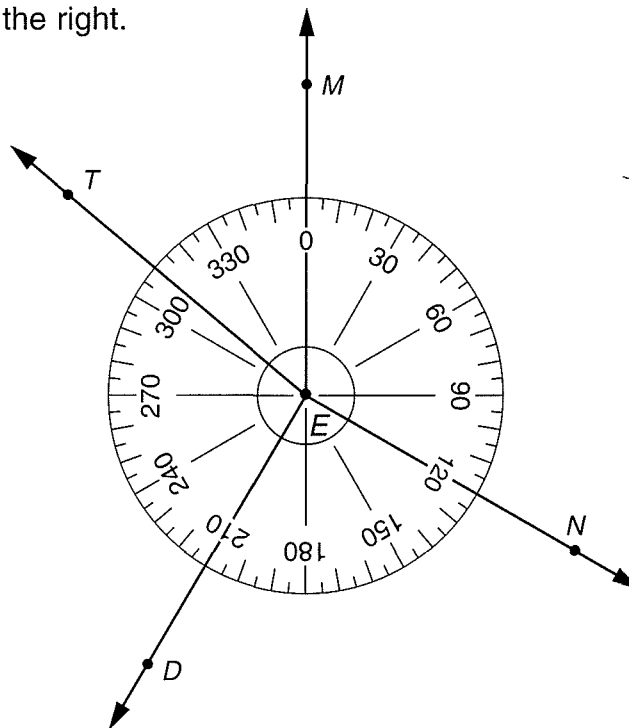
Practice

12.   5,844
        + 2,399

13.   238
        − 129

14.   234
        ∗ 22

15. 60 ÷ 5 = _____

16. 50 ÷ 6 → _____

STUDY LINK 3·5 | **Angles in Figures**
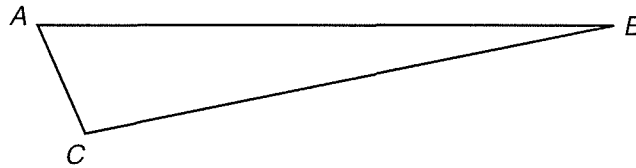
Circle *acute, right,* or *obtuse* for each angle in triangle *ABC*.
Then measure each angle.

1. ∠*ABC*   acute   right   obtuse   m∠*ABC* = _____

2. ∠*CAB*   acute   right   obtuse   m∠*CAB* = _____

3. ∠*BCA*   acute   right   obtuse   m∠*BCA* = _____

Use the figure at the right to do Problems 4–6.

4. Name a pair of adjacent angles.

_____ and _____

5. Name a pair of vertical angles.

_____ and _____

6. Name a pair of opposite angles.

_____ and _____

Practice

7.   7,568
        + 9,217
        _____

8.   415
        − 207
        _____

9.   326
        ∗ 45
        _____

10. 68 ÷ 4 = _____

11. 78 ÷ 7 → _____

83

High-Number Toss: Decimal Version **Record Sheet**

Circle the winning number for each round. Fill in the Score column each time you have the winning number.

Player 1 _____   **Player 2** _____
                 (Name)   (Name)

Round	Player 1	<, >, =	Player 2	Score
Sample	0._6_ _5_ _4_	<	0._7_ _5_ _3_	0.753 − 0.654 0.099
1	0.___ ___ ___		0.___ ___ ___	
2	0.___ ___ ___		0.___ ___ ___	
3	0.___ ___ ___		0.___ ___ ___	
4	0.___ ___ ___		0.___ ___ ___	
5	0.___ ___ ___		0.___ ___ ___	
			Total Score	

511

STUDY LINK 3·6 Triangle and Angle Review

For each triangle below, fill in the ovals for all the names that apply.
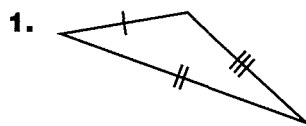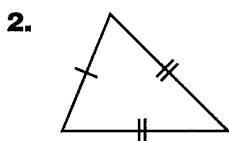
1.

O equilateral
O isosceles
O right
O scalene

2.

O equilateral
O isosceles
O right
O scalene

3.

O equilateral
O isosceles
O right
O scalene

4.
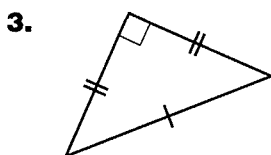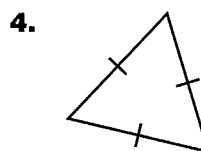
O equilateral
O isosceles
O right
O scalene

On the back of this page, draw three angles of different sizes that you find at home. (For example, you could trace one corner of a book.) For each angle, name the object that has the angle. Then use words from the Word Bank to name each angle.

5. **a.** Object _____

Type of angle _____

b. Object _____

Type of angle _____

c. Object _____

Type of angle _____

Word Bank		
acute	obtuse	right
adjacent	reflex	straight

Practice

6. 4,117 + 3,682 + 3,962 = _____

7. 8,036 − 2,286 = _____

8. 8,481 ∗ 5 = _____

9. 99 ÷ 9 = _____

86

STUDY LINK 3·7 | **Odd Shape Out**

In each set of shapes, there is one shape that doesn't belong. Cross out that shape and tell why it doesn't belong. (There may be more than one possible reason. What's important is having a good reason for crossing out a shape.)

1.

△ ☐ ⌂ ⬡

Reason: _____

_____

2.

◯ ⯃ ⩗ ⋈

Reason: _____

_____

3.

⬠ ⬠ ⬠ ⬠

Reason: _____

_____

4.

▭ ▱ ☐ ⬭

Reason: _____

_____

5. Make up your own "Odd Shape Out" problem on the back of this page.

| **Practice** |

6. $1,042 + 2,834 + 4,096 =$ _____   **7.** $9,062 - 3,718 =$ _____

8. $9,109 * 9 =$ _____   **9.** $58 \div 6 \rightarrow$ _____

LESSON 3·7 | Classifying Quadrangles

Quadrangles

parallelograms

not parallelograms

trapezoids

kites

other

rhombuses

rectangles
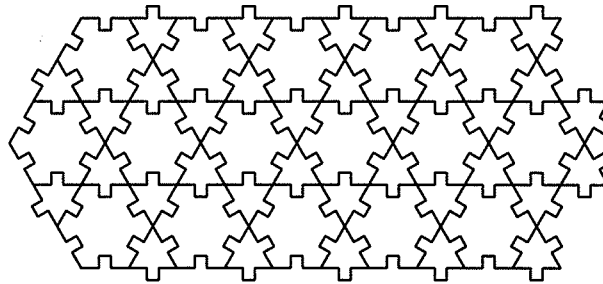
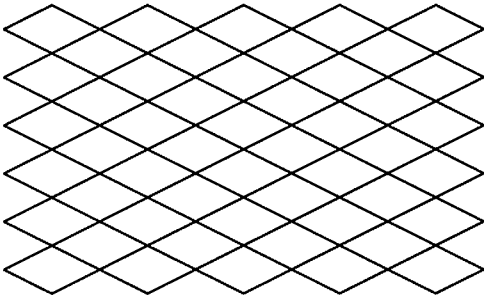squares
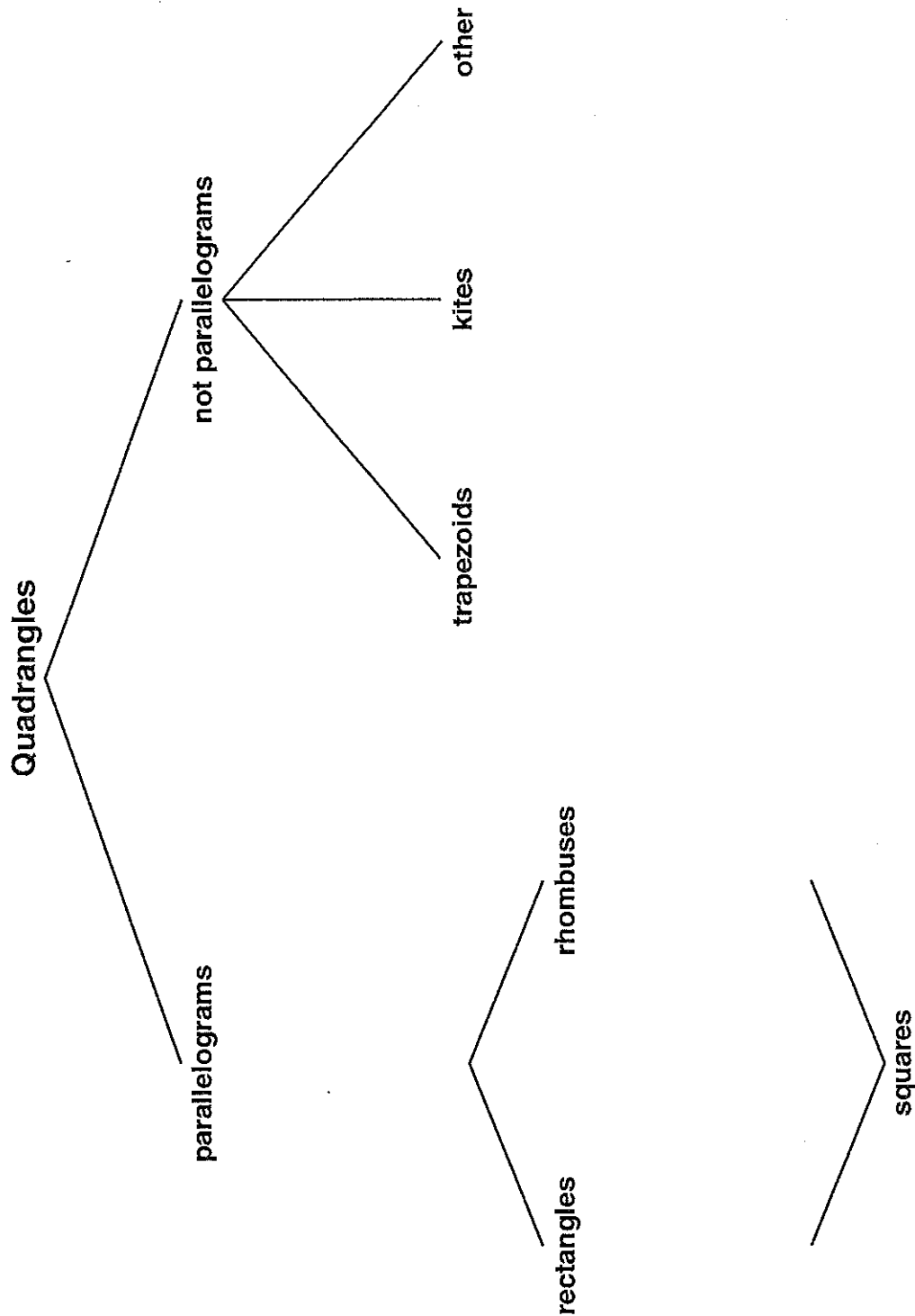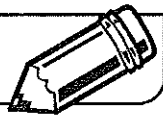
LESSON 3·7

Quadrangles

87B
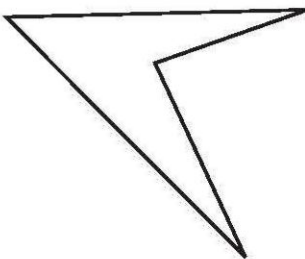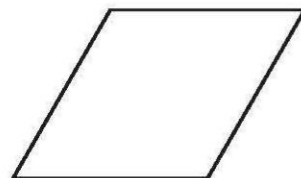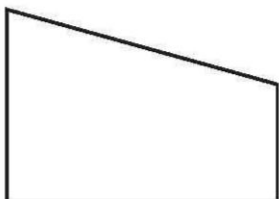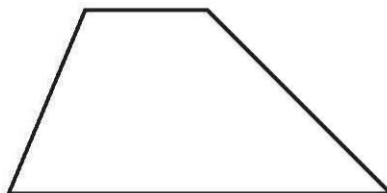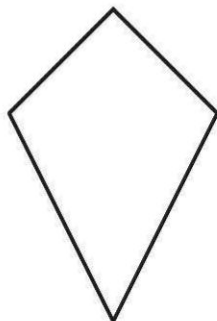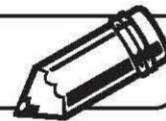
STUDY LINK 3·8 **Tessellation Museum**

A **tessellation** is an arrangement of repeated, closed shapes that completely covers a surface, without overlaps or gaps. Sometimes only one shape is used in a tessellation. Sometimes two or more shapes are used.

SRB 160 161

1. Collect tessellations. Look in newspapers and magazines. Ask people at home to help you find examples.

2. Ask an adult whether you may cut out the tessellations. Tape your tessellations onto this page in the space below.

3. If you can't find tessellations in newspapers or magazines, look around your home at furniture, wallpaper, tablecloths, or clothing. In the space below, sketch the tessellations you find.
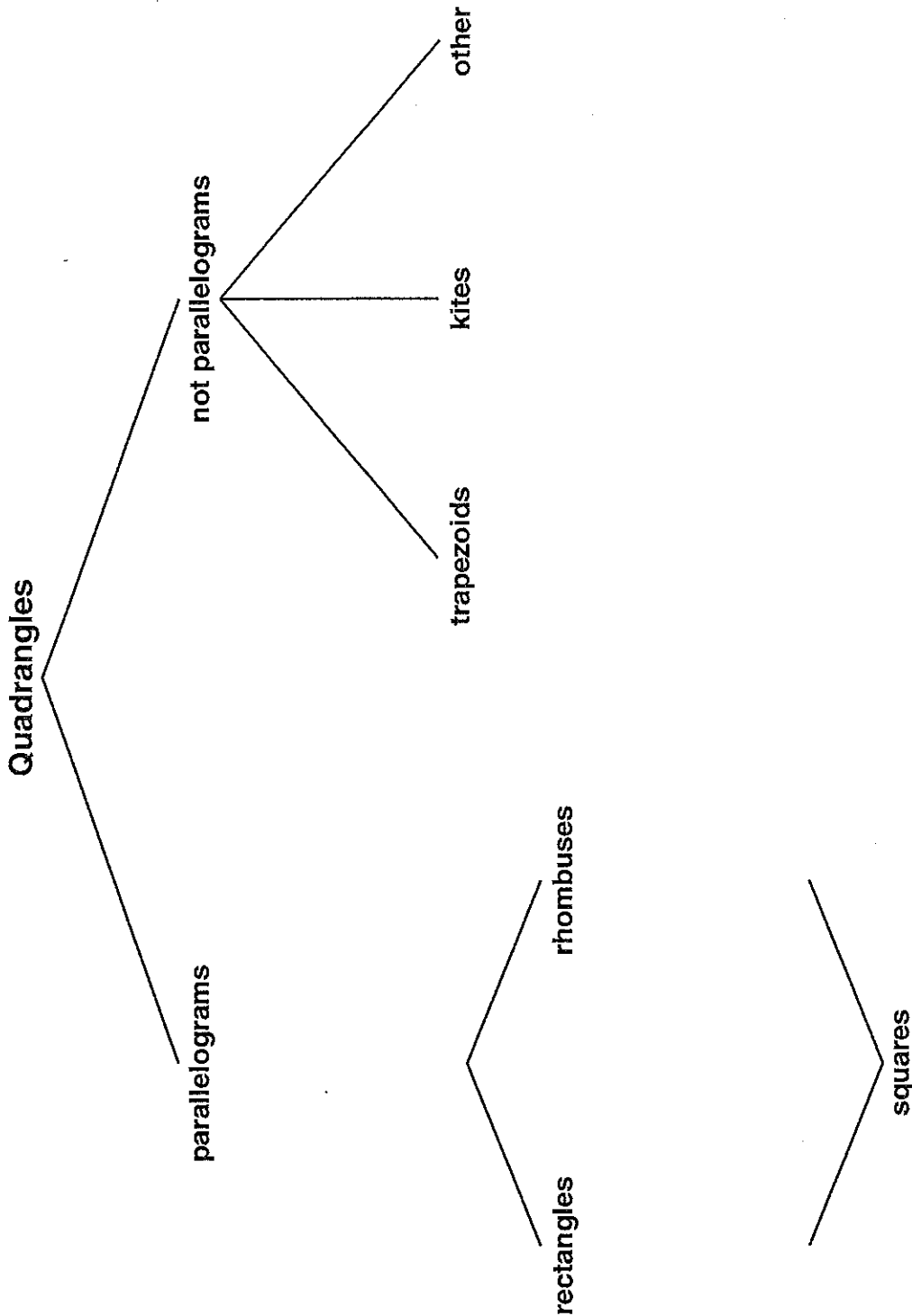

Practice

4. 1,987 + 6,213 + 2,046 = _____

5. 4,615 − 3,148 = _____

6. 3,714 ∗ 8 = _____

7. 39 / 7 → _____

90

LESSON 3·7 Classifying Quadrangles

Quadrangles

parallelograms

not parallelograms

trapezoids

kites

other

rhombuses

rectangles

squares

STUDY LINK
3·9

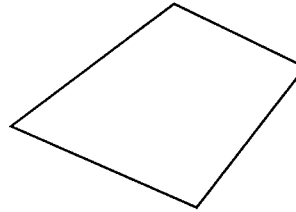## Sums of Angle Measures

1. Describe one way to find the sum of the angles in a quadrangle without using a protractor. You might want to use the quadrangle at the right to illustrate your explanation.

SRB
207

_____

_____

_____

_____

2. The sum of the angles in a quadrangle is _____.

tear   C

3. Follow these steps to check your answer to Problem 2.

   a. With a straightedge, draw a large quadrangle on a separate sheet of paper.

   b. Draw an arc in each angle.

   c. Cut out the quadrangle and tear off part of each angle.

   d. Tape or glue the angles onto the back of this page so that the angles touch but do not overlap.

D   B

tear   tear

A

tear

C

B   D

A
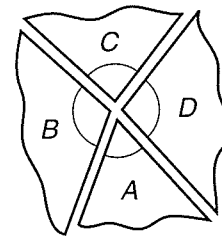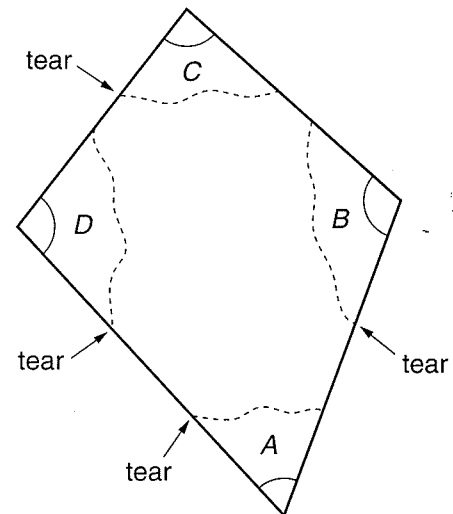
Practice

4. $3,007 + 1,251 + 980 =$ _____

5. $4,310 - 1,290 =$ _____

6. $3,692 * 6 =$ _____

7. $67 \div 8 \rightarrow$ _____

92

STUDY LINK
3·10   **Polygons and Their Measures**

SRB
142 143

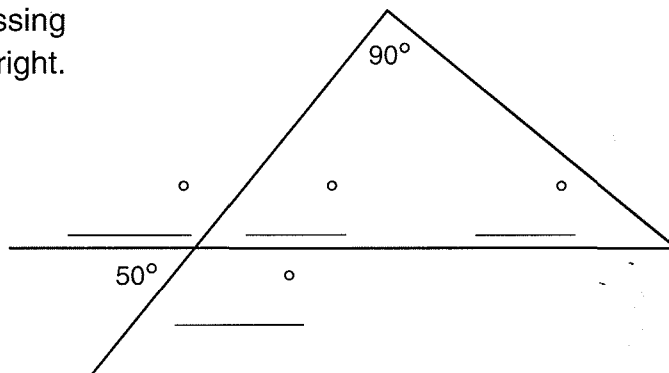**1.** Draw each of the following figures.

a. a polygon

b. a triangle with
no equal sides

c. a quadrangle
with one right
angle

d. a quadrangle
with no pairs
of parallel sides

2. Without using a protractor, record the missing
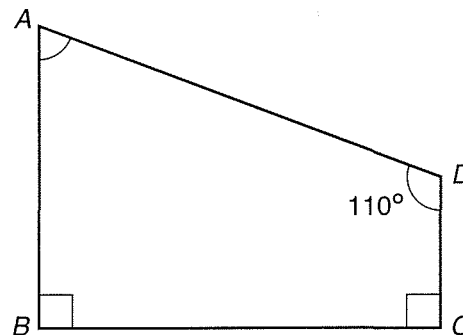angle measurements in the figure to the right.

90°

o   o   o

50°   o

3. Use the figure to the right to answer
the questions.

A

a. How long is line segment *CD*? _____ cm

b. What is the measure of angle *A*? _____

110°   D

c. What is the sum of the measures of all

the angles? _____

B   C

d. What is a geometric name for the figure? _____

Practice

4. 1,476 + 2,724 + 3,241 = _____

5. 4,002 − 1,361 = _____

6. 5,031 * 4 = _____

7. 27 ÷ 9 = _____

95

LESSON 3·11

Self Assessment

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 this.	I can do this on my own.	I can do this if I get help or look at an example.
1. Identify place value digits in numbers to billions.			
2. Identify right, straight, reflex, obtuse, and acute angles.			
3. Use a protractor to measure angles.			
4. Identify right, isosceles, equilateral, and scalene triangles.			
5. Use the Geometry Template to draw right, isosceles, equilateral, and scalene triangles.			
6. Identify polygons.			
7. Make patterns that tessellate.			