Contents

Getting Started

SkillsTutor™ Math provides extensive coverage of the skills students need to improve basic mathematics skills. This coverage is provided through a variety of engaging activities. Each level of *SkillsTutor Math* provides students with basic skills lessons, problem solving lessons, quizzes, tests, and worksheets.

The *SkillsTutor* management system (OTS) provides several important features:

- Test students' skills with pretests and posttests to make initial assessments and to gauge student progress
- Prescribe activities based on students' pretest results
- Monitor student scores and completion of activities
- Produce reports for individual students and classes
- Provide online and print documentation, including printable activity sheets which extend the computer lessons to classroom or home activities

This guide outlines the content and activities of *SkillsTutor Math.* Information on the management system (OTS) is provided under separate cover in the User's Guide.

SkillsTutor Math Lessons

In *SkillsTutor Math,* each lesson has two parts: Warm-Up and Review.

The Warm-Up

The Warm-Up begins with a real-life problem using the skills covered in the lesson. After students read the paragraph, they click **Go On** to continue.

The Warm-Up then uses the problem from the preceding screen as a basis for introducing students to the kinds of activities that will be presented in the Review. Students see the format of the questions and any special manipulatives or tools that will be available to help them answer the questions. Students answer the question and use the tools directly.

The Review

The Review gives students practice problems. Clicking **Hint** provides students with a clue about how to complete the question. Students enter an answer and then click **Check**.

If any question is answered incorrectly, students are given some feedback about why their answer was incorrect. Then they are guided through answering the question.

SkillsTutor Math Problem-Solving Lessons

The Problem-Solving Lessons begin with an overview of the 4-Step Problem-Solving Plan. The steps of the plan are as follows: Understand the Problem, Make a Plan, Solve the Problem, and Look Back. The steps provide a basic structure to the problem-solving process and offer students a methodology for solving application problems.

Each lesson consists of application problems that necessitate the use of the mathematical skills taught in the lessons immediately preceding the Problem-Solving Lesson. The lesson begins with an initial problem presented in a setting that engages the student. Students are guided through the solution of this problem using the 4-Step Problem-Solving Plan. Students are then given the opportunity to review any part of the plan before moving on to the practice problems, where they solve a variety of application problems on their own. In addition to solving the problems, students answer questions that ask them to consider various methods of solution and require them to use critical thinking to extend their understanding of what they've learned. Feedback is provided for all responses.

Quizzes

After finishing a set of lessons, students are given a Quiz. When they answer a question, *SkillsTutor Math* gives feedback. Students must select the correct answer before they can move on to the next question. Click **Next** to see the next question.

Tests

For each level, *SkillsTutor Math* offers content-area pretests and posttests modeled on standardized tests. Like the questions for quizzes, the test questions are presented in multiple choice format to give students practice in answering standardized-test questions. After each test, students have the opportunity to review the questions they missed. Feedback is provided for each missed question.

Worksheets

SkillsTutor Math contains reproducible worksheets for each lesson. The worksheets may be used to extend the computer activity or as a homework assignment.

Each worksheet provides word problems for added practice and challenges students with a creative writing or artistic exercise. The focus is on applications and connections with other areas of the curriculum.

Electronic versions are provided with the online documentation and may be printed from your computer.

Math Lesson Summaries

In this section of the manual, you will find the lesson summaries for each of the lessons in *Math C,* which includes lessons that are targeted for grades 7 and 8.

For all levels, lessons are grouped into units that reflect the general concepts covered in the lesson activities. These units appear in the following order:

Math C

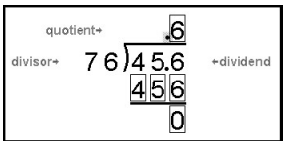
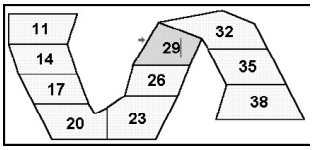
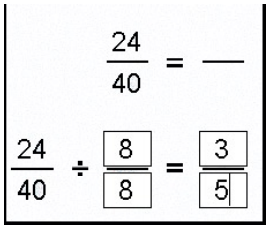
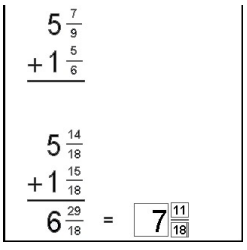
Understanding Numbers
Using Decimals
Using Fractions and Percents
Using Geometry
Working with Data

The lesson summaries are meant to provide, at a quick glance, a description of the concepts covered in the lesson as well as an example activity from the lesson.

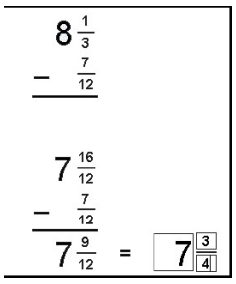
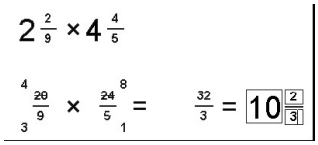
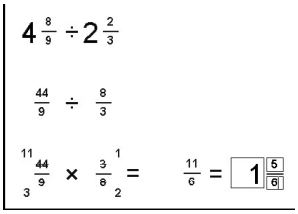
Level C Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
Understanding Numbers			
1	Place Value and Scientific Notation	Students use a place value chart to learn about expanded and scientific notation. The place values range from 10^8 to 10^{-4}. Students are asked to type the numeral for a number represented in expanded or scientific notation.	Type the standard numeral for this expanded notation. (3 x 108) + (5 x 107) Answer: 350,000,000
2	Word Names and Scientific Notation	Students write scientific notation to represent word names. Whole numbers, or positive exponents, go to 10^8. Decimal numbers, or negative exponents, go to 10^{-4}.	Type the scientific notation for this word name. Seven thousand three hundred forty-two ten-thousandths Answer: 7.342×10^{-1}
3	Comparing and Ordering Numbers	Students use a number line to compare positive integers, negative integers, and decimal numbers with up to three decimal places. The lesson presents three types of questions: 1 Students enter the correct symbol (< , > , =) to compare two numbers. 2 Students enter a number between two given numbers. 3 Students order numbers from least to greatest value.	The Sea of Rains' temperature is -14°F. The Sea of Clouds' temperature is -26°F. Which place on the moon has a higher temperature? Answer: Sea of Rains. -14°F > -26°F
Using Decimals			
1	Addition of Decimals	Students add decimal numbers to the ten-thousandths place. Each problem has two to four addends. The sums are decimal numbers to the tenths, hundredths, thousandths, and ten-thousandths place.	Type the sum. Then drag the decimal point into the sum. 4.0496 + 7.3210 11.3706
2	Subtraction of Decimals	Students subtract numbers having up to four decimal places. All problems require students to place the decimal point in the difference. Special emphasis is given to regrouping across zeros and subtracting a decimal number from a whole number.	Type the difference. Then drag the decimal point into the difference. 5.095 − 0.145 4.950
PS1	The Gift of Song	The guided solution to the initial problem involves using addition and subtraction of decimals in a scenario involving measurements of time and the making of an audiotape. The practice problems include questions pertaining to increases and decreases in stock prices, balancing a checking account, and a variety of problem-solving strategies.	If Paul continues to train in the same way (increasing his distance by 0.4 miles each day), in which week of his training will he first run more than 20 miles in one day?
3	Multiplication of Decimals	Students multiply decimal numbers. Problems show a two-digit to four-digit decimal number as the first factor. Multipliers are one-digit or two-digit whole numbers or decimal numbers. Special emphasis is given to problems where products require zeros as place holders in order to obtain the correct number of decimal places. Products are decimal numbers to the hundredths, thousandths, or ten-thousandths place.	Type the product. Then drag the decimal point into the product. 0.017 x 0.7 .0119

Level C Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
4	Division of Decimals	Students divide decimal numbers by decimals and whole numbers. Problems show a two-digit, three-digit, or four-digit decimal (to the thousandths place) or whole number divided by a one-digit or two-digit divisor. Special emphasis is given to problems having more decimal places in the divisor than in the dividend. The quotients are two-digit, three-digit, or four-digit whole numbers or decimal numbers to the tenths, hundredths, or thousandths place. The lesson presents two types of problems: 1 The divisor is a whole number. 2 The divisor and dividend are decimals.	Type the quotient. Then drag the decimal point in the quotient into place. 
5	Number Sequences	Students see number sequences with missing numbers. Students must identify the missing number by finding the rule for the sequence. Number sequences are based on one-step or two-step rules of addition, subtraction, multiplication, and division of whole numbers and decimals.	Look at the path. The numbers on the path form a sequence. One number is missing. Type the missing number into the path. 
PS2	Pedal Power	The guided solution to the initial problem involves using multiplication and division of decimals to solve a problem involving a bike-a-thon. The solution also requires use of the formula relating distance, rate, and time. The practice problems include questions pertaining to area, round-trip distance, and rate affected by a current, and critical thinking questions in which students extend their understanding of these concepts.	You've been training all summer, and the big day is here! It's your first bike-a-thon! The course is divided into three minicourses, each 14.1 miles long. You've decided to bike all three. If you want to finish in 4.5 hours, what will your average speed need to be (in miles per hour)?
Using Fractions and Percents			
1	Equivalent Forms	Students find equivalent forms. The lesson presents three types of questions: 1 Students enter the simplest form of a fraction. Denominators in the simplified form range from 2 to 20. 2 Students enter the fraction form of a mixed number. Whole numbers go up to 12, and denominators range from 2 to 20. 3 Students enter the decimal form of a percent. Percents can include decimals (e.g., 25.4%).	Type this fraction in simplest form. 
2	Addition of Fractions	Students add fractions and mixed numbers. All problems have two addends, and the fractions have denominators up to 21. Some problems are specifically designed to require the student to find a common denominator. All other problems consist of fractions with the same denominator. The sums of the fractions may be improper fractions.	Type the sum. You may need to click on one or more of the helpers at the bottom of the screen. 

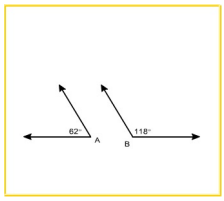
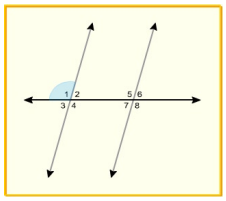
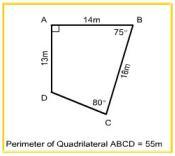
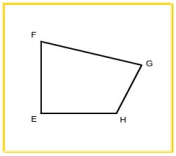
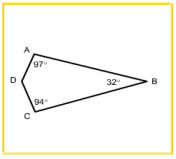
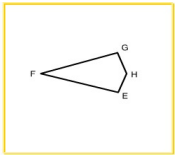
Level C Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
3	Subtraction of Fractions	Students subtract fractions and mixed numbers. The fractions have denominators up to 15. Some problems are specifically designed to require the student to find a common denominator. All other problems consist of fractions with the same denominator. The top fraction may be smaller than the second fraction, requiring the renaming of 1 from the whole number.	Type the difference. You may need to click on one or more of the helpers at the bottom of the screen. 
PS1	Pass the Popcorn	The guided solution to the initial problem involves writing and solving an equation used to model a scenario involving a weekly work schedule. The equation contains mixed numerals, and its solution requires both addition and subtraction. The practice problems include questions pertaining to perimeter, liquid measurement, and modeling a real-world situation using an equation, and critical thinking questions in which students extend their understanding of these concepts.	Pam is adding a second garden (with the same dimensions) next to the first. If she wants to enclose the two gardens with one fence around the perimeter, how would this affect the amount of fencing she needs to buy?
4	Multiplication of Fractions	Students multiply simple fractions, whole numbers, and mixed numbers. Denominators in the factors go up to 10. Denominators in the product are limited to 60. Problems appear in horizontal format. All problems have two factors. These factors can be any combination of simple fractions, whole numbers, and mixed numbers.	Type the product. You may need to click on one or more of the helpers at the bottom of the screen. 
5	Division of Fractions	Students divide simple fractions, whole numbers, and mixed numbers. Denominators in the problems go up to 10. Denominators in the quotient are limited to 60. Problems appear in horizontal format. The dividend and divisor can appear as any combination of simple fractions, whole numbers, and mixed numbers.	Type the quotient. You may need to click on one or more of the helpers at the bottom of the screen. 
PS2	Rolling In Dough	The guided solution to the initial problem involves using multiplication and division of fractions to solve a problem involving measurements of ingredients for a cookie recipe. The practice problems include questions pertaining to capacity, selection of the appropriate operation, and elimination of unnecessary information, and critical thinking questions in which students extend their understanding of mixed numerals as multipliers and divisors.	You measure the total amount of flour brought by the students and find that you have 44 $\frac{1}{3}$ cups. Each cookie recipe calls for 2 $\frac{1}{3}$ cups of flour. How many batches can be made? You'll also need to check to see if you have enough sugar for all those batches. Each batch requires $\frac{3}{4}$ cup of sugar. How much sugar will be needed?

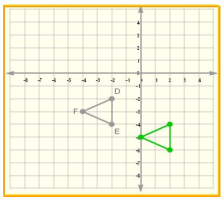
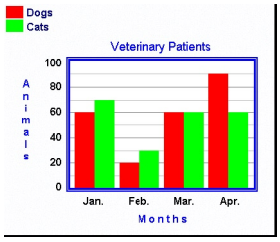
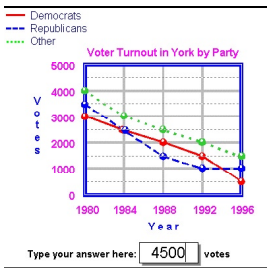
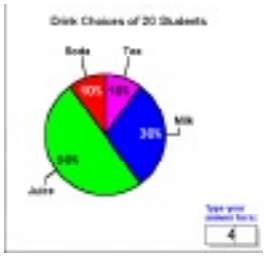
Level C Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
6	Percent of a Number	Students find the percent of a number. Many of the questions are presented in the context of a real-life word problem. Such problems may involve calculating the interest on a loan, commission on a sale, earnings on an investment, or sales tax. Percents can be in the range from 1% to 99%, can be greater than 100%, or can include decimal values such as 4.5%.	The commission on a sale is 20%. How much commission is earned on a sale of $830.00? Answer: 0.20 x $830.00 = $166.00
7	Finding the Whole	Students find the whole when the percent and part are known. Many of the questions are presented in the context of a real-life word problem. Such problems may involve calculating the total amount of a loan when the interest is known, calculating the amount of a sale when the commission is known, or calculating the price of an item when the sales tax is known. Percents can be in the range from 1% to 99%, can be greater than 100%, or can include decimal values such as 4.5%.	Interest of $122.40 was charged on a loan. If the interest rate was 18%, what was the original amount of the loan? Answer: $122.40 ÷ 0.18 = $680.00
8	Finding the Percent	Students find the percent when the whole and the part are known. Many of the questions are presented in the context of a real-life word problem. Such problems may involve calculating the interest rate on a loan, the rate of commission being paid, the tax rate, or the percent earned on an investment. Percents can be in the range from 1% to 99%, can be greater than 100%, or can include decimal values such as 4.5%.	On an investment of $670.00, $1621.40 was earned. What percent was earned on the investment? Answer: $1621.40 ÷ $670.00 = 2.42 = 242%
9	Using Percents	Students see problems similar to those in the three preceding lessons. They are asked to find the percent of a number, the whole (when the percent and part are known), or the percent (when the whole and part are known). Many of the questions are in the context of a word problem. Some problems have one-step solutions. Others require a two-step solution such as calculating the total cost of an item including tax or finding the final cost of an item that has been discounted. Percents can be in the range from 1% to 99%, can be greater than 100%, or can include decimal values such as 4.5%.	The cost of your dinner was $70.20. You want to leave a 20% tip. What is the final cost, including tip? Answer: 0.20 x $70.20 = $14.04 $70.20 + $14.04 = $84.24
PS2	Kick Up Your Heels	The guided solution to the initial problem involves calculation of percent increase and finding the percent of a number in a scenario involving student participation in a Dance-a-thon. The practice problems include questions pertaining to percent decrease, discount, and population growth, and critical thinking questions in which students extend their understanding of these concepts.	As secretary of the Student Council, one of your jobs is to keep records of the annual fundraisers. Your records show that 125 students participated in last year's Dance-a-thon. This year, 145 students participated. What percent increase does this represent? If the same percent increase is expected next year, how many students can be expected to participate at next year's Dance-a-thon?

Level C Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
Using Geometry			
1	Angles	Students identify complementary and supplementary angles and compute the missing angle of a complementary or supplementary pair of angles.	What is the relationship between angles A and B?  Answer: Supplementary
2	Parallel Lines	Students identify the properties of angles created by two parallel lines that have been cut by a transversal and compute the measurement of those angles.	What is the corresponding angle paired with ∠1?  Answer: ∠5
3	Congruence	Students compute the measurements of corresponding sides and angles of congruent figures. Congruent figures have undergone transformations.	Quadrilateral ABCD ≅ Quadrilateral EFGH. Find the measure of ∠H.   Answer: 115°
4	Similarity	Students compute the measurements of corresponding sides and angles of similar figures. Solving for the length of a corresponding side may involve proportions. Similar figures may have undergone transformations.	Quadrilateral ABCD ~ Quadrilateral EFGH. Find the measure of ∠H.   Answer: 137°

Level C Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
5	Transformations	Students use specific instructions to draw the image of a figure that has undergone a translation (slide) or a reflection (flip) over a line of reflection.	Perform a translation on the figure. Slide the figure 4 units to the right and 2 units down. 
Working with Data			
1	Bar Graphs	Students cycle through a set of four questions for each bar graph. Graphs are double or triple bar graphs and may require simple interpolation. The four types of questions require students to interpret the bar graphs: 1 Students click on a bar that shows a particular value. 2 Students click on a label or bar to indicate the "least" or "greatest" value. 3 Students enter a number to represent the difference between two values. 4 Students enter a number to indicate the sum of values.	Click on the bar that has the least value. 
2	Line Graphs	Students cycle through a set of four questions for each line graph. The graphs include double and triple line graphs. Some points on the graphs fall between the labels on the y-axis, so students must estimate point values. The four types of questions require students to interpret the line graphs: 1 Students click on a point that shows a particular value. 2 Students click on a point to indicate the "least" or "greatest" value. 3 Students type the numerical difference between the values of two points. 4 Students type the total number of the items being measured for a certain time period.	Type the total number of votes for 1992. 
3	Circle Graphs	Students cycle through a set of three questions for each circle graph. The sections of the graphs are labeled with percents. Each circle has four or five sections and represents up to 80 observations. The three types of questions require students to interpret the circle graphs: 1 Students click on a section of the graph to indicate "least" or "most." 2 Students enter a number to answer "how many chose" a certain category. 3 Students enter a number to answer "how many chose" either of two specified categories.	Find how many students chose soda or tea. 

Worksheets

This section contains reproducible worksheets for each lesson in *Math C.* These worksheets may be used by students to extend the classroom activity or as a homework assignment. The worksheet provides word problems for added practice and challenges students with a creative writing or artistic exercises. The focus is on applications and connections with other areas of the curriculum.

Name **Date**

Place Value and Scientific Notation *Lesson 1*

Use powers of ten to identify place value.

Joe's idol is his uncle, an astronomer who works for NASA. For Joe to follow in his uncle's footsteps, he must understand numbers written in scientific notation.

1. Write the standard numeral for each number represented in scientific notation:

Average Distance from the Sun		
Planet	**Miles in Scientific Notation**	**Miles in Standard Numeral Form**
Mercury	3.59×10^{7}	
Venus	6.7×10^{7}	
Earth	9.29×10^{7}	
Mars	1.42×10^{8}	
Jupiter	4.83×10^{8}	
Saturn	9.14×10^{8}	
Uranus	1.78×10^{9}	
Neptune	2.79×10^{9}	
Pluto	3.68×10^{12}	

2. Bacteria growing in an experiment on the space shuttle were measured in millimeters as follows. Write the standard numeral for each:

   7.38×10^{-2} = _____

   4.2×10^{-4} = _____

   5.6×10^{-3} = _____

   1.33×10^{-1} = _____

smART Idea: Make a drawing or model of our solar system. Be sure to represent the distances between planets accurately.

Name **Date**

Word Names and Scientific Notation *Lesson 2*

Use place value to identify the name of a number.

You are helping a scientist write an article on some research she's been doing. You first write all the numbers in words as she dictates them. Then she asks you to translate the words into scientific notation for the article:

Word Name	Scientific Notation
sixty-five million	**6.5×10^7**
two hundred twenty-five thousand	
fifty thousand	
four hundred million, nine hundred thousand	
thirty-two thousandths	
six thousandths	
five hundred seventy-one thousandths	
eighty-nine hundred-thousandths	
five hundred seventy-one thousand	
two hundred four thousandths	

Write Idea: How did you convert "sixty-five million" to scientific notation? Write an explanation that might clarify this process for a confused friend.

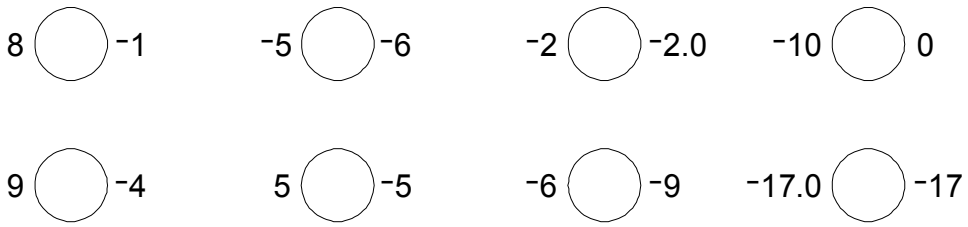
Name **Date**

Comparing and Ordering Numbers *Lesson 3*

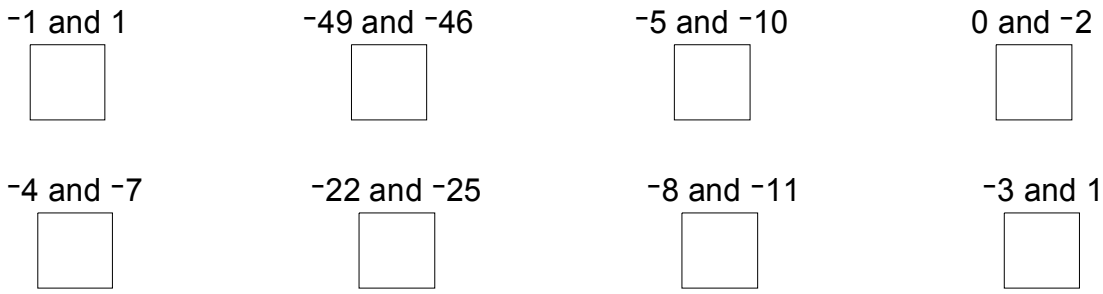
Use a number line to compare and order numbers.

Suppose you are working as an electrician's helper in your new summer job. You have to make a lot of comparisons of integers. Following is a sample of the comparisons you must make on your first day on the job.

1. Complete each number sentence by inserting a symbol: < , > , or =



2. After consulting an operations manual, you must select a voltage between two limits. Select an integer between each of the given pairs, and write it in the box beneath.



3. You also have to determine which circuit has the highest voltage. Place each group of integers in order from least to greatest.

-6, 8, -4, 3 0, -9, -10, 1 -99, -101, -66, -65

Write Idea: Ask at home if you can see the electric bill. Did you use more or less electricity this month than last month? How can you tell? Why do you think there was a change in the amount of electricity used? What could you do to conserve more electricity?

Name **Date**

Addition of Decimals *Lesson 1*

Use addition to find the total.

Imagine you are a reporter covering the Olympics. You are reporting on the women's gymnastics competition. As soon as each individual's scores are given, you record them in a table for your story.

1. This table shows the top five competitor's scores in each of four exercises. Find the total score for each gymnast and complete the table. Who had the highest total score? Circle the winner.

Gymnast	Country	Vault	Uneven Bars	Balance Beam	Floor Exercise	Total Score
Mary Ann Gibbons	USA	19.95	19.70	19.60	19.925	
Laura Szabo	Romania	19.85	19.50	19.85	19.925	
Ecaterina Pauca	Romania	19.625	19.575	19.85	19.625	
Julie McSharry	USA	19.725	19.95	19.075	19.65	
Simona Cutina	Romania	19.70	19.725	19.125	19.75	

2. If the total scores for the other USA team members were 78.10, 77.55, 77.10, and 77.60, what was the score for the entire, six-member USA team?

3. If the scores for the other Romanian team members were 77.90, 77.70, and 77.60, what was the score for the entire, six-member Romanian team?

4. Compare the team scores for the USA and Romanian teams. Which team scored higher? By how many points?

smART Idea: Choose a graphing method to display the total score for each gymnast in the table above. Which method did you choose? Is it easier to compare the scores when they are in a table or in a graph? Why is that?

Name **Date**

Subtraction of Decimals *Lesson 2*

Use subtraction to find the difference.

If you were a currency trader, you would be checking the exchange rates daily. The following table shows the amount of foreign currency equal to one U.S. dollar at three points in time. Use the table for the questions below. For each, show your subtraction.

FOREIGN CURRENCY EQUAL TO U.S. DOLLAR

Exchange Rate	Today	6 Months Ago	1 Year Ago
Australian dollar	1.3541	1.3452	1.4031
French franc	4.983	5.284	5.7645
Greek drachma	227	235.6	247.2
Japanese yen	89.58	98.5634	106.178
Irish punt	0.6319	0.6447	0.7021
Italian lira	1734	1562.0	1677.3

1. At which time would you get more Australian dollars for one U.S. dollar: one year ago or today? How much more?

2. At which time would you get more Japanese yen for one U.S. dollar: six months ago or today? How much more?

3. At which time would you get more French francs for one U.S. dollar: six months ago or today? How much more?

4. At which time would you get more Italian lira for one U.S. dollar: one year ago or today? How much more?

5. At which time would you get more Greek drachmas for one U.S. dollar: six months ago or today? How much more?

6. At which time would you get more Irish punt for one U.S. dollar: one year ago or today? How much more?

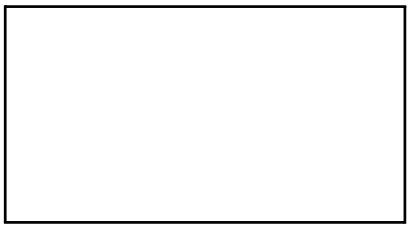
Write Idea: Select one of the above currencies. Assume that you had invested in that currency at the rate indicated in the table for "one year ago." Compare that rate to the exchange rate listed in a current newspaper and describe whether or not you made a good investment.

Multiplication of Decimals *Lesson 3*

Use multiplication to combine groups or parts of the same size.

You are helping your neighbor work on her lawn. She has asked you to figure out how much it will cost to buy the seed and fertilizer.

1. Below is a diagram of the yard. Compute the area of the yard.



2. At Harkins Hardware, you find the information shown in the following table. Calculate the amount of materials you will need and their costs. Then record these numbers in the table. Assume that the sales tax is 5% (0.05) of the price.

Item	Price	Coverage	Number of Units Needed	Cost (including tax)
Grass seed	$2.25/lb.	200 sq. ft. per lb.		
Fertilizer	$8.00/bag	5000 sq. ft. per bag		

Write Idea: You notice that the grass seed costs a lot more than the fertilizer. What is the approximate ratio of the two costs? Could you have gotten cheaper grass seed? Should you buy the cheaper type? Why or why not? Is there another way to save money? Write a paragraph explaining your thoughts on this topic.

Name **Date**

Division of Decimals *Lesson 4*

Use division to make groups or parts of equal size.

Your teacher asked you to take notes on the various ways you saw decimals being used last week. Below are a few things you noticed, with follow-up questions. Show your calculations under each question.

1. Your mother just returned from a business trip. She drove 348 miles. If she was driving for 7.2 hours, what was her average speed (in miles per hour)?

2. Your mother's car used 17.2 gallons of gasoline. How many miles per gallon did she get on her business trip? (Round your answer to the nearest tenth.)

3. Your brother Andrew works on the high school yearbook. He is doing a page layout on paper that is 8.5 inches wide. He needs 5 columns. How wide can each column be?

4. You paid $8.94 for 6 cans of juice. What was the price per can?

5. A rectangular garden in your yard needs fencing. The area is 1262.5 square meters. If the width of the garden is 25 meters, would 160 meters of fencing be enough? Explain.

6. In science class, you learned that there are 2.54 centimeters in an inch. Now, your science teacher wants you to find the number of inches in 38 cm.

Write Idea: By now, you have experience with various types of division problems. What observations have you made about the quotients? For instance, what happens if a whole number is divided by a smaller whole number? By a larger whole number? By a fraction or decimal? Discuss your observations in a written paragraph.

Number Sequences *Lesson 5*

Use patterns in numbers to find values.

Imagine you are a scientist working on Biosphere IX. You are developing eight new hybrids of insects. For Hybrids A through E, you are interested in the daily population changes. For Hybrids F through H, you are watching the changes in average insect size. Each day, you record these changes in your log book. In the sequences below, look for a rule that defines the pattern and then fill in the missing numbers.

Hybrid A: 3, 6, _____ , 24, 48, 96

Hybrid B: 37, 32, 27, _____ , 17, 12

Hybrid C: 972, 324, 108, 36, _____ , 4

Hybrid D: 1, 1, 2, 3, _____ , 8, 13, 21

Hybrid E: 20, 25, 21, 26, 22, _____ , 23

Hybrid F: 0.01, 0.02, 0.12, 0.24, 0.34, _____ , 0.78

Hybrid G: 1.1, 0.9, 1.0, 0.8, _____ , _____, 0.8, 0.6

Hybrid H: 1.08, _____ , 0.28, 0.32, 0.08, 0.12, _____

smART Idea: Choose a graphing method to display the change in insect population for Hybrids A-E. Which hybrid's population changes the fastest? Is it easier to compare the populations when they are shown in the table or in the graph? Explain why.

Name **Date**

Equivalent Forms *Lesson 1*

Use different forms (percents, fractions, and decimals) to name the same value.

Ms. Clark is the owner of Fabulous Fabrics and Crafts. She works with fractions, decimals, and percents every day. To be a clerk in Ms. Clark's store, you must show her that you are competent with equivalent forms. Try the following problems to see if you can work for Ms. Clark.

1. Ms. Clark has found that the ratio of women customers to men customers is 5 to 3. Last week, about 300 women shopped at the store. About how many men customers came to the store last week?

2. The ratio of customers buying fabric to those buying craft supplies is 8:5. Convert this ratio to a mixed number. Convert the mixed number to a percent. How would this information help Ms. Clark?

3. The following table shows an analysis of craft supply sales for April compared to March. Complete the table.

APRIL/MARCH SALES COMPARISONS

Item	Ratio	Percent	Decimal
Paints	$\frac{5}{4}$	125%	1.25
Brushes		80%	
Patterns	$\frac{3}{5}$		
Pens			1.10

4. Sales for the month of April totaled $4248.00. Ms. Clark must send 5% of this to the state treasury for sales tax. How much will she send for April?

smART Idea: Ms. Clark would like to use a graphing method to help her compare sales information for different items. Choose one method and use it to display the data from the table above. Do you think this method would be helpful to Ms. Clark? Why or why not?

Name **Date**

Addition of Fractions *Lesson 2*

Use addition to find the total.

Every morning at Dee's Day Care Center, Terry prepares the infant formula that will be needed during the day. The following table shows the amount each infant consumes daily. Use the table to answer the questions below. For each, show your addition.

Child	Rachel	Jason	Kim	Megan	Micky	Emily	Stevie	Tyler
Pints of Formula	$\frac{7}{8}$	$2\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{1}{16}$	$2\frac{1}{4}$	$\frac{3}{4}$	3	$1\frac{3}{8}$

1. On Mondays, Kim and Micky are the only infants at the center. How many pints of formula must be prepared for them?

2. On Tuesdays, Rachel and Emily are at the center. How many pints do they consume?

3. On Wednesdays, Kim and Megan are present. How many pints of formula are needed for them?

4. How many pints of formula are needed on Thursdays for Stevie, Tyler, and Jason?

5. How many pints are needed on Fridays for Kim, Tyler, and Jason?

Write Idea: Explain how you would find the answer to these questions: How many pints of formula would be needed if all eight children came on the same day? How many quarts would that be? How many gallons would that be?

Name **Date**

Subtraction of Fractions *Lesson 3*

Use subtraction to find the difference.

Part of your job at a craft store is to calculate how much fabric is sold throughout the day. The table below shows four types of fabric, with the amount available at three different times of day. Use the table to answer questions 1-5. Show your subtraction for each.

Fabric	Number of Yards Available		
	9 a.m.	noon	5 p.m.
Fabric A	20	$12\frac{1}{3}$	$12\frac{1}{3}$
Fabric B	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{12}$
Fabric C	$3\frac{1}{6}$	$1\frac{1}{2}$	$\frac{1}{3}$
Fabric D	$19\frac{2}{9}$	$11\frac{1}{4}$	$7\frac{5}{6}$

1. How much of Fabric C was sold between noon and 5 p.m.?

2. How many yards of Fabric B were sold between 9 a.m. and noon?

3. How much more of Fabric A was available at noon than Fabric D?

4. At the start of the day, how many more yards were there of Fabric A than Fabric C?

5. How many yards of each fabric were sold during the day?

   Fabric A:

   Fabric B:

   Fabric C:

   Fabric D:

smART Idea: Choose a graphing method to show the total number of yards sold of each of the four fabrics. Create the graph. Why did you choose this method? Is it easier to compare the different amounts sold in a graph or in a table? Explain your answer.

Name **Date**

Multiplication of Fractions *Lesson 4*

Use multiplication to combine groups or parts of the same size.

Your Home Economics teacher gives you a recipe for fruit cobbler. The assignment is to make the cobbler for someone in your family.

Fruit Cobbler

6 **medium apples**	$2\frac{1}{4}$ **cups cranberry juice**
$1\frac{1}{2}$ **cups sugar**	$1\frac{7}{8}$ **cups biscuit mix**
$\frac{1}{3}$ **cup flour**	$\frac{2}{3}$ **cup milk**
$\frac{3}{8}$ **teaspoon ground nutmeg**	1 **teaspoon grated lemon rind**

1. Cody's family is large, so he must triple the recipe. How much nutmeg will he need?

2. How much cranberry juice will Cody need when he triples the recipe?

3. B.J. has only 4 apples. How much sugar will he need if he only has enough apples for $\frac{2}{3}$ of the recipe?

4. Evan wants to make just half the recipe for her grandmother. How much flour will Evan use?

5. How many cups of biscuit mix will Alex need if she makes $1\frac{2}{3}$ times the recipe?

6. To serve the cobbler at your family reunion, you need to multiply the recipe by $7\frac{1}{3}$. How many apples will you need?

Write Idea: Find a recipe in a newspaper or magazine. How much of each ingredient will be necessary if you want to make $1\frac{1}{2}$ times the recipe?

Name **Date**

Division of Fractions *Lesson 5*

Use division to make groups or parts of equal size.

Careful planning is important in many professions. It can keep waste to a minimum, while making sure that enough materials are available. Show division sentences for these questions about a variety of professions.

1. A pharmacist has $\frac{3}{4}$ cup of cough suppressant. How many prescriptions can the pharmacist fill if each requires $\frac{1}{8}$ cup?

2. An investment broker has $\$500$ of a client's money to invest. If stock sells for $5\frac{5}{8}$ dollars a share, how many shares can the broker purchase?

3. A carpenter has a piece of plywood that is $\frac{15}{16}$ of a foot wide. If the wood must be cut into strips $\frac{9}{32}$ of a foot wide, how many strips will there be?

4. A plumber needs pieces of pipe that are each $1\frac{1}{2}$ feet long. How many pieces can be cut from a pipe that is $8\frac{1}{3}$ feet long?

5. A chef has $11\frac{3}{4}$ cups of sugar. If a recipe calls for $\frac{2}{3}$ of a cup, how many times can the chef make this recipe?

6. A welder has a piece of sheet metal that is $22\frac{1}{2}$ inches wide. If the welder needs pieces that are $2\frac{3}{16}$ inches wide, how many pieces can be cut?

---

smART Idea: Draw a line that is $8\frac{1}{2}$ inches long. Divide it into as many segments that are $\frac{7}{8}$ of an inch long as you can. How many of these segments are there? How long is the remaining segment?

Percent of a Number *Lesson 6*

Use multiplication as one way to find the percent of a number.

Ms. Swift is a financial advisor. She could not do her job if she did not thoroughly understand percents.

1. One of Ms. Swift's clients has $5,000.00 to put in a savings account. If the yearly interest is 5.5%, how much interest would the client earn in one year?

2. Ms. Swift noted the following gains or losses in three stock investments. Complete the "Current Value" column.

Stock	Original Investment	Percent of Gain or Loss	Current Value
A	$2,100	+8%	
B	$1,400	-3.5%	
C	$1,200	+13.3%	

3. Another of Ms. Swift's clients wants to buy a house that costs $150,000. The minimum down payment is 10% of the total. An additional $3,990 is needed for settlement fees. Can the client purchase the house if he has $17,500 in cash? Explain.

4. The Athletics Company stock, which had been selling for $100.00 a share, fell 10% on Wednesday. On Thursday it went up 10%. What was the new price of the stock? Explain what happened.

Write Idea: Answer the following questions without calculating:

- Why is 45% of 80 less than 40?
- Why is 35% of 66 greater than 22?
- Why is $\frac{1}{2}$% of x not the same as 50% of x?

Name **Date**

Finding the Whole *Lesson 7*

Use division as one way to find the whole from a part.

Take a look at some practical ways you can use percents to find the whole from a part.

1. A senior class has 169 students planning to go to college. This is 52% of the class. How many seniors are in the class?

2. You want to buy some shoes that are marked down to $32.00. This price is 80% of the original price. What was the original price?

3. The price of gasoline has risen sharply. A gallon costs $1.28 now. This is 106% of the price it was a month ago. What was the price per gallon before the increase? (Answer to the nearest cent.)

4. Your baseball team won 13 games this season. This is 65% of the games your team played. What was the total number of games your team played this season?

5. Your cousin is a sales agent and earns 8% commission. How much must your cousin sell in order to make a commission of $600.00?

Write Idea: The problems above are just a sample of how percents can be used in many practical applications. Describe at least three more applications or careers where percents are necessary. Choose one and make up a problem involving percents.

Name **Date**

Finding the Percent *Lesson 8*

Use division as one way to find a percent.

Do you think percents affect the way your school operates? Below are some examples from a typical school district.

1. In the winter, school officials carefully monitor the effects of flu and colds on attendance. Suppose 3600 students were out sick in a school district with 45,000 students. What percent of the students were absent because of illness?

2. To curb epidemics, schools in this same district close if the absentee rate reaches 12%. Suppose 5445 students were absent, mostly due to a flu epidemic. Would the superintendent close the schools?

3. Suppose school was closed 11 days last year because of inclement weather. What percent of a total of 185 school days was school closed for bad weather?

4. Here are the results of three tests taken by a student this week. Complete the table by finding the student's score (as a percent) on each test.

Test	Number of Items	Number Correct	Score
A	40	36	
B	24	15	
C	15	13	

5. A school's hockey coach wants to buy new uniforms but may not spend more than 2.5% of the athletics budget to do so. The total cost for the uniforms would be $560. The athletics budget is $2000. Can the coach buy uniforms at this time? Explain.

Write Idea: Prices often fluctuate due to special sales, supply and demand, or other factors. Choose one item that you know has changed in price recently. Describe how you would calculate the percent of increase or decrease.

Name **Date**

Using Percents *Lesson 9*

Use percents to solve common problems.

Mr. Hawkins is the local grocery store manager. He could not run the store efficiently without knowledge of percents and how to apply them.

1. The table below shows the profits for the store over three weeks. Complete the last column of the table to show the net profit as a percent of the gross profit for that week.

Week	Gross Profit	Expenses	Net Profit	Net Profit as a % of Gross Profit
1	$5300	$1200	$4100	
2	$4900	$1325	$3575	
3	$5450	$975	$4475	

   From week 1 to week 2, by what percent did the gross profit decrease? Can you give a reason why the profits were less in week 2?

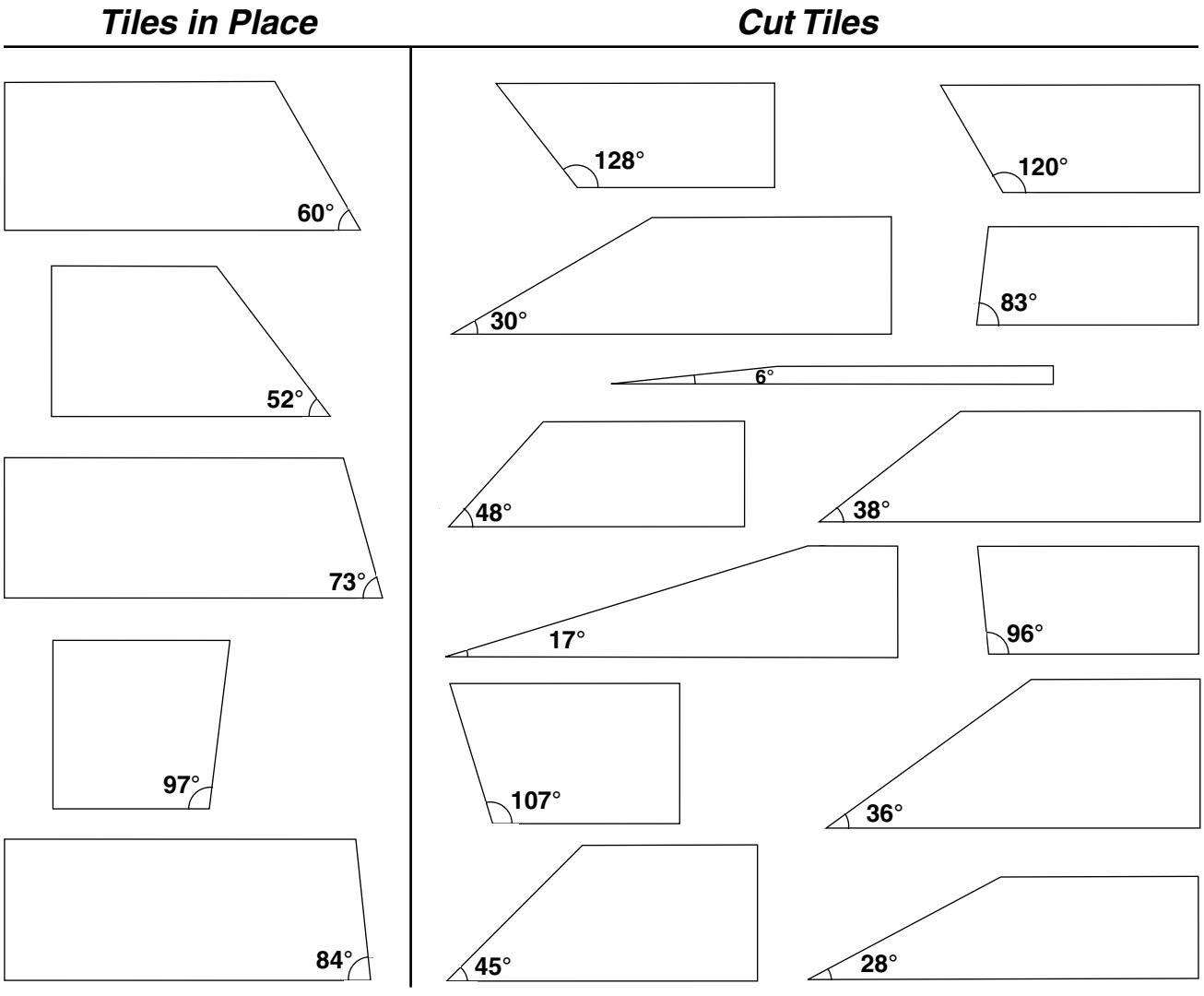
2. Mr. Hawkins wants to increase the square footage of the canned goods section by about 25%. The area currently being used is rectangular, with dimensions of 25 ft. x 20 ft. How many additional square feet of area does he want? What are some possible approximate dimensions of the new area?

3. Mr. Hawkins also does the payroll for store employees. Full-time employees have approximately 21-23% taken out of their gross weekly pay for taxes. For an employee with a gross weekly salary of $520.00, what would be the range of the amount on the paycheck after taxes are deducted?

Write Idea: Percents are used frequently in retail businesses. Pretend you are the manager of a local business. Set up a typical problem where percents would be used. Explain the steps you would use to solve the problem.

Angles *Lesson 1*

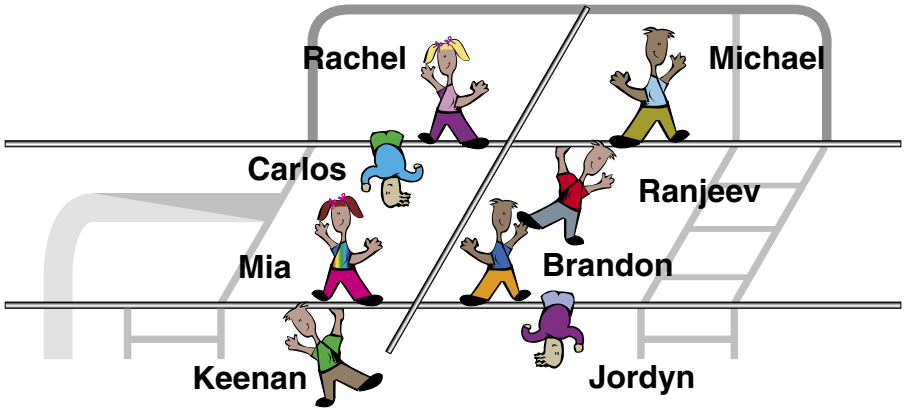
As a new homeowner, you have inherited a tiling project from the previous owner. The partially completed pattern is made up of colorful straight lines. Some tiles are already laid, and many other tiles have been cut. You want to use as many of the cut tiles as possible before cutting more. Below on the left are some of the tiles that are already laid along with the angles of their edges. To form a straight line, each of these tiles must be matched with a tile cut at a supplementary angle. Match each tile on the left with its supplementary tile on the right.



SmART Idea: Now create your own tile pattern based on **complementary** angles. What shape tiles work best for a pattern featuring complementary angles? What shapes do your complementary tiles form?

Name **Date**

Parallel Lines *Lesson 2*



The fifth grade class is playing on a jungle gym outside your math class. Your math teacher takes the opportunity to quiz you on angle relationships. Under each type of angle listed below, write the names of two students who are standing in those positions on the jungle gym.

Alternate Interior Angles

_____ _____

Alternate Exterior Angles

_____ _____

Corresponding Angles

_____ _____

Vertical Angles

_____ _____

Now use the measurements of the angles given below to answer the following questions about the jungle gym's angles:

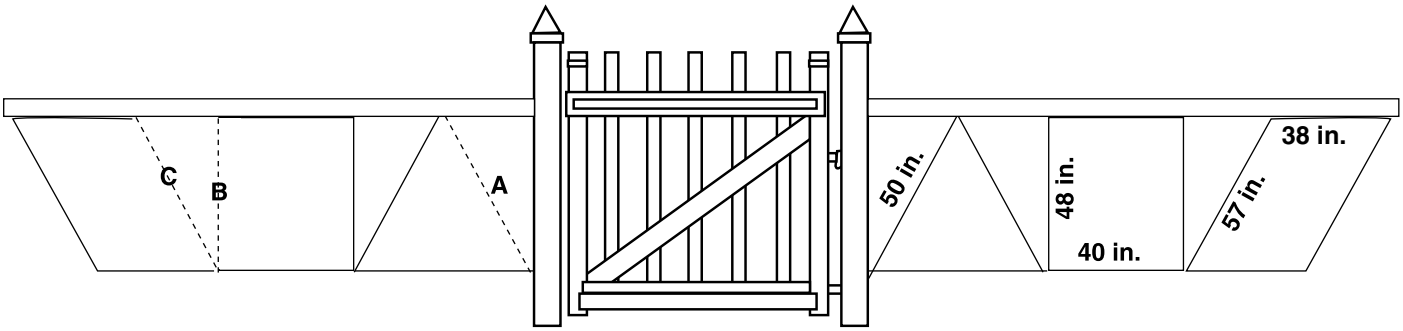
Rachel's angle measures 110°.
Carlos's angle measures 70°.

What does Mia's angle measure? _____ What does Ranjeev's angle measure? _____
What does Michael's angle measure? _____ What does Brandon's angle measure? _____

SmART Idea: Playgrounds are full of geometric figures and angles. Jungle gyms have parallel bars. Slides form 45° angles. Skateboard ramps, monkey bars—even swings—form all kinds of shapes and angles. Design your own playground. Label each of the figures and angles that you use.

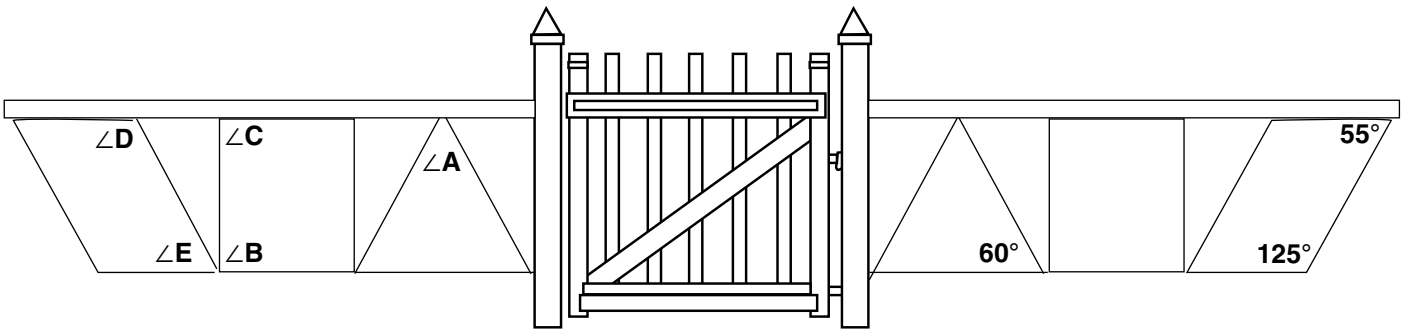
Congruence *Lesson 3*

Geomagic Fence Company is building the decorative fence shown below. The fence's pattern is based on congruent shapes to the left and right of the gate. The foreman for the job must order the correct lengths for the missing boards. Use the measurements given on the equilateral triangle, rectangle and parallelogram to the right of the gate to find the measurements of boards A, B, and C on the congruent shapes to the left of the gate.



Board A: _____ Board B: _____ Board C. _____

The cut boards have arrived. The Geomagic crew must install them at the correct angles. Use the measurements given on the congruent shapes to the right of the gate to determine the measurements of the corresponding angles on the shapes to the left of the gate.



Angle A: _____ Angle B: _____ Angle C: _____ Angle D: _____ Angle E _____

Write Idea: The Geomagic Company uses repeating congruent shapes for its decorative fences. What are the advantages of using congruent shapes in products like fences? Are there advantages for appearance? What about advantages for manufacturing? What are some problems that using non-congruent shapes could cause?

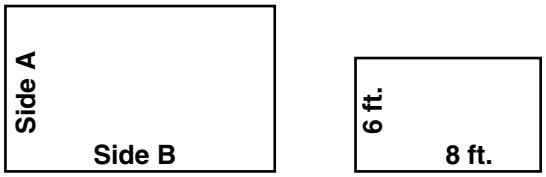
Name **Date**

Similarity *Lesson 4*

Use the rules for finding the measurement of missing sides and angles of similar shapes to find the answers for the following household projects.

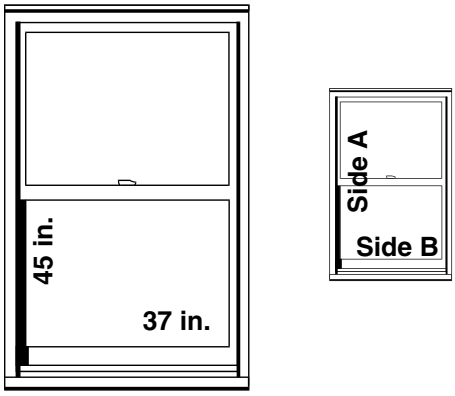
1. You are making a tarp for your pool. Your pool is similar to your hot tub, but three times as big. Use the dimensions on the hot tub tarp to fill in the dimensions on the pool tarp.

   Side A _____ Side B _____



2. Your grandmother is sewing curtains for your shed windows. She doesn't know the dimensions of the windows, but knows that they are similar to the windows in your house, just $\frac{1}{2}$ the size. Fill in the dimensions of the shed windows.

   Side A _____ Side B _____

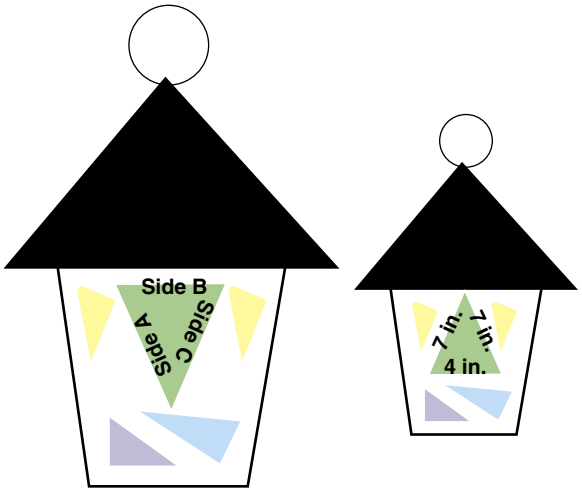


3. The decorative porch lights are similar to the garage lights on your house. The garage lights are twice as large as the porch lights. A triangular pane of glass is broken on a garage light, but it's easier for you to reach the porch lights to measure. Use the measurements you got for the porch light to determine the dimensions for the garage light.

   Side A _____

   Side B _____

   Side C _____

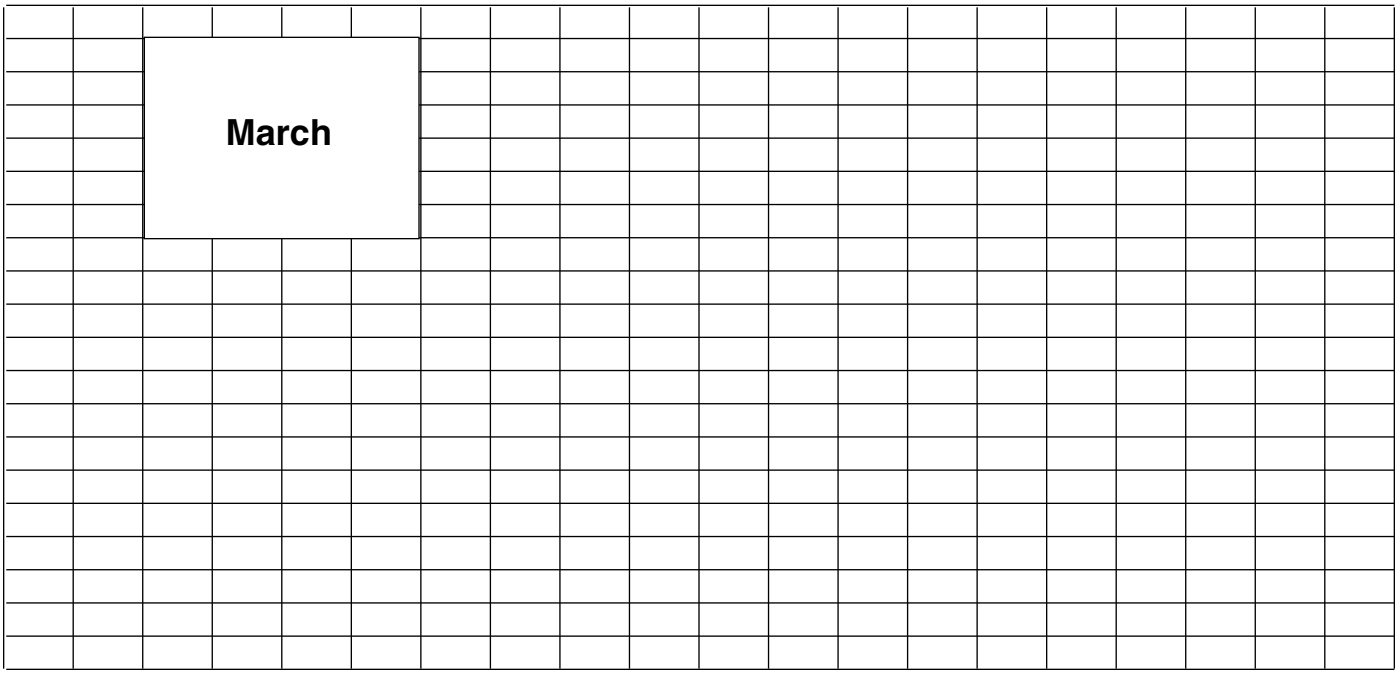


SmART Idea: You and your brother are building a doghouse that is similar to your house. The doghouse will be 1/5 the size of your house. Write step-by-step directions for how you will determine the measurements for your doghouse. Draw pictures of your house and the doghouse to illustrate your directions.

Name **Date**

Transformations *Lesson 5*

You built a portable pen for your rabbit. Your mother said that you can put it in the backyard, but only if you can keep the rabbit from killing patches of grass. The pen (shown below in the starting position for March) is 4 units by 6 units:



Using translations, you created a plan to move the pen around the yard each month for the months of April through June. Draw the outline of the pen according to the plan for these months.

April: 5 units right and 4 units down from March's location
May: 4 units right and 2 units up from April's location
June: 9 units left and 7 units down from May's location

Now create a plan for July, August and September that moves the rabbit pen to areas of the yard that haven't been covered in previous months.

July:
August:
September:

SmART Idea: Create a 20 unit by 20 unit grid of your yard. Use translations and reflections to determine exactly how many times you can move a 2 unit by 3 unit pen around the yard.

Name **Date**

Bar Graphs *Lesson 1*

Use bar graphs to compare sets of data.

Ashland High School holds athletic meets with Oakland High School every year. The table below lists the medals won by both schools over a five-year period.

MEDALS WON					
YEAR	**1**	**2**	**3**	**4**	**5**
Ashland High	**5**	**6**	**9**	**7**	**8**
Oakland High	**7**	**6**	**7**	**8**	**5**

1. Use the data from the table to create a double bar graph.

2. Which school won more medals over the five-year period? How many more?

3. In which year did Ashland High win the same number of medals as Oakland High?

4. In which year did Oakland High win 2 more medals than Ashland High?

smART Idea: Ask five of your classmates how much time they spend on a typical weekday doing three activities: watching television, studying, and being with friends. Use the information you gather to create a triple bar graph.

Name **Date**

Line Graphs *Lesson 2*

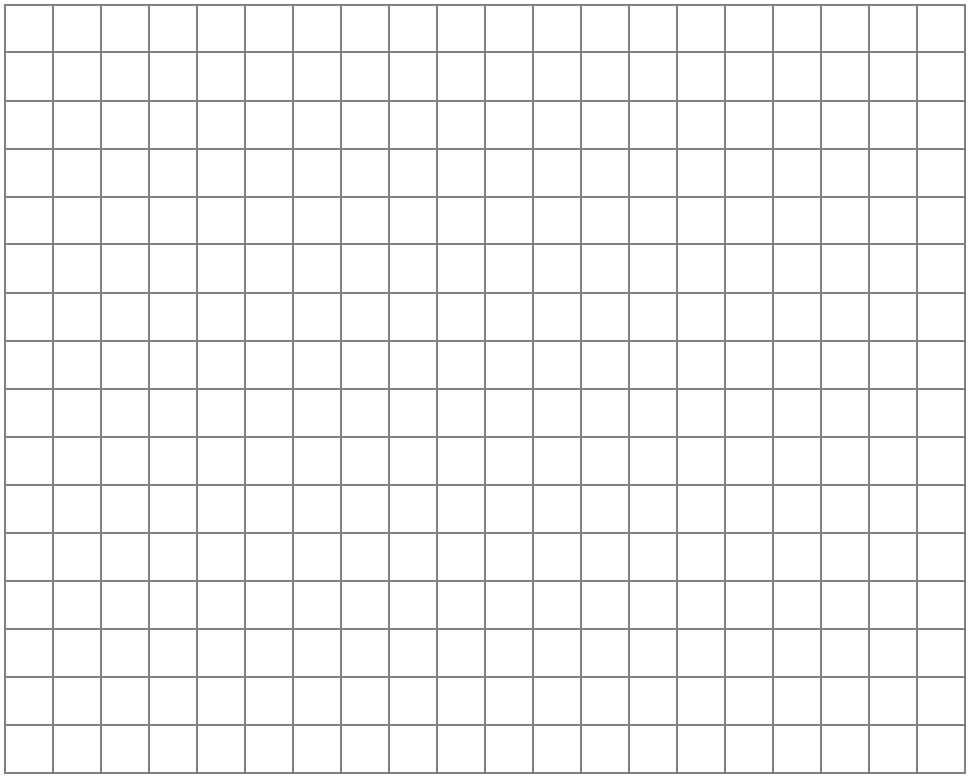
Use line graphs to show change over time.

You've been following the top two teams in your school's basketball league. After both teams had played five games, you compiled a table to show their scores:

SCORES FOR FIRST FIVE GAMES

GAME	1	2	3	4	5
Dunkers	38	43	48	53	63
Dribblers	41	55	63	60	53

Use the grid below to create a double line graph of the data. Remember to include a key to identify the team that each line represents.



Write Idea: How is the season going for the Dunkers? How is it going for the Dribblers? How do you think each team will do in future games? For which game were the scores for the two teams closest? For which game were the scores for the two teams farthest apart? What do you think might happen if the Dunkers and the Dribblers were to play Game 6 against each other?

Name **Date**

Circle Graphs *Lesson 3*

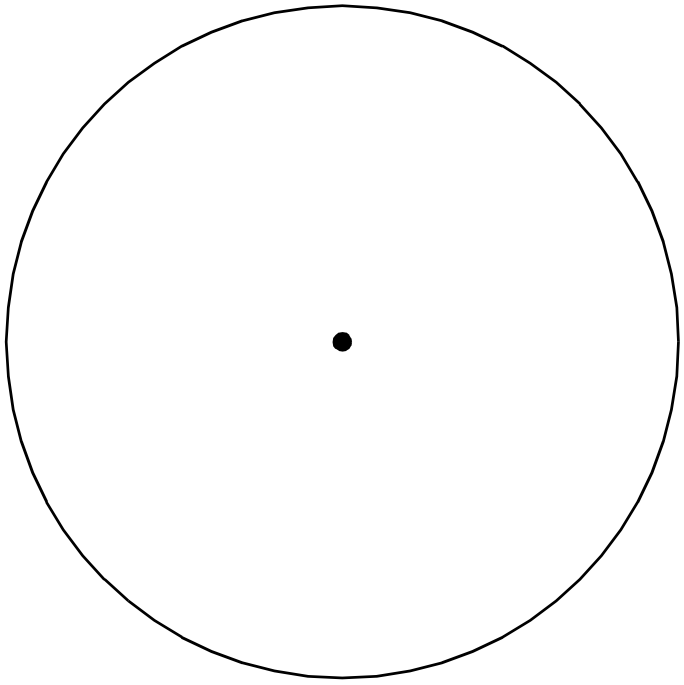
Use a circle graph to compare parts of a whole.

Arturo is representing his family on a neighborhood committee. The group is deciding what to build on a vacant lot. Arturo volunteers to survey the neighbors and compile their preferences in a circle graph. This table shows the information he gathers when he asks his neighbors for their first choice:

PREFERRED PROJECTS FOR VACANT LOT

Project	Number in Favor
Vegetable garden	15
Parking lot	14
Playground	31
Park	29
Other	11

Create a circle graph from the data. Label each section of the circle with the appropriate percent. Be sure to title your graph.



Write Idea: What steps did you follow to create this circle graph? What if Arturo had surveyed fewer neighbors for his circle graph? What would you have done differently?

Answer Keys

This section contains the answer keys for the *Math C* worksheets. The content areas follow the same order as the lesson summaries.

Understanding Numbers

Lesson 1: Place Value and Scientific Notation

1. Mercury: 35,900,000 miles
   Venus: 67,000,000 miles
   Earth: 92,900,000 miles
   Mars: 142,000,000 miles
   Jupiter: 483,000,000 miles
   Saturn: 914,000,000 miles
   Uranus: 1,780,000,000 miles
   Neptune: 2,790,000,000 miles
   Pluto: 3,680,000,000,000 miles

2. $7.38 \times 10^{-2} = 0.0738$ mm
   $4.2 \times 10^{-4} = 0.00042$ mm
   $5.6 \times 10^{-3} = 0.0056$ mm
   $1.33 \times 10^{-1} = 0.133$ mm

Lesson 2: Word Names and Scientific Notation

sixty-five million	$= 6.5 \times 10^{7}$
two hundred twenty-five thousand	$= 2.25 \times 10^{5}$
fifty thousand	$= 5 \times 10^{4}$
four hundred million, nine hundred thousand	$= 4.009 \times 10^{8}$
thirty-two thousandths	$= 3.2 \times 10^{-2}$
six thousandths	$= 6 \times 10^{-3}$
five hundred seventy-one thousandths	$= 5.71 \times 10^{-1}$
eighty-nine hundred-thousandths	$= 8.9 \times 10^{-4}$
five hundred seventy-one thousand	$= 5.71 \times 10^{5}$
two hundred four thousandths	$= 2.04 \times 10^{-1}$

Lesson 3: Comparing and Ordering Numbers

1. $8 > {}^{-}1$ ${}^{-}5 > {}^{-}6$ ${}^{-}2 = {}^{-}2.0$ ${}^{-}10 < 0$
   $9 > {}^{-}4$ $5 > {}^{-}5$ ${}^{-}6 > {}^{-}9$ ${}^{-}17.0 = {}^{-}17$

2. The possible answers are listed for each pair:

${}^{-}1$ and 1	${}^{-}49$ and ${}^{-}46$	${}^{-}5$ and ${}^{-}10$	0 and ${}^{-}2$
Answer: 0	*Answers:* ${}^{-}48$, ${}^{-}47$	*Answers:* ${}^{-}6$, ${}^{-}7$, ${}^{-}8$, ${}^{-}9$	*Answer:* ${}^{-}1$
${}^{-}4$ and ${}^{-}7$	${}^{-}22$ and ${}^{-}25$	${}^{-}8$ and ${}^{-}11$	${}^{-}3$ and 1
Answers: ${}^{-}5$, ${}^{-}6$	*Answers:* ${}^{-}23$, ${}^{-}24$	*Answers:* ${}^{-}9$, ${}^{-}10$	*Answers:* ${}^{-}2$, ${}^{-}1$, 0

3. ${}^{-}6$, ${}^{-}4$, 3, 8 ${}^{-}10$, ${}^{-}9$, 0, 1 ${}^{-}101$, ${}^{-}99$, ${}^{-}66$, ${}^{-}65$

Using Decimals

Lesson 1: Addition of Decimals

1. Mary Lou Retton 79.175 (*highest total*)
   Ecaterina Szabo 79.125
   Simona Pauca 78.675
   Julianne McNamara 78.400
   Laura Cutina 78.300
2. Total USA score: 79.175 + 78.4 + 78.10 + 77.55 + 77.10 + 77.60 = 467.925
3. Total Romanian score: 79.125 + 78.675 + 78.3 + 77.90 + 77.70 + 77.60 = 469.300
4. Romania's score was higher: 469.300 – 467.925 = 1.375 points higher

Lesson 2: Subtraction of Decimals

1. One year ago:
   1.4031 – 1.3541 = 0.049 Australian dollars
2. Six months ago:
   98.5634 – 89.58 = 8.9834 Japanese yen
3. Six months ago:
   5.284 – 4.983 = 0.301 French francs
4. Today:
   1734 – 1677.3 = 56.7 Italian lira
5. Six months ago:
   235.6 – 227 = 8.6 Greek drachmas
6. One year ago:
   0.7021 – 0.6319 = 0.0702 Irish punt

Lesson 3: Multiplication of Decimals

1. 82 × 57.5 = 4715 square feet
2. ***Grass seed***
   Needed: 24 bags
   4715 ÷ 200 = 23.575
   Cost: $56.70 including tax
   $2.25 × 24 = $54.00 for seed
   $54.00 × 0.05 = $2.70 tax
   $54.00 + $2.70 = $56.70
   Fertilizer
   Needed: 1 bag
   Cost: $8.40 cost including tax
   $8.00 × 0.05 = $0.40 tax
   $8.00 + $0.40 = $8.40

Lesson 4: Division of Decimals

1. Her average speed was 48 miles per hour:
   $348 \div 7.2 = 48.3$
2. The car got 20.2 miles per gallon:
   $348 \div 17.2 = 20.23$
3. Each column can be 1.7 inches wide:
   $8.5 \div 5 = 1.7$
4. The price per can was \$1.49:
   $\$8.94 \div 6 = \$1.49$
5. The perimeter is 151 meters, so 160 meters of fencing is enough:
   $1262.5 \div 25 = 50.5$; $25 + 25 + 50.5 + 50.5 = 151$
6. There are almost 15 inches in 38 cm:
   $38 \div 2.54 = 14.96$

Lesson 5: Number Sequences

Hybrid A: 3, 6, **12**, 24, 48, 96	(Rule: multiply by 2)
Hybrid B: 37, 32, 27, **22**, 17, 12	(Rule: subtract 5)
Hybrid C: 972, 324, 108, 36, **12**, 4	(Rule: divide by 3)
Hybrid D: 1, 1, 2, 3, **5**, 8, 13, 21	(Rule: add the previous two numbers)
Hybrid E: 20, 25, 21, 26, 22, **27**, 23	(Rule: add 5; subtract 4)
Hybrid F: 0.01, 0.02, 0.12, 0.24, 0.34, **0.68**, 0.78	(Rule: multiply by 2; add 0.1)
Hybrid G: 1.1, 0.9, 1.0, 0.8, **0.9**, **0.7**, 0.8, 0.6	(Rule: subtract 0.2; add 0.1)
Hybrid H: 1.08, **1.12**, 0.28, 0.32, 0.08, 0.12, **0.03**	(Rule: add 0.04; divide by 4)

Using Fractions and Percents

Lesson 1: Equivalent Forms

1. There were 180 men customers: $\frac{5}{3} = \frac{300}{180}$
2. $\frac{8}{5} = 1\frac{3}{5} = 1.6 = 160\%$ (Answers to the question will vary.)
3. (The form of the fraction and decimal entries in the table may vary.)

April/March Sales Comparisons

Item	Ratio	Percent	Decimal
Paints	$\frac{5}{4}$	125%	1.25
Brushes	$\frac{4}{5}$	80%	**0.80**
Patterns	$\frac{3}{5}$	**60%**	**0.60**
Pens	$1\frac{1}{10}$	**110%**	1.10

4. Ms. Clark will send \$212.40 to the state treasury for April's sales tax: $0.05 \times \$4248 = \$212.40$

Lesson 2: Addition of Fractions

1. $1\frac{3}{4} + 2\frac{1}{4} = 3\frac{4}{4}$ $= 4$ pints
2. $\frac{7}{8} + \frac{3}{4} = \frac{13}{8}$ $= 1\frac{5}{8}$ pints
3. $1\frac{3}{4} + 2\frac{1}{16}$ $= 3\frac{13}{16}$ pints
4. $3 + 1\frac{3}{8} + 2\frac{1}{2}$ $= 6\frac{7}{8}$ pints
5. $1\frac{3}{4} + 1\frac{3}{8} + 2\frac{1}{2} = 4\frac{13}{8}$ $= 5\frac{5}{8}$ pints

Lesson 3: Subtraction of Fractions

1. $1\frac{1}{2} - \frac{1}{3}$ $= 1\frac{1}{6}$ yds.
2. $\frac{3}{4} - \frac{1}{2}$ $= \frac{1}{4}$ yd.
3. $12\frac{1}{3} - 11\frac{1}{4}$ $= 1\frac{1}{12}$ yds.
4. $20 - 3\frac{1}{6}$ $= 16\frac{5}{6}$ yds.
5. Fabric A: $20 - 12\frac{1}{3}$ $= 7\frac{2}{3}$ yds.

   Fabric B: $\frac{3}{4} - \frac{1}{12} = \frac{8}{12}$ $= \frac{2}{3}$ yd.

   Fabric C: $3\frac{1}{6} - \frac{1}{3}$ $= 2\frac{5}{6}$ yds.

   Fabric D: $19\frac{2}{9} - 7\frac{5}{6}$ $= 11\frac{7}{18}$ yds.

Lesson 4: Multiplication of Fractions

1. $3 \times \frac{3}{8} = \frac{9}{8}$ $= 1\frac{1}{8}$ tsps.
2. $3 \times 2\frac{1}{4} = \frac{27}{4}$ $= 6\frac{3}{4}$ c.
3. $\frac{2}{3} \times 1\frac{1}{2} = \frac{6}{6}$ $= 1$ c.
4. $\frac{1}{2} \times \frac{1}{3}$ $= \frac{1}{6}$ c.
5. $1\frac{2}{3} \times 1\frac{7}{8} = \frac{75}{24} = 3\frac{3}{24}$ $= 3\frac{1}{8}$ c.
6. $7\frac{1}{3} \times 6 = \frac{132}{3}$ $= 44$ apples

Lesson 5: Division of Fractions

1. Six prescriptions can be filled:
   $\frac{3}{4} \div \frac{1}{8} = \frac{24}{4} = 6$
2. The broker can purchase 88 shares:
   $500 \div 5\frac{5}{8} = \frac{4000}{45} = 88\frac{40}{45} = 88\frac{8}{9}$
3. There will be 3 strips that are $\frac{9}{32}$ of a foot wide:
   $\frac{15}{16} \div \frac{9}{32} = \frac{480}{144} = 3\frac{1}{3}$
4. There will be 5 pieces that are $1\frac{1}{2}$ feet long:
   $8\frac{1}{3} \div 1\frac{1}{2} = \frac{50}{9} = 5\frac{5}{9}$
5. The chef can make this recipe 17 times:
   $11\frac{3}{4} \div \frac{2}{3} = \frac{141}{8} = 17\frac{5}{8}$
6. The welder can cut 10 pieces that are $2\frac{3}{16}$ inches wide:
   $22\frac{1}{2} \div 2\frac{3}{16} = \frac{720}{70} = 10\frac{2}{7}$

Lesson 6: Percent of a Number

1. \$275.00 interest
   \$5000 × 0.055 = \$275.00
2. ***A:*** \$2268 current value
   \$2100 × 0.08 = \$168.00 gain
   \$2100 + \$168.00 = \$2268
   B: \$1351 current value
   \$1400 × 0.035 = \$49.00 loss
   \$1400 – \$49.00 = \$1351
   C: \$1359.60 current value
   \$1200 × 0.133 = \$159.60 gain
   1200 + \$159.60 = \$1359.60
3. No, because the total amount required is more than \$17,500.00:
   \$150,000 × 0.10 = \$15,000 down payment
   \$15,000 + \$3,990 = \$18,990.00
4. Thursday's price: \$99.00
   \$100.00 × 0.10 = \$10.00 loss; \$100.00 – \$10.00 = \$90.00 Wednesday's price
   \$90.00 × 0.10 = \$9.00 gain; \$90.00 + \$9.00 = \$99.00 Thursday's price

Lesson 7: Finding the Whole

1. 169 ÷ 0.52 = 325 seniors
2. \$32.00 ÷ 0.80 = \$40.00
3. \$1.28 ÷ 1.06 = \$1.2075 = \$1.21 to the nearest cent

4. $13 \div 0.65 = 20$ games
5. $\$600.00 \div 0.08 = \$7500.00$

Lesson 8: Finding the Percent

1. 8% of the students
   $3600 \div 45{,}000 = 0.08 = 8\%$
2. Yes, the schools would close.
   $5445 \div 45{,}000 = 0.121 = 12.1\%$
3. 5.9% of school days
   $11 \div 185 = 0.059 = 5.9\%$
4. ***A:*** $36 \div 40 = 0.90 = 90\%$
   B: $15 \div 24 = 0.625 = 62.5\%$
   C: $13 \div 15 = 0.867 = 86.7\%$
5. No, 2.5% of the budget is not nearly enough. The coach would need 28% of the budget:
   $\$560 \div \$2000 = 0.28 = 28\%$

Lesson 9: Using Percents

1. ***Week 1:*** $\$4100 \div \$5300 = 0.774 = 77.4\%$
   Week 2: $\$3575 \div \$4900 = 0.7296 = 73\%$
   Week 3: $\$4475 \div \$5450 = 0.821 = 82\%$

   Decrease in gross profit for Week 2: 8.2%
   $\$400 \div \$4900 = 0.0816 = 8.2\%$

   The profits were less in Week 2 because expenses were higher.
2. An additional 125 sq. ft.
   $25 \times 20 = 500$ sq. ft. in current area; $500 \times 0.25 = 125$ sq. ft. increase

   One possible set of dimensions for the new area is 25 ft. × 25 ft.: $500 + 125 = 625$ and $25 \times 25 = 625$
3. The paychecks would range from \$400.40 to \$410.80.
   $\$520.00 \times 0.21 = \$109.20$ taxes; $\$520.00 - 109.20 = \$410.80$ maximum paycheck
   $\$520.00 \times 0.23 = \$119.60$ taxes; $\$520.00 - 119.60 = \$400.40$ minimum paycheck

Using Geometry

Lesson 1: Angles

60° and 120°

52° and 128°

73° and 107°

97° and 83°

84° and 96°

Lesson 2: Parallel Lines

Alternate Interior Angles Possible Answers:
- Carlos & Brandon
- Ranjeev & Mia

Alternate Exterior Angles Possible Answers:
- Keenan & Michael
- Jordyn & Rachel

Corresponding Angles Possible Answers:
- Mia & Rachel, Carlos & Keenan
- Brandon & Michael, Ranjeev & Jordyn

Vertical Angles Possible Answers:
- Michael & Carlos
- Rachel & Ranjeev
- Mia & Jordyn
- Brandon & Keenan

What does Mia's angle measure? 110°

What does Michael's angle measure? 70°

What does Ranjeev's angle measure? 110°

What does Brandon's angle measure? 70°

Lesson 3: Congruence

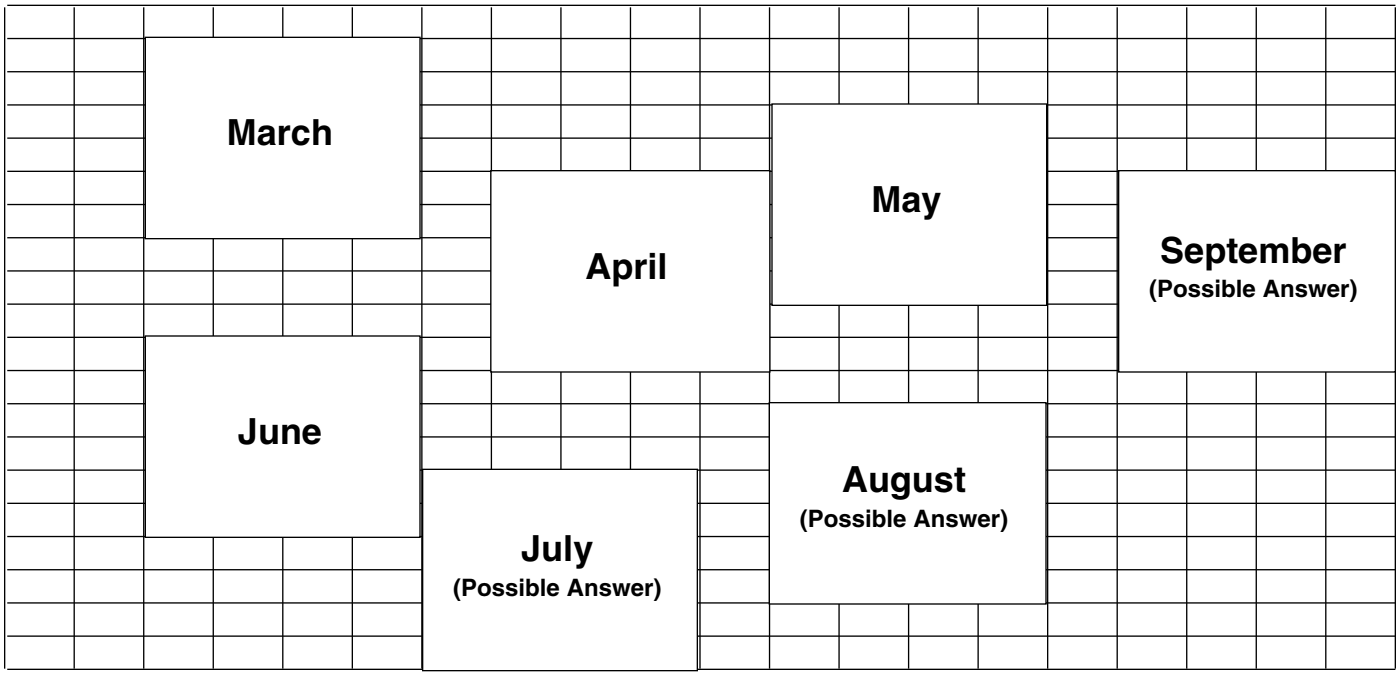
Board A: 50 in. Board B: 48 in. Board C: 57 in.

Angle A: 60° Angle B: 90° Angle C: 90° Angle D: 125° Angle E 55°

Lesson 4: Similarity

1. Side A: 18 ft.
   Side B: 24 ft.
2. Side A: 22.5 in.
   Side B: 18.5 in.
3. Side A: 14 in.
   Side B: 8 in.
   Side C: 14 in.

Lesson 5: Transformations



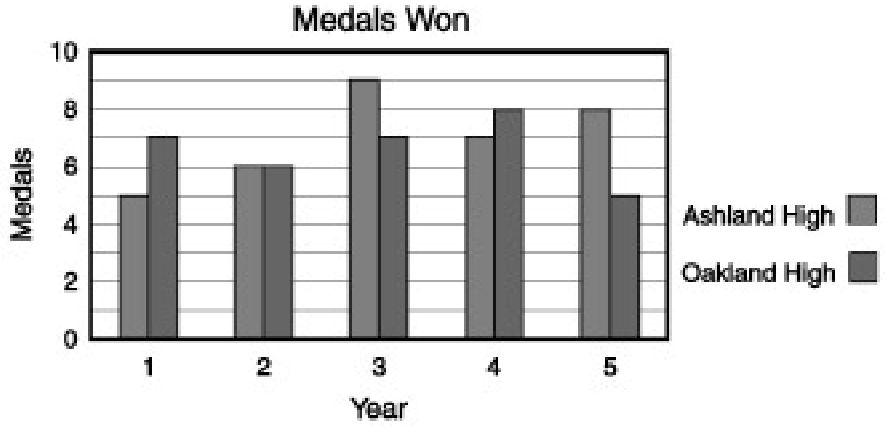
Possible Transformations for July, August and September:

- July: 4 units right and 4units down
- August: 5 units right and 2 units up
- September: 5 units right and 7 units up

Working with Data

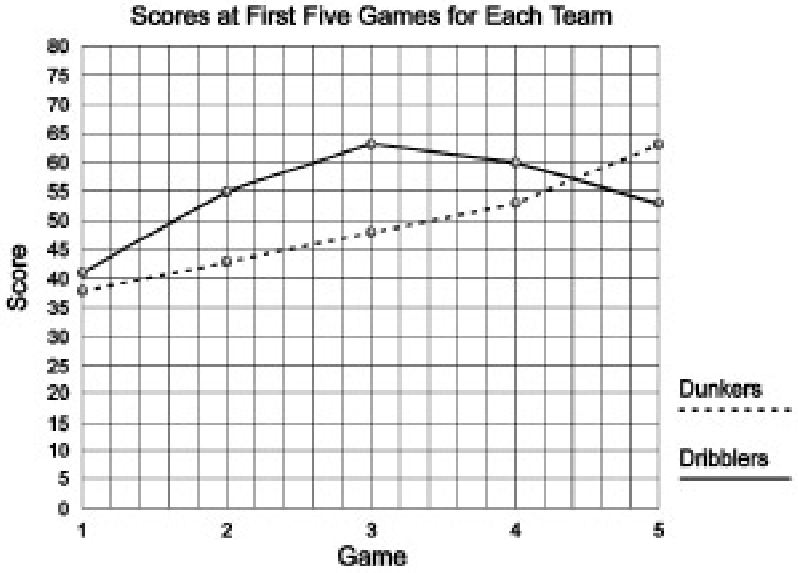
Lesson 1: Bar Graphs

1.

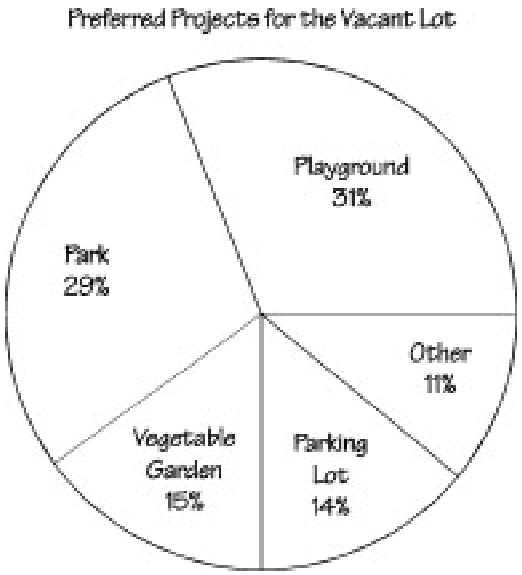


2. Ashland High won 2 medals more than Oakland High: 35 – 33 = 2
3. Year 2
4. Year 1

Lesson 2: Line Graphs



Lesson 3: Circle Graphs



Assignment Sheets

This section contains an assignment sheet for *Math C.* The assignment sheet lists the available lessons, quizzes and tests. The Online Tracking System will monitor your lesson assignments and the lessons, quizzes and tests your students complete. However, it may be helpful to photocopy an assignment sheet to help you plan lesson assignments or to help your students keep track of the lessons, quizzes and tests they complete.

Assignment Sheets: Math C

Activity			Date Assigned	Date Completed	Score/Progress
Understanding Numbers					
	•	Pretest on Understanding Numbers			
	1	Place Value and Scientific Notation			
	2	Word Names and Scientific Notation			
	Q1	Quiz on Lessons 1 and 2			
	3	Comparing and Ordering Numbers			
	Q2	Quiz on Lesson 3			
	•	Posttest on Understanding Numbers			
Using Decimals					
	•	Pretest on Using Decimals			
	1	Addition of Decimals			
	2	Subtraction of Decimals			
	Q1	Quiz on Lessons 1 and 2			
	3	Multiplication of Decimals			
	PS	The Gift of Song			
	4	Division of Decimals			
	5	Number Sequences			
	Q2	Quiz on Lessons 3 through 5			
	PS	Pedal Power			
	•	Posttest on Using Decimals			

Assignment Sheets: Math C

Activity			Date Assigned	Date Completed	Score/Progress
Using Fractions and Percents					
	•	Pretest on Using Fractions and Percents			
	1	Equivalent Forms			
	2	Addition of Fractions			
	3	Subtraction of Fractions			
	Q1	Quiz on Lessons 1 through 3			
	PS	Pass the Popcorn			
	4	Multiplication of Fractions			
	5	Division of Fractions			
	Q2	Quiz on Lessons 4 and 5			
	6	Percent of a Number			
	PS	Rolling in Dough			
	7	Finding the Whole			
	8	Finding the Percent			
	9	Using Percents			
	PS	Kick Up Your Heels			
	Q3	Quiz on Lessons 6 through 9			
	•	Posttest on Using Fractions and Percents			
Using Geometry					
	•	Pretest on Using Geometry			
	1	Angles			
	2	Parallel Lines			
	3	Congruence			
	4	Similarity			
	5	Transformations			
	•	Posttest on Using Geometry			

Assignment Sheets: Math C

Activity			Date Assigned	Date Completed	Score/Progress
Working with Data					
	•	Pretest on Working with Data			
	1	Bar Graphs			
	Q1	Quiz on Lesson 1			
	2	Line Graphs			
	3	Circle Graphs			
	Q2	Quiz on Lessons 2 and 3			
	•	Posttest on Working with Data			