

Place Value**Lesson 1**

Use place value to identify the value of a digit within a number.

4,623.4758**624,662,076.935****448,076,472.21****36.24****8,272,418.9635****24.385****4,132,572.8015**

1. Which number has a digit in the hundredths place 2 times larger than the digit in the tenths place?
2. Which number has a 4 in both the thousands place and the tenths place?
3. Which number has odd digits in the ten thousands place, the tens place, and the hundredths place?
4. Which number has even digits in the millions, tenths, and hundredths places, but odd digits in the ten thousands, hundreds, and thousandths places?
5. Which number has digits in the hundred millions, millions, hundred thousands, and thousandths places that have a sum of 21?
6. I am a decimal number. I have a 9, 8, 5, 3, 7, and 1 in me. My lowest digit has the greatest value, and my highest digit has the least value. I have two digits to the right of the decimal point. My digits to the left of the decimal point are all odd. As you read them, you will see a pattern. What number am I?

Write Idea: Create two number riddles for your classmates. (You can use question 6 above as an example.) You may use numbers to the hundred millions and to the ten thousandths for your riddles.

Numbers and Word Names

Lesson 2

Use place value to identify the name of a number.

For each word name below, find the matching number in the puzzle and circle it. Then write the correct number on the line. The first word name is done for you.

4	7	8	2	7	1	5	.	3	6	0
.	1	0	1	6	1	5	2	7	2	
3	8	.	4	1	1	5	.	3	4	
5	0	0	0	3	1	9	3	.	1	
5	1	6	2	4	7	.	0	5	9	
.	4	3	6	1	2	.	7	7	7	
5	1	4		4	0	4	.	5	.	
3	8	8		5	2	4	8	3	4	
4	6	7		0	9	4	0	7	.	3
2	2	1		4	.	.	3	2	8	9
.	1	2		2	6	1	6	.	8	1
5	1	.		4	9	7	2	4	7	5

- Eighty and six hundredths: _____
- Forty-seven million, eight hundred twenty-seven thousand, four hundred fifteen and three hundred forty-six thousandths: _____
- Five hundred million, thirty-eight thousand, one hundred ninety-three and five hundred sixteen thousandths: _____
- Nine hundred fifty-one thousand, two hundred sixty-five and nine tenths:

- Eleven million, one hundred seventy-two thousand, twenty-nine and seventeen hundredths:

- Nine thousand, four hundred seven and thirty-eight hundredths:

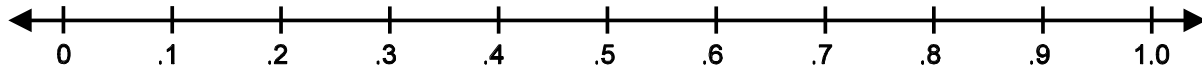
- One hundred sixty-two thousand, four hundred ninety-seven and five hundredths:

Write Idea: Reading numbers correctly can help prevent dangerous situations. For example, the sign in a freight elevator might state the weight limit as 1000 pounds. If someone read the limit as 10,000 pounds and overloaded the elevator, there might be an accident. Look around your community for signs that must be read correctly for safety reasons. Describe at least three signs. Tell where you saw the signs and why they are important.

Comparing and Ordering Numbers

Lesson 3

Use a number line to compare and order numbers.



Ms. Woods, a softball coach, has to choose her best players for the District All-Star Team. A player must have a batting average greater than .250 to be on the team. The table below shows Ms. Woods' players and their batting averages:

Player	Tiana	Tyrone	Randy	Erica	Denny	Keisha	Juan	Greg	Micky	Craig
Average	.282	.357	.258	.300	.320	.318	.241	.269	.237	.265

1. Compare the batting averages of Tiana and Erica by inserting the correct symbol (< or >).

Tiana Erica

2. Which of Coach Woods' players have batting averages greater than .250?
3. Coach Woods wants to consider fielding ability, too. Tiana, Juan, Randy, and Greg all are good outfielders. Put their names in order, from highest batting average to lowest.
4. Craig, Denny, Erica, and Tyrone are great infielders. Put their names in order, from highest batting average to lowest.
5. The coach decides to select the two infielders and the two outfielders with the highest batting averages. Look at your answers to questions 3 and 4 to find these four players. Put their names in order, from highest batting average to lowest.

smART Idea: Use a number line drawing to show someone that a batting average of .240 is less than an average of .248, but greater than .238. Show the appropriate part of the number line with a point clearly labeled for each of the three batting averages.

Changes in Temperature

Lesson 4

Use a thermometer to measure temperature.

Suppose you are going with your school band for a week-long tour of four American cities in April. You can hardly wait, so you begin thinking about what to pack. You check an almanac to find the average April weather of each city. Here's what you find:

City A	66°F and windy
City B	9°F higher than City A and sunny
City C	6°C and cloudy
City D	8°C higher than City C and rainy

Below is a list for each city. First, fill in the average April temperature for each city. Then, list clothes and other items you could take to help you enjoy your visit in each place. Try to list at least five items you might pack for each city.

City A	City B	City C	City D
(___°F)	(___°F)	(__°C)	(___°C)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Write Idea: Write about your favorite kind of weather. What about it makes it your favorite? What's the temperature like when you wake up in the morning? What's it like in the afternoon? After supper? How is this different from your least favorite kind of weather? What's the temperature like then?

Time Zones

Lesson 5

Use time zones to find the time in distant locations.



Anita and her cousins Benny, Camille, and Darryl all live in different time zones, as you can see from the above map. They like to keep in touch and often call each other on the weekends.

1. Last Saturday, Anita glanced at the clock as she dialed Camille's number. It said 1:30 p.m. Anita and Camille talked until Camille looked at her own watch and saw that it was noon—lunch time!
How long did Anita and Camille talk on the phone?
2. Camille had some lunch, but couldn't wait to pass along the latest news. Just as her kitchen clock struck 12:40 p.m., she called Benny. They chatted for 25 minutes, until Benny checked his watch and realized he needed to get to the library.
What time did Benny's watch say?
3. As soon as Benny returned home, he called Darryl. It was only 4:45 p.m., plenty of time to talk before supper. Benny and Darryl talked for 40 minutes until Darryl heard the time on the radio. It was time to leave for his haircut.
What time was announced on Darryl's radio?
4. Later that evening, as his watch said 8:10 p.m., Darryl called Anita and talked with her until she started yawning. As she said good-bye, Anita saw that it was midnight.
How long did Darryl and Anita talk on the phone?

Write Idea: Think about different activities that might be affected by time zones (e.g., telephoning, faxing, traveling, watching television shows, etc.) and write your own problem about time zones. You can write more about Anita and her cousins, or you can write about someone else altogether. Include at least two time zones. Once you have written your problem, describe how you would solve it.

Front-End Estimation**Lesson 1**

Use front-end estimation to estimate answers.

You want to earn some money of your own this summer. You talk with some people you know and end up with five job offers! For questions 1-5, *use front-end estimation* to determine your approximate pay for each job. Write a number sentence for each to show how you arrived at your estimate. Then, answer question 6 on which job would pay you the most money.

1. Your aunt offered to pay you \$3.00 an hour to help her in the garden, for a total of 92 hours. Approximately how much would you be earning?
2. Your neighbor offered to pay you \$2.15 an hour to work at his snowball stand. He will need you to work 110 hours. About how much would you be earning?
3. Several families in your neighborhood have asked you to keep their lawns mowed. You think this will add up to 86 hours of work. You agree on a fee of \$5.25 an hour. About how much would you be earning?
4. You also have some neighbors who will pay you \$4.65 an hour to care for their pets while they're on a long vacation. They say this will be 45 hours of work. Approximately how much would you be earning?
5. Your cousin offered to pay you \$2.50 an hour to help watch her child. She said this would be about 102 hours over the summer. About how much would you be earning?
6. Look at your estimates. Which job seems to offer the chance for you to earn the most money?

Write Idea: Since all of the jobs are part-time, you decide to accept two of them. Which jobs would you take? Explain your decision.

Estimation by Rounding

Lesson 2

Use rounding to estimate answers.

You are grocery shopping with your grandmother. She wants to make sure she doesn't spend more than \$20.00 today. To help her keep track of what she's buying, you *round the cost of each item to the nearest dollar* as she puts it in her shopping cart. For each question below, write a number sentence to show how you arrived at your answer.

1. In one aisle, she buys baking soda for \$1.19, flour for \$1.83, and brown sugar for \$2.39. Find the approximate total for this aisle.
2. In the next aisle, she buys a box of cereal for \$2.69 and a bag of cookies for \$2.98. About how much does she spend in this aisle?
3. In the produce section, she buys 3 lbs. of peaches for \$0.89 a pound. About how much does she spend on peaches?
4. In the meat section, she spends \$0.59 a pound on 4 pounds of chicken legs. About how much does she spend on chicken legs?
5. Give the approximate total of what your grandmother spent in the grocery store.
6. At the cash register, your grandmother pulls out two coupons. They are for \$0.75 off and \$0.89 off. Use rounding to subtract these from her approximate total. Did she spend more than her \$20.00 limit?

Write Idea: Think about the process you use to round when you are adding, subtracting, and multiplying. Write down these steps. After reviewing the steps, write a paragraph about why rounding is a good method of estimation to use in a situation like the one above.

Addition**Lesson 3**

Use addition to find the total.

A distributor is in charge of filling orders of videotapes for major stores in different states. The table below shows the number of videos that were ordered by stores A through D.

Videos Ordered		
Store	State	Number
Store A	Washington	2,493
Store B	California	36,448
Store C	Virginia	4,677
Store D	Florida	14,804

Use the table to find the following sums. Be sure to show your addition.

- Videos ordered by stores A and C
- Videos ordered by stores B and C
- Videos ordered by stores A and D
- Videos ordered by stores B and D
- Videos ordered by West Coast stores
- Videos ordered by East Coast stores
- Total of videos ordered by all four stores

Write Idea: Some teachers think students watch too much television. For one week, keep track of how many minutes a day you spend watching TV. If you watch the same amount of TV every week for 4 weeks, what will be your total time for the month? Do you think you watch too much TV? Why or why not? Write a letter to your teacher describing your TV viewing habits.

Subtraction

Lesson 4

Use subtraction to find the difference.

Sherry, Rodney, and Andrew are all farmers who raise worms for local bait stores. The following table shows their business dealings in March and April. Use the table for the questions below. Do your calculations in the space under each question, and then enter your answers in the table.

NUMBER OF WORMS

Farmers	In Stock March 1	Sold in March	In Stock April 1	Sold in April	Difference: March and April Sales	Higher Sales Month
Sherry	3468		2113	1209		
Rodney	4246		3309	1908		
Andrew	2767		1108	817		

- How many worms did each farmer sell in March? Put your answers in the column marked "Sold in March."
- For each farmer, what is the difference between the number of worms sold in March and the number sold in April? Put your answers in the column marked "Difference: March and April Sales."
- For each farmer, were sales higher in March or in April? Put your answers in the column marked "Higher Sales Month."

smART Idea: Create a bar graph to show the number of worms sold in March by each farmer. Put the names of each farmer along the bottom of the graph. Number the side of the graph in increments of 200.

Multiplication**Lesson 5**

Use multiplication to combine groups of the same size.

The 40 families in your community participate in a recycling program. You recently conducted a survey on their recycling practices. You found that each family recycles an average of 12 aluminum cans per day. Use this finding to answer the questions below. Show your calculations under each question.

1. How many cans per week (7 days) are recycled by each family?
2. How many cans per week are recycled by all 40 families in your community?
3. How many cans per year (52 weeks) are recycled by your community?
4. Suppose 20 aluminum cans are needed for 1 pound of recycled aluminum. How many pounds of aluminum will your community collect in a year?
5. The recycling company has agreed to donate \$0.25 to the community park for each pound of aluminum collected. How much will the donation be for one year?

Write Idea: A survey in 1990 showed that typical Americans use 1500 cans per year. (This includes all kinds of cans, not just aluminum.) How many cans do you think you use in a year? Is this more or less than the average person? Describe the kinds of cans you use. Do you recycle them? What are some of the uses of recycled materials such as cans, bottles, paper, and plastic?

Compatible Numbers

Lesson 6

Use compatible numbers to estimate the quotient.

Estimation is a necessary skill in many occupations. Use compatible numbers to estimate the quotients in these work-related problems. Write a number sentence for each question to show how you arrived at your estimate.

1. A farmer has 321 acres that he wants to divide into 6 pastures. What will be the approximate size of each pasture?
2. A math teacher has 180 days of school in which to cover 8 math units. Approximately how many days can she spend on each unit?
3. A mail carrier has 418 minutes to deliver mail to 59 houses. About how many minutes can she spend on each house?
4. An administrative assistant has to type a report that is 2024 words long. He can type 31 words a minute. About how many minutes will this report take him?
5. A ranch consists of 1129 acres and employs 27 workers. Approximately how many acres must each employee watch over?
6. A zookeeper has 195 minutes to clean 22 animal cages. About how many minutes can she spend on each cage?

Write Idea: Look at the number sentences you wrote for the questions above. Use these as examples to explain the process of using compatible numbers to estimate quotients. Write out the steps you could use to teach this process to a friend.

Division**Lesson 7**

Use division to make groups of equal size.

Your entire school is having a spring picnic. Here are some plans that you can help with.

1. The 410 students in your school will all be taken by bus to the picnic. If each bus holds 40 students, how many buses are needed?
2. In addition to the 410 students, 14 teachers will attend the picnic. Hot dogs are being served. There are 12 hot dogs in a pack. To make sure that everyone has at least one hot dog, how many packs should be bought?
3. A total of \$64.44 can be spent for hot dogs. How much can be spent for each pack?
4. The budget allows \$40.00 for soda. If a two-liter bottle costs \$0.99, *about* how many bottles can be purchased? (Think about the best way to estimate your answer.)
5. A group of 260 students will be divided into 32 teams for the first set of games at the picnic. How many students can be on each team if the teams are as equal as possible?

6. Quick Review:

$340 \times 10 = \underline{\hspace{2cm}}$

$3400 \times 10 = \underline{\hspace{2cm}}$

$34,000 \div 100 = \underline{\hspace{2cm}}$

$5780 \times 10 = \underline{\hspace{2cm}}$

$57,800 \times 10 = \underline{\hspace{2cm}}$

$578,000 \div 100 = \underline{\hspace{2cm}}$

Write Idea: Sometimes when you're dividing, you may wonder if your answer is "suitable." Should your answer be a whole number? If there is a remainder, how should it be expressed? Write a paragraph explaining how you can decide the best way to express your answer.

Equations**Lesson 8**

Use basic number operations to find a missing value in an equation.

In baseball, the scoreboard keeps track of the runs made in each inning. Fill in the scoreboard below by using clues 1-5. Write the needed equations beneath each clue; then write the missing numbers in the scoreboard.

RUNS SCORED IN EACH INNING

Inning	1	2	3	4	5	6	7	8	9	Score
Red Wings	2		1					0	0	
Blue Birds	1		1				5	0	0	

1. At the end of the second inning, the score was Red Wings 4, Blue Birds 5. How many runs did each team score in the second inning? (*Reminder: Write the equations in the space below. Write the number of runs in the scoreboard above.*)
2. After both teams batted in the fourth inning, the score was tied 8 to 8. How many runs did each team score in the fourth inning?
3. The score was the same at the end of the sixth inning as it was after the fourth inning. How many runs did each team score in both the fifth and sixth innings?
4. By the end of the seventh inning, the Blue Birds were winning by 3 runs. How many runs did the Red Wings score in the seventh inning?
5. There was no score in the eighth and ninth innings. What was the final score for the game?

Write Idea: You are a sportswriter for a local newspaper. Your job is to write a summary of the baseball game played by the Blue Birds and the Red Wings. Use the scoreboard at the top of this worksheet to help you write your news story.

Patterns and Sequences

Lesson 9

Use patterns in numbers to find values.

The staff of a local newspaper called people in the telephone book. There were three long distance companies in the area, and the newspaper staff wanted to see how many customers each company had. They reported the results after every 1000 people they called.

- Study the survey results below and complete the table. Use the pattern in each column to help find the missing numbers for each company.

NUMBER OF CUSTOMERS

Number Surveyed	Company A	Company B	Company C
1000	250	425	325
2000	500	850	650
3000	750	1275	975
4000			
5000		2125	
6000	1500		1950

- Company A was disappointed when they saw the final results of the survey. They decided to run a six-month advertising campaign to boost their sales. At the end of each month, they called a group of 1000 people to test how well the campaign was going. Study their findings below and complete the table. Use the pattern in each column to help find the missing numbers for each company.

NUMBER OF CUSTOMERS (IN THE GROUP OF 1000)

Time Surveyed	Company A	Company B	Company C
After 1 month	300	400	300
After 2 months	350	375	275
After 3 months		350	250
After 4 months			
After 5 months			
After 6 months			

smART Idea: Pretend you work for Company A's advertising firm. Your job is to prepare graphs and summaries to explain what resulted from this campaign. Then, you are to present your information to other potential clients (your classmates).

Addition of Decimals

Lesson 1

Use addition to find the total.

Volunteer firefighters must be ready to respond to fires 24 hours a day. They are often called at home and asked to rush to a fire. The table below shows the time it takes three different firefighters to get ready.

Volunteer Firefighter Response Times						
Firefighter	Arrive (House to Station)	Change into Gear	Board Engine	Total to Get Ready	To Smith Street	To Lindsey Street
Williams	4 min., 34.11 sec.	46.59 sec.	16.81 sec.			
Hamilton	3 min., 24.34 sec.	47.57 sec.	16.49 sec.			
Rossi	5 min., 1.07 sec.	46.33 sec.	16.48 sec.			

- Find the total time it takes for each firefighter to get ready to leave the station. Enter your answers under the heading "Total to Get Ready." (Remember that 60 seconds = 1 minute.)
- On Tuesday, there was a fire on Smith Street. It took 3 minutes, 23.77 seconds to get there from the station. How long will it take each volunteer firefighter to get there from home? Fill in the table under the heading "To Smith Street."
- On Wednesday, the firefighters responded to a call on Lindsey Street. It took 52.47 seconds longer to get there than to the Smith Street fire. Fill in each firefighter's total time to get to the Lindsey Street fire from home under the heading "To Lindsey Street."

Write Idea: What fire safety tips do you know that might prevent a fire at your home? Make a list of these tips. If a fire did occur at your house, what things might you do in response? Which responses would be very quick? Which would take longer? Compare the times for your responses. How long do you think it would take the local fire company to get to your house?

Subtraction of Decimals**Lesson 2**

Use subtraction to find the difference.

Use this table for the questions below. The “final” score is the total of the scores from the first and second rounds.

Figure Skating Scores			
Skater	1st Round	2nd Round	Final
Brown	87.36		176.987
Morgan	85.48		180.765
Zeyher	85.32		182.434
Awasthi	88.67		182.890

1. Complete the table to show each skater’s scores for the second round.
2. Which skater had the highest final score?
3. Who had the second highest final score?
4. By how many points did the winner beat the second place finisher?

Write Idea: The skaters were scored on the quality of their performance. The skater with the most points was the winner. Can you think of any sports competition where the person with the lowest score is the winner? Describe an event where a score of 5.85 wins first place, and a score of 6.25 comes in second.

Multiplication of Decimals

Lesson 3

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

You have invited 9 friends to your birthday party on Friday night. Your mother wants you to help figure the cost of the food. She would like to keep all expenses to \$25.00 or less.

You were able to find out the following information:

- A two-liter bottle of soda serves 6 people. The cost is \$0.89 per bottle.
- A half-gallon carton of ice cream is enough for 7 people. It costs \$2.75 per carton.
- The cake costs \$12.00 and will serve 15 people.

1. Use the above information to complete this table.

Item	Cost Per Item	Number Needed	Total Cost
Bottle of soda			
Carton of ice cream			
Cake			
Grand Total for Food:			

2. Your mother is also buying 2.75 yards of paper “birthday tablecloth” for your party. It costs \$0.80 per yard. How much will the tablecloth cost?

3. Is \$25.00 enough money to cover the total cost of your party? Explain.

Write Idea: You would like to have some game prizes for your party guests. You have \$5.00 of your own money to use for buying the prizes. List the information you should consider to help you decide what prizes to buy.

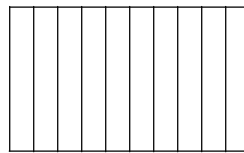
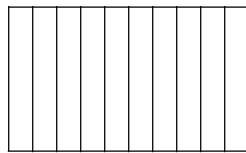
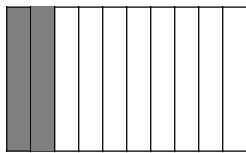
Division of Decimals

Lesson 4

Use division to make groups or parts of equal size.

Your father is the manager of a little league baseball team. Sometimes you help him plan for the games.

1. There were 13 players who ordered team uniforms. The total bill was \$448.50 for the uniforms. How much should each player pay?
2. Grape-Ade is purchased before each game. The cost is \$0.79 per bottle. How many bottles did you buy if you received \$7.36 back in change from a \$20.00 bill?
3. Before each game the base lines are “limed.” It takes approximately 2.5 bags of lime to cover both baselines. It is 60 ft. from home plate to first base. Approximately how many feet can be done with one bag?
4. Bill has a ratio of 9 hits to 34 times at bat. Ron has 8 hits in 31 times at bat. Find each player’s batting average. (Batting averages are rounded to the nearest thousandth.) Who has the better (higher) batting average?
5. Complete the division sentence by using this diagram of 3 rectangles.



$$3 \div \underline{\quad} = \underline{\quad}$$

Now do the division below. Does your quotient agree with the diagram?

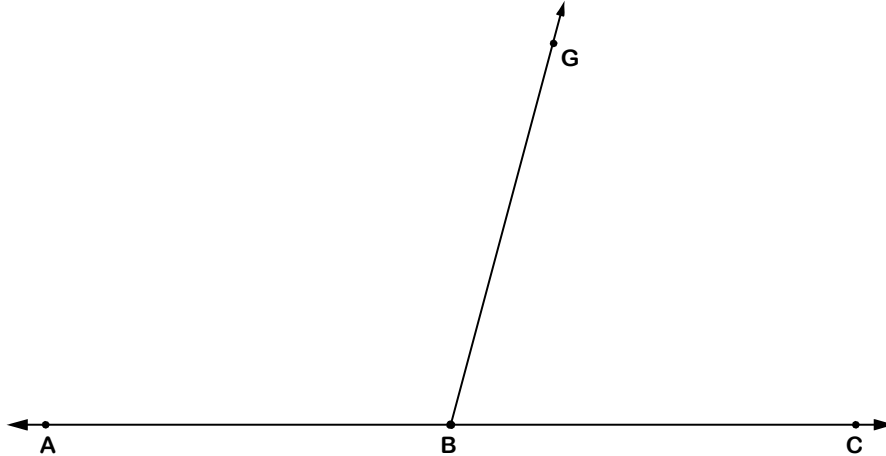
smART Idea: Did you know that dividing a decimal by a decimal can give a whole number?

Remember that decimal numbers can also be expressed as fractions. For example, $\frac{1}{2} \div \frac{1}{4} = 2$ is the same as $0.5 \div 0.25 = 2$. This is shown below. Create your own division problem and draw a sketch to show it.



Angles**Lesson 1**

Identify and draw measures of angles.

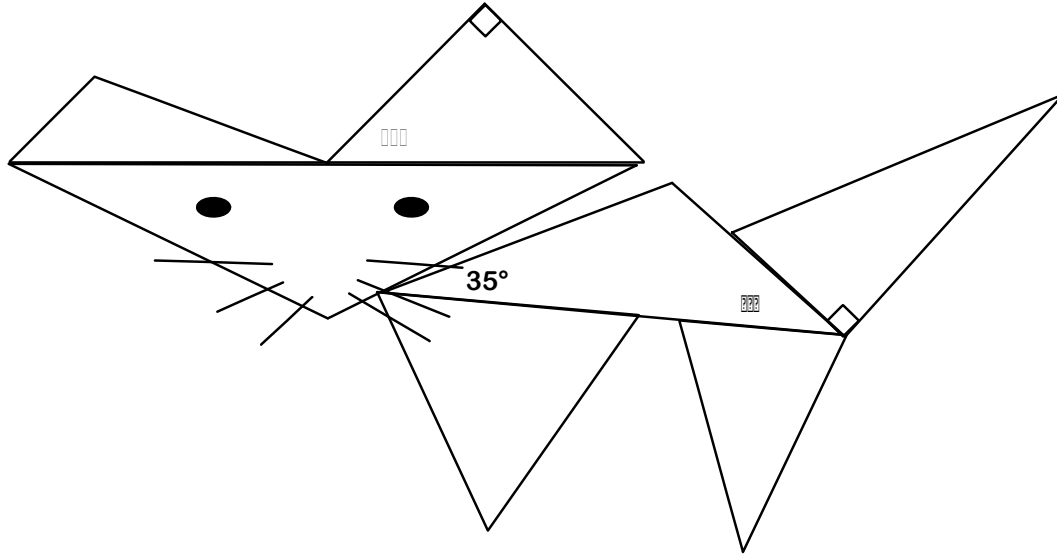


1. Using ray BC, create a 40° angle. Label the angle DBC.
2. Using ray BA, create a 35° angle that opens to the left. Label the angle EBA.
3. Using ray BC, create a 127° angle that opens to the right. Label the angle FBC.
4. Without using your protractor, estimate the size of $\angle GBC$.
5. What is the vertex of $\angle GBC$?
6. What is the measure of $\angle FBC$?

Write Idea: Create a very basic drawing using straight lines. Be sure the drawing has at least one acute and one obtuse angle and has labels to identify line segments and angles. Write instructions telling your friend how to create it using only a protractor and a ruler. It may be easiest to write the instructions as a series of steps. In your description, be sure to include the measures of angles and segments and indicate whether or not an angle opens to the left or to the right.

Triangles**Lesson 2**

Compute missing angles in triangles. Classify triangles.



1. The measures of two angles are shown in the triangle that makes up the cat's body. What is the measure of the third angle? Show your work.

Write the name of this triangle.

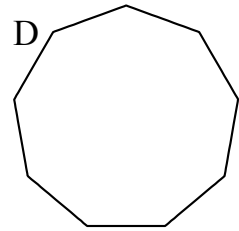
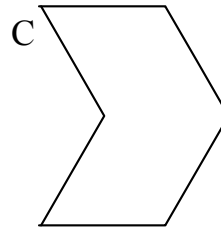
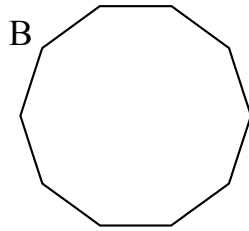
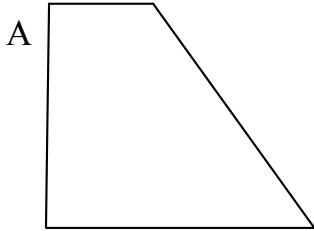
2. Shade the equilateral triangle purple. What are the measures of its angles?
3. Shade the right isosceles triangle red. What are the measures of its angles?
4. Shade the obtuse isosceles triangle green.
5. Shade the acute scalene triangle red.
6. Shade the acute isosceles triangle purple.
7. Shade the right scalene triangle blue.

SmART Idea: The triangle is often used in architecture because it can support a lot of weight. For example, the Eiffel Tower is triangular in shape and has support trusses that contain triangles. Look around and make a list of triangles at work in your town. Does any particular triangle seem to be used more often than another?

Plane Geometric Figures**Lesson 3**

Draw plane geometric figures from a description.

1. Name each shape. Be sure to identify if it is regular or irregular.



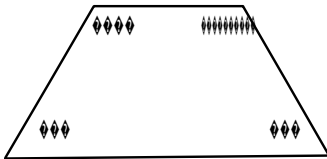
A _____

B _____

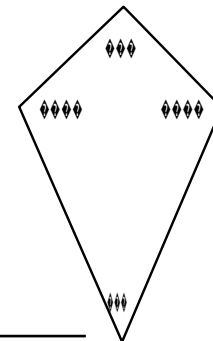
C _____

D _____

2. Calculate the missing angle in each of the quadrilaterals below.







3. Draw an irregular octagon. 4. Draw a shape with 7 vertices. 5. Draw an irregular pentagon.

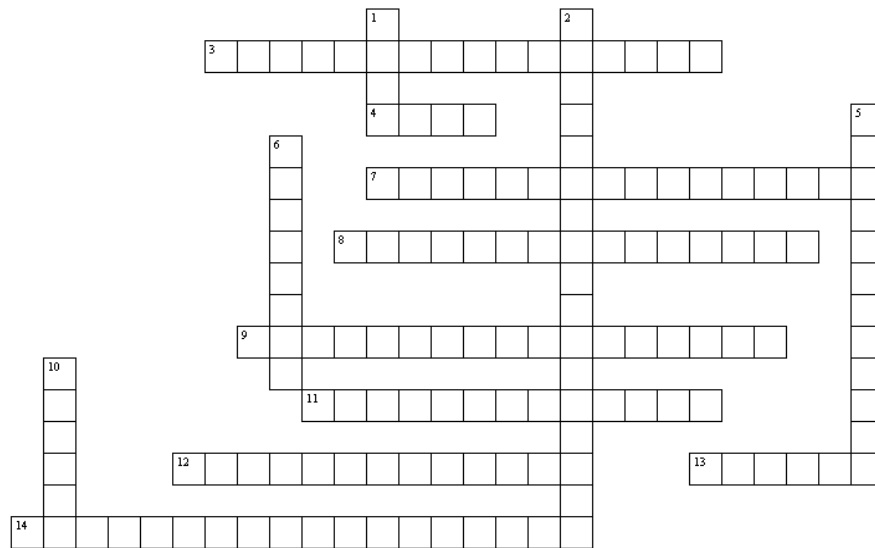
Write Idea: Pretend you are a teacher. In your own words, describe how to find the missing angle in a rectangle. Then, describe for your students the different plane figures. Help them to understand the difference between regular polygons and irregular polygons.

Solid Geometric Figures

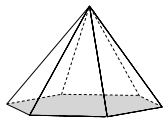
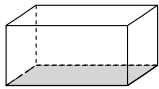
Lesson 4

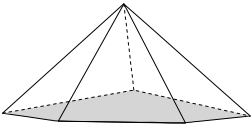
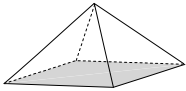

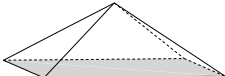
Classify Prisms and Pyramids

Use the text and graphic clues below to fill in the puzzle.


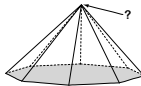
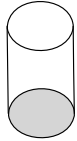


Across

- 3. 
- 4. where two faces of a space figure meet
- 7. 
- 8. a space figure with two parallel and congruent triangular bases and 3 sides

- 9. 
- 11. 
- 12. 
- 13. a point where two or more edges meet
- 14. 

Down

- 1. 
- 2. a pyramid with four faces
- 5. 
- 6. 
- 10. _____

SmART Idea: Did you ever notice the pyramid on the back of a U.S. dollar bill? It's in the left circle. In this instance, it is believed the pyramid represents strength and durability. It is uncapped to indicate the country is still a work in progress. Pretend you are the designer of a *new* dollar bill. Create a dollar bill that includes space figures. Below your drawing, describe what each space figure represents.

Congruence and Similarity**Lesson 5**

Note: You will need crayons or colored pencils to complete this activity.

The stained glass design below is based on similar and congruent figures. Color the design according to the instructions listed.

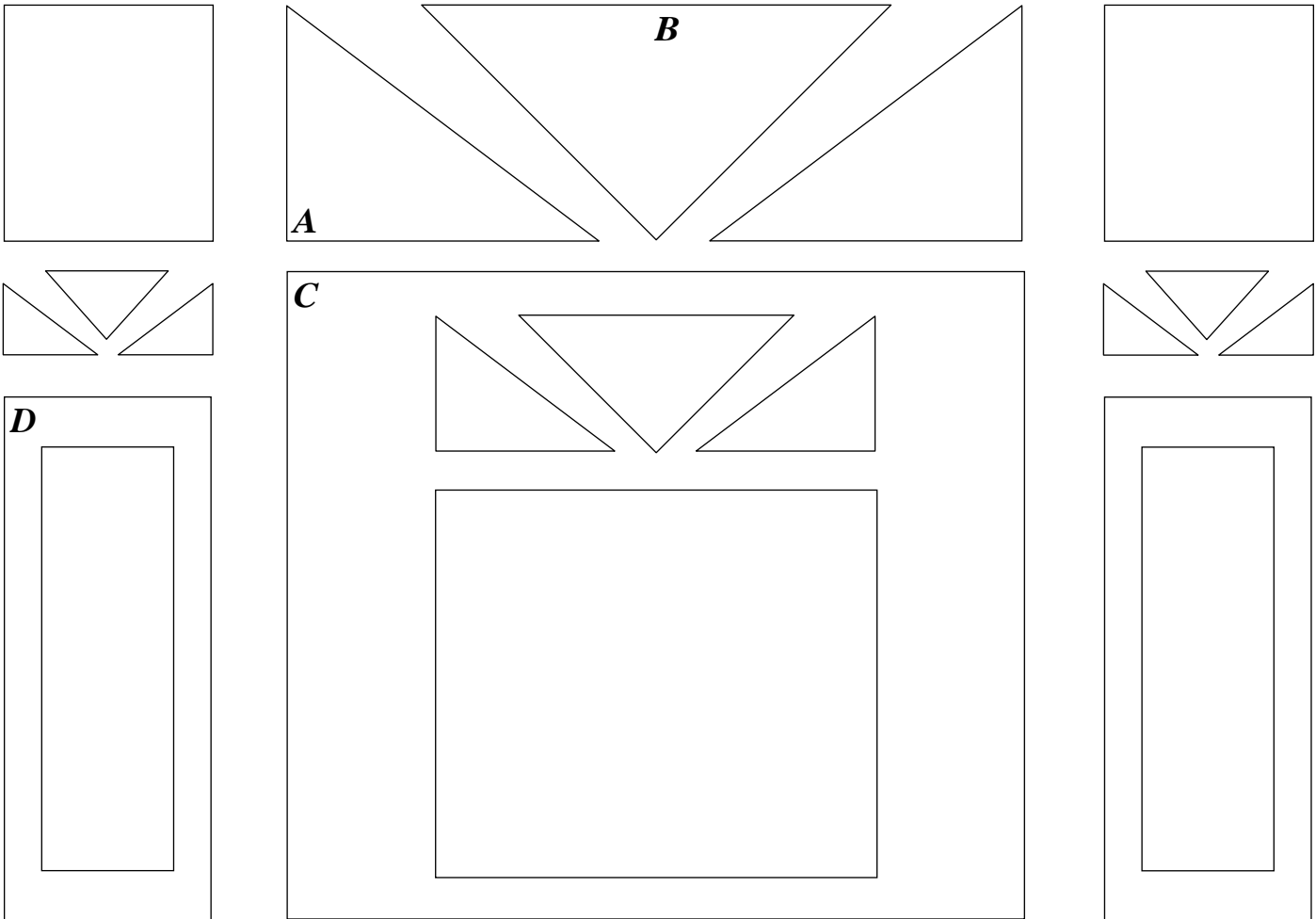


Figure A: Color red
 similar figures blue
 Color congruent figures red

Figure B: Color yellow
 Color similar figures green
 Color congruent figures yellow

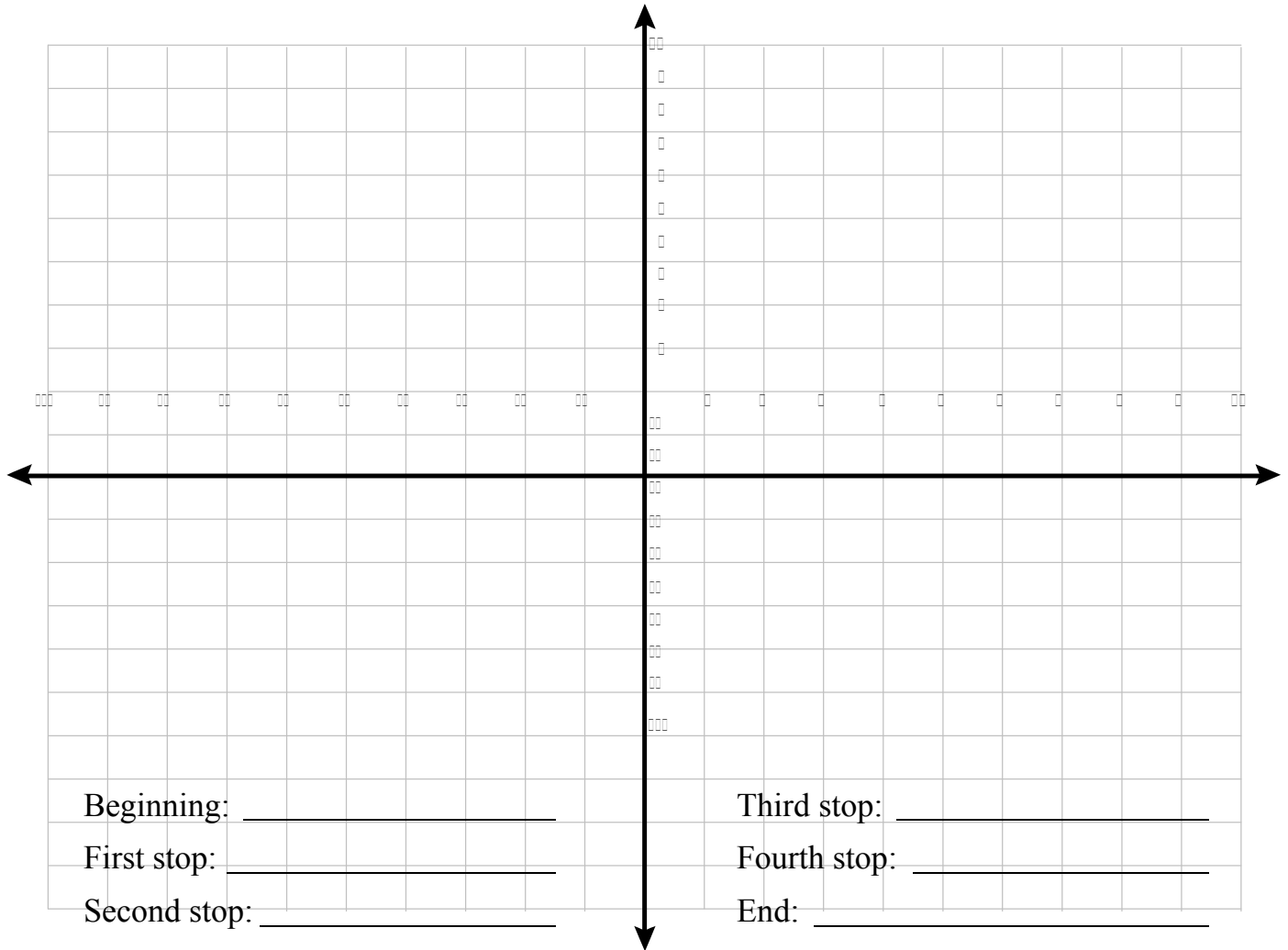
Figure C: Color orange
 similar figures purple
 Color congruent figures orange

Figure D: Color black
 Color similar figure brown
 Color congruent figures black

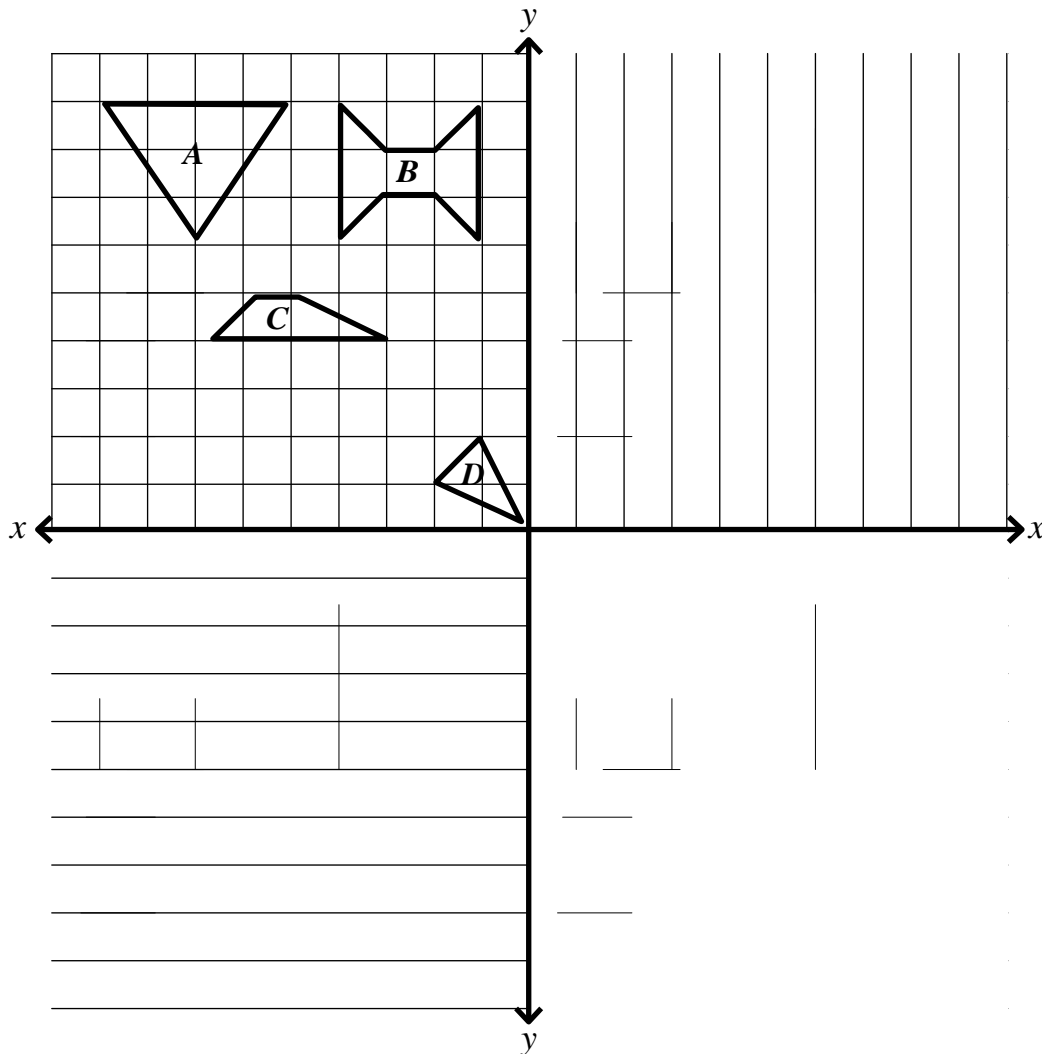
SmART Idea: Create your own stained-glass design. Use only four original figures. All other figures in the design must be similar or congruent to one of the four original figures.

The Coordinate Plane**Lesson 6**

Ms. Jones has a lot to do and not much time to do it. This afternoon, she has to get groceries, buy some medicine, mail a package and pick up her son at school. A simple map of her town is shown on the coordinate plane below. In the spaces provided, write the coordinates for each stop she must make in the most efficient order for completing her errands. Your list should begin and end with the Jones home.



SmART Idea: Create a map of your town on a coordinate plane. Place your house, your school, the houses of friends and any other places that you visit on a regular basis. List the coordinates for each location on your map.

Transformations**Lesson 7**

Each of the figures on the coordinate plane above represents a patch on a quilt. Follow each line of the directions below to complete the quilt.

- | | |
|------------------------------------|--|
| 1. Figure A: Flip over the y-axis | 6. Figure A: Slide 6 down, 10 right |
| 2. Figure B: Flip over the y-axis | 7. Figure B: Slide 6 down, 10 right |
| 3. Figure C: Flip over the y-axis | 8. Figure D: Rotate around center point (0,0). |
| 4. Figure A: Slide 6 down, 4 right | A rotation of figure D should be included in quadrant I. |
| 5. Figure B: Slide 6 down, 5 left | |

SmART Idea: Use transformations to complete the bottom two quadrants of the quilt. Use the flips, turns, and slides that you think complete the quilt in the most attractive manner.

Equivalent Forms

Lesson 1

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

Mr. McCurry is hiring new salespeople for his store. He says you can't always rely on calculators and cash registers. He wants the salespeople to understand the meaning of fractions, decimals, and percents. He gives job applicants this list of problems to solve. Let's see if you could get the job.

1. Give two equivalent fractions for each of the following:

a. 20%

c. $\frac{1}{2}$

b. 25%

d. 0.55

2. Complete the table. The first row has been done for you.

Fraction	Percent	Decimal
$\frac{1}{10}$	10%	0.10
	20%	
		0.25
$\frac{1}{2}$		
	75%	
		0.80

3. Complete each proportion below.

a. $\frac{1}{2} = \frac{5}{n}$

b. $\frac{3}{5} = \frac{n}{100}$

c. $\frac{2}{8} = \frac{8}{n}$

4. If items are discounted 25%, how much is the discount on an item with an original price of \$100?

Write Idea: Do you think percents are easy to compare? Why or why not? You are often told to “simplify” fractions. Why do you think $\frac{1}{2}$ is “simpler” than $\frac{50}{100}$?

Addition of Fractions

Lesson 2

Use addition to find the total.

Every summer, the community of Benchtree holds its weekend fair. Everyone enjoys the delicious food and the fun rides. There are also contests in which blue ribbons are awarded to the winners. In each contest there are two tries. The two scores are added together for a total score. The highest total score in the contest wins the blue ribbon. Below are scores for last summer's swimming and frog-jumping contests. Find the total scores and circle the name of the blue ribbon winner in each contest.

Swimming (number of laps in three minutes)			
Swimmer	Try #1	Try #2	Total Score
Mary	$2\frac{1}{4}$	$3\frac{1}{3}$	
John	$3\frac{1}{4}$	$2\frac{1}{2}$	
Cara	$3\frac{1}{3}$	$3\frac{1}{2}$	
Luke	$3\frac{1}{2}$	$3\frac{1}{6}$	
Tami	$3\frac{3}{4}$	$3\frac{5}{6}$	

Frog-Jumping (in inches)			
Frog	Try #1	Try #2	Total Score
Hoppity	$16\frac{3}{4}$	$11\frac{1}{8}$	
Jumpy	$9\frac{1}{3}$	$10\frac{1}{2}$	
Bully	$15\frac{1}{2}$	$12\frac{1}{2}$	
Spot	$13\frac{1}{8}$	$16\frac{1}{4}$	
Croaker	$14\frac{1}{4}$	$12\frac{5}{8}$	

Write Idea: Think about the contests held at the Benchtree Fair. What new contest or game would you suggest for next year's fair? Describe how the contest or game works. How is it scored? Tell why you think it should be added to the fair.

Subtraction of Fractions

Lesson 3

Use subtraction to find the difference.

Kearsten and Kyle are building a model house with the help of their Uncle Nate. He said they can use the leftover wood in his shed. Kearsten and Kyle want their model to be $8\frac{1}{8}$ inches long, but the boards are all different lengths. Help them figure out the amount they should cut off each board. In the table below, write and solve a number sentence (using fractions) for each board. The first one is started for you.

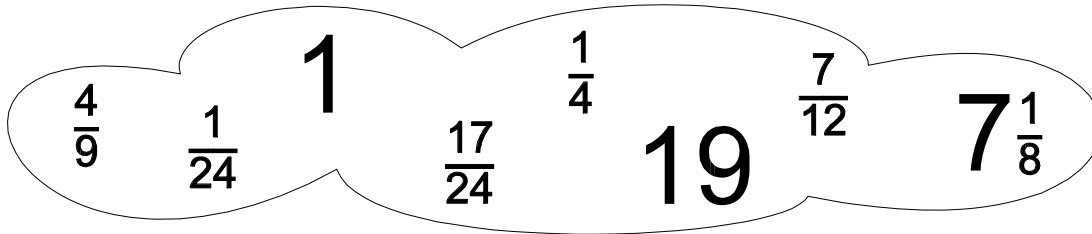
Board	Length (inches)	Amount of board to be cut off
A	$9\frac{3}{8}$	$9\frac{3}{8} - 8\frac{1}{8} = \square$
B	$14\frac{3}{4}$	
C	$14\frac{1}{2}$	
D	$12\frac{7}{8}$	
E	$14\frac{3}{8}$	
F	$10\frac{6}{8}$	
G	$10\frac{14}{16}$	
H	$12\frac{8}{16}$	
I	$12\frac{3}{4}$	
J	$12\frac{1}{4}$	
K	$11\frac{2}{4}$	
L	$14\frac{4}{16}$	
M	$8\frac{7}{8}$	
N	$9\frac{1}{2}$	
O	$15\frac{3}{8}$	

smART Idea: Pretend you are building a model house. Draw a floor plan for the model. Show the rooms, and label the length and width of each room.

Multiplication of Fractions**Lesson 4**

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

Solve each problem and write your answer below the question. Then find that product among the numbers below and circle it.



1. Matt found $\frac{3}{4}$ of a box of light bulbs in the hall closet. He used $\frac{1}{3}$ of these bulbs to replace some bulbs that had burned out in his house. What part of the box did he use?
2. Sue had $3\frac{1}{4}$ packs of AA batteries. She took inventory of the remote controls in the house. She realized she needed $\frac{1}{2}$ of these packs to replace the old batteries. How many packs did she need?
3. There was $\frac{7}{8}$ of a pack of hot dogs left in the refrigerator. You and your cousin ate $\frac{2}{3}$ of these hot dogs. What part of the pack did the two of you eat?
4. You're making a shelving unit for your bedroom. You need 4 pieces of wood that are $4\frac{3}{4}$ inches long. What's the total length of the board you should buy?

Write Idea: There should be four fractions displayed above that were not circled. Create a word problem that has one of these fractions as the product.

Division of Fractions**Lesson 5**

Use division to make parts of equal size.

You have a job in a suit factory. You start by measuring pieces of fabric. Then you use a laser cutter to cut each piece of fabric into as many suit parts as possible. Use the information below to find the number of suit parts you can make from the fabric supplied.

Size of fabric	Amount of fabric needed per part	Number of suit parts that can be cut from fabric
5 yards	$\frac{1}{3}$ yard for right sleeve	
7 yards	$\frac{1}{3}$ yard for left sleeve	
$3\frac{1}{3}$ yards	$\frac{5}{6}$ yard for back	
$4\frac{1}{2}$ yards	$\frac{3}{4}$ yard for right side	
$6\frac{3}{4}$ yards	$\frac{3}{4}$ yard for left side	
$\frac{7}{8}$ yard	$\frac{3}{8}$ yard for lapel	
$4\frac{3}{4}$ yards	$\frac{2}{3}$ yard for left pant leg	
$6\frac{1}{8}$ yards	$\frac{2}{3}$ yard for right pant leg	
$\frac{5}{6}$ yard	$\frac{1}{8}$ yard for waistband	

smART Idea: You design handkerchiefs to go along with the suits. Your handkerchiefs are $8\frac{1}{2}$ inches wide. Along the bottom width of each you put a pattern that repeats every $\frac{1}{2}$ inch. How many times will the pattern repeat? Draw your handkerchief, with your unique pattern, on a blank sheet of paper.

Percent of a Number

Lesson 6

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

Percents are important, especially when you need to buy something!

1. Last week Terry received \$12.00 allowance. The table below shows how Terry spent her money. Fill in the “Amount Spent” column.

Item	Percent Spent	Amount Spent
Snacks	15%	
Entertainment	25%	
Gifts	10%	
Savings	50%	

2. Terry’s mom is looking for a new TV and has found one on sale. The original price was \$480.00, and the discount is 20%. How much is the discount?
3. Terry wants to buy a new jacket. A jacket that sold for \$38.00 now has a 25% discount. How much is the discount?

What is the sale price of the jacket?

If the sales tax rate is 5%, what is the final price Terry will pay for the jacket?

4. Sales tax is a percent of the price. Fill in the amount of tax charged on each of these items.

Item	Price	Tax Rate	Tax
Jeans	\$19.00	6%	
CD	\$10.98	5%	
Magazine	\$3.95	4%	

smART Idea: Draw figures that illustrate each of the following:

- 25% of the figure is shaded
- $33\frac{1}{3}$ % of the figure is shaded
- 40% of the figure is shaded

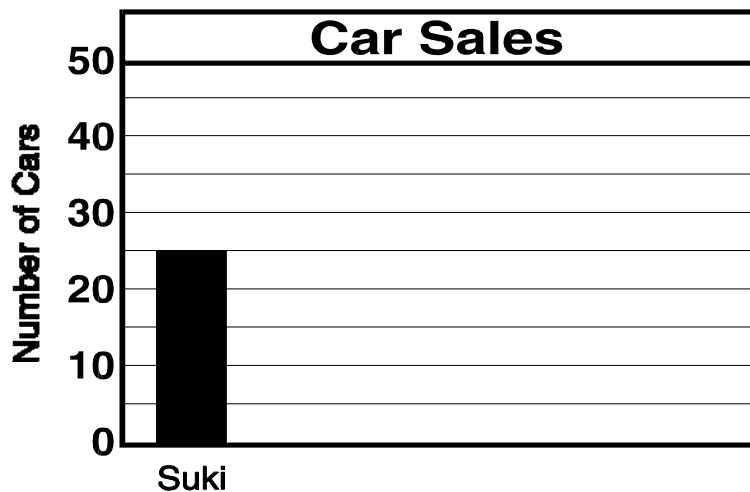
Bar Graphs

Lesson 1

Use bar graphs to compare sets of data.

Serena owns Marsby Used Cars. She is making a bar graph to show the number of cars sold by the sales staff last month. She found that Suki sold 25 cars, Major sold 41, Ivan sold 13, Arlene sold 14, and Nina sold 29.

1. Use the information Serena found to complete the bar graph.



2. How many more cars did Major sell than Arlene?
3. Who sold the greatest number of cars? Who sold the least number of cars?
4. How many cars did the sales staff sell last month?
5. Suppose Major sold 52 cars instead of 41. How would you change this graph?

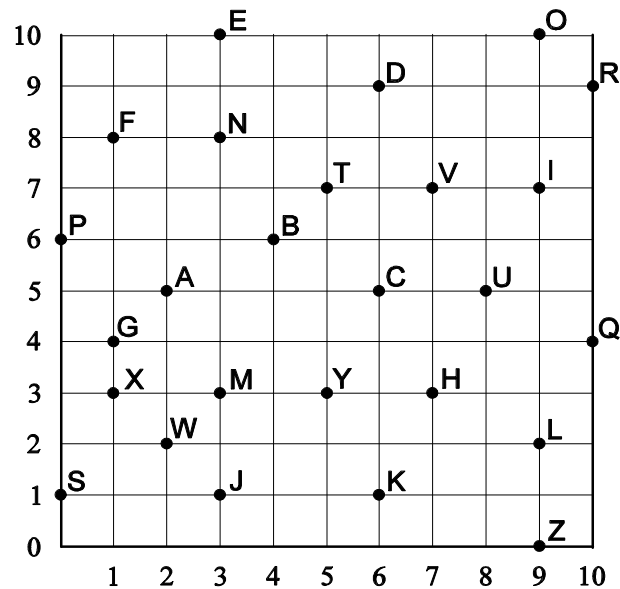
smART Idea: Create a bar graph using information from the newspaper. For example, you might use the batting averages of your favorite baseball players or the scores of the last five games of your favorite sports team.

Graphing Ordered Pairs

Lesson 2

Use ordered pairs of numbers to find locations.

Imagine that you've traveled to a place where dictionaries are read by finding coordinates on a grid. To find the spelling of a word, you have to locate the numbered pair for each letter. For example, to find the word "potato," you would look under (0,6) for words beginning with the letter "p."



1. Find the letters for the following ordered pairs. Write the words they spell on the lines provided:

(0,6) (8,5) (9,0) (9,0) (9,2) (3,10) _____

(5,7) (10,9) (9,7) (2,5) (3,8) (1,4) (9,2) (3,10) _____

(6,9) (2,5) (3,8) (1,4) (3,10) (10,9) (9,10) (8,5) (0,1) _____

2. Now, write the numbered pairs that would spell each of the words below:

architect _____

hurricane _____

unlimited _____

Write Idea: Write a secret message using numbered-pair spelling. Exchange your message with a friend. Decode each other's messages.

Line Graphs

Lesson 3

Use line graphs to show change over time.

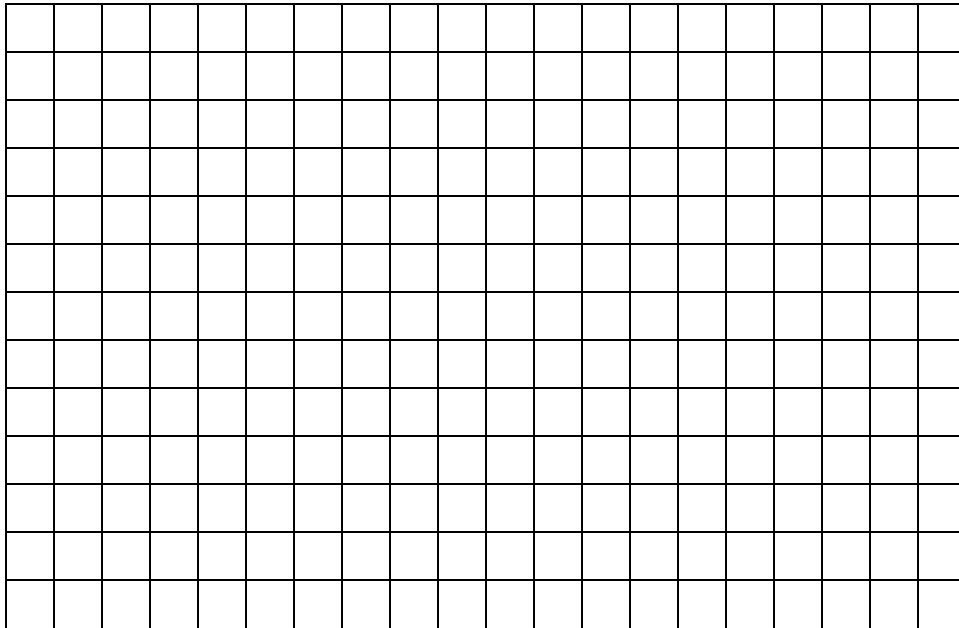
Your class has been asked to help the local librarian make sense of some data on how and when people use the library. This table summarizes some of the data:

AVERAGE NUMBER OF PEOPLE BORROWING BOOKS

Time of Day	8-10 a.m.	10 a.m.-Noon	Noon-2 p.m.	2-4 p.m.	4-6 p.m.
Number of People	20	12	37	33	45

Use the grid below to create a line graph of the data. Before you start, think about these questions:

1. What scale will you use for the y-axis?
2. How will you label the x-axis?
3. What title will you use for the graph?



Write Idea: List the steps you took to create this graph. Was it worth it? Which would you rather look at to see the data: the table or the graph? Why? Can you think of other situations where it might be helpful to use a line graph?

Circle Graphs

Lesson 4

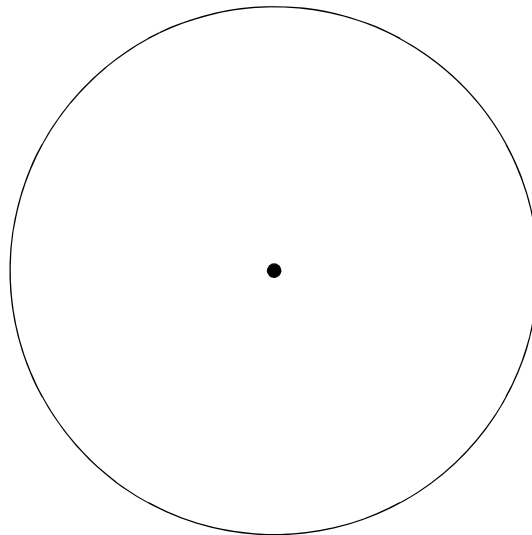
Use a circle graph to compare parts of a whole.

Talisa and her friends like to go to the movies. They especially enjoy animal stories and wish there were more movies about animals. They decide to write to a movie company in Hollywood. To back their claim that young audiences like movies about animals, Talisa and her friends decide to first gather some data. They ask 60 other students for their favorite type of movie. The results are in the table below:

FAVORITE TYPES OF MOVIES

Type of Movie	Number of Students
Action	10
Horror	12
Animal stories	20
Science fiction	12
Western	6

Create a circle graph below to display the data. Label each section of the circle with the appropriate fraction. Be sure to give the graph a title.



If you worked for the movie company, would this information convince you that young audiences like movies about animals? Why, or why not?

smART Idea: With the right data, circle graphs can make a clear and colorful argument. Is there something in your community that you would like to change? Maybe you would like to have more items recycled. Maybe you would like the recreation center to offer more kinds of sports. Think of an issue and then create a circle graph to convince the community to make a change.

Answer Keys



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

Understanding Numbers

Lesson 1: Place Value

1. 36.24
2. 4,623.4758
3. 448,076,472.21
4. 4,132,572.8015
5. 624,662,076.935
6. 1,357.89

Lesson 2: Numbers and Word Names

1. 80.06
2. 47,827,415.346
3. 500,038,193.516
4. 951,265.9
5. 11,172,029.17
6. 9,407.38
7. 162,497.05

Lesson 3: Comparing and Ordering Numbers

1. Tiana < Erica
2. Tiana, Tyron, Randy, Erica, Denny, Keisha, Greg, and Craig
3. Tiana, Greg, Randy, Juan
4. Tyrone, Denny, Erica, Craig
5. Tyrone, Denny, Tiana, Greg

Lesson 4: Changes in Temperature

Answers will vary, for example:

City A (66° F):

jacket with a hood
sweater
sweat suit
pair of tennis shoes
kite

City B (75° F):

short sleeve shirt
pair of shorts
baseball mitt
cap
soccer ball

City C (6° C):

umbrella
book
winter coat
hat
pair of jeans

City D (14° C):

umbrella
raincoat
pair of boots
deck of cards
board game

Using Whole Numbers

Lesson 1: Front-End Estimation

1. Gardening: $\$3.00 \times 90 = \270.00
2. Snowball stand: $\$2.00 \times 100 = \200.00
3. Mowing lawns: $\$5.00 \times 80 = \400.00
4. Pet care: $\$4.00 \times 40 = \160.00
5. Baby-sitting: $\$2.00 \times 100 = \200.00
6. Mowing lawns seems to offer the most money.

Lesson 2: Estimation by Rounding

1. $\$1.00 + \$2.00 + \$2.00 = \5.00
2. $\$3.00 + \$3.00 = \$6.00$
3. $\$1.00 \times 3 = \3.00
4. $\$1.00 \times 4 = \4.00
5. $\$5.00 + \$6.00 + \$3.00 + \$4.00 = \$18.00$
6. No, she spent less than the \$20.00 limit:
 Coupons: $\$1.00 + \$1.00 = \$2.00$
 Total spent: $\$18.00 - \$2.00 = \$16.00$

Lesson 3: Addition

1. $2,493 + 4,677 = 7,170$ videos
2. $36,448 + 4,677 = 41,125$ videos
3. $2,493 + 14,804 = 17,297$ videos
4. $36,448 + 14,804 = 51,252$ videos
5. $2,493 + 36,448 = 38,941$ videos
6. $4,677 + 14,804 = 19,481$ videos
7. $2,493 + 36,448 + 4,677 + 14,804 = 58,422$ videos

Lesson 4: Subtraction

Number of Worms

Farmers	In Stock March 1	Sold in March	In Stock April 1	Sold in April	Difference: March and April Sales	Higher Sales Month
Sherry	3468	$3468 - 2113 = 1355$	2113	1209	$1355 - 1209 = 146$	March
Rodney	4246	$4246 - 3309 = 937$	3309	1908	$1908 - 937 = 971$	April
Andrew	2767	$2767 - 1108 = 1659$	1108	817	$1659 - 817 = 842$	March