

STUDY LINK
10•1

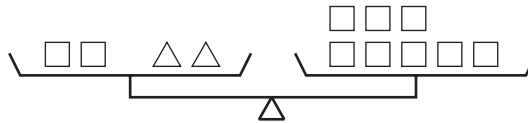
Pan-Balance Problems



In each figure below, the two pans are in perfect balance. Solve these pan-balance problems.

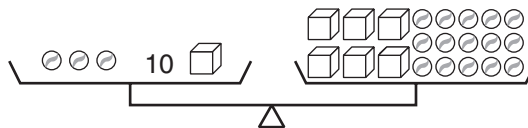
1. One triangle weighs

as much as _____ squares.



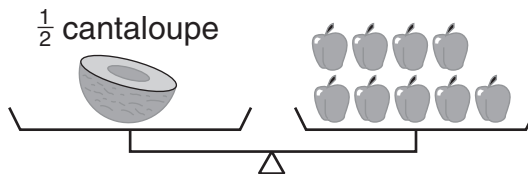
2. One cube weighs

as much as _____ marbles.



3. Two cantaloupes weigh

as much as _____ apples.



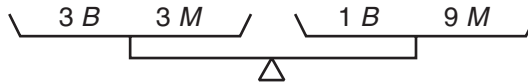
4. One X weighs

as much as _____ Y s.



5. One B weighs

as much as _____ M s.


Practice

6.
$$\begin{array}{r} 4,217 \\ - 2,849 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 16,000 \\ - 8,245 \\ \hline \end{array}$$

8. $11.47 - 8.896 =$ _____

9. $36 - 42 =$ _____

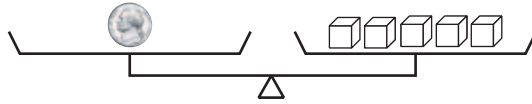
LESSON
10•1

Exploring Pan Balances

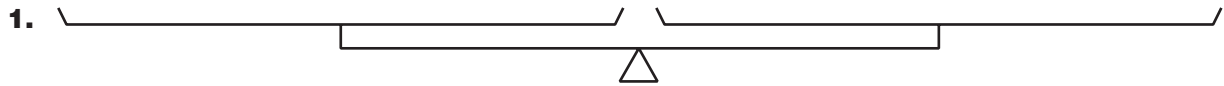


Find combinations of objects where the weights balance the pans.
 Record the combinations below using pictures and words.

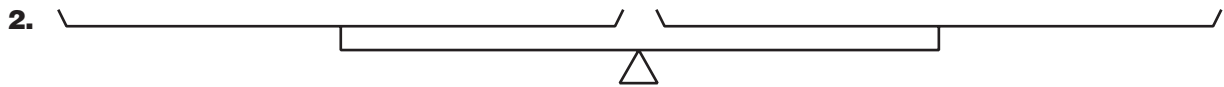
Example:



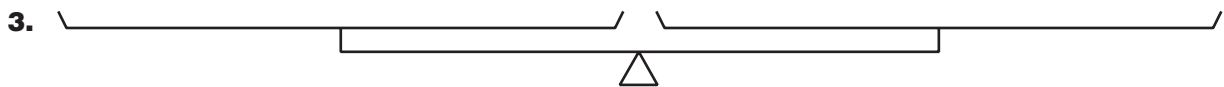
One nickel weighs about as much as 5 blocks.



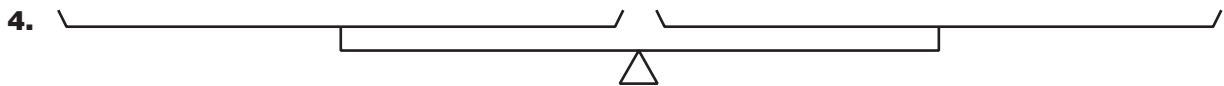
One _____ weighs about as much as _____.



One _____ weighs about as much as _____.



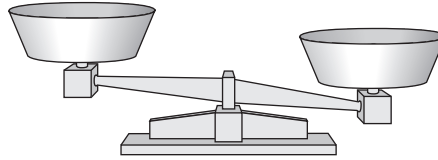
One _____ weighs about as much as _____.



One _____ weighs about as much as _____.

LESSON
10•1**Penny Weights**

The materials used to make a penny were changed at the beginning of one of these years: 1981, 1982, or 1983. As a result, the weight of a penny has changed. Your task is to find the year the weight of pennies changed.



1. Compare 1981 pennies to 1982 pennies.
Put ten 1981 pennies in one pan and ten 1982 pennies in the other pan.
Do the pans balance? _____
2. Return the pennies to their correct containers.
Put ten 1982 pennies in one pan and ten 1983 pennies in the other pan.
Do the pans balance? _____
3. I think penny weights changed beginning in the year _____ because

4. Why do you think it is better to compare the weights using 10 pennies for each year rather than only 1 penny for each year? _____

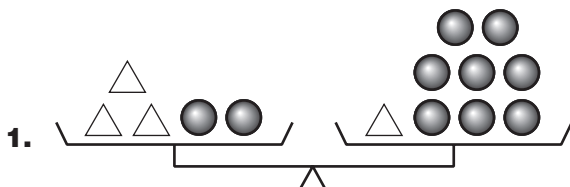
5. Why do you think they changed the materials used to make a penny?

STUDY LINK
10·2

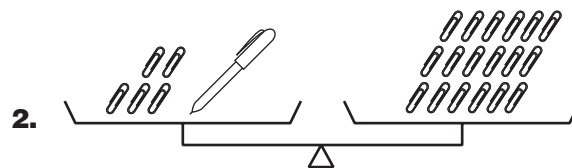
Pan-Balance Problems



In each figure below, the two pans are in perfect balance. Solve these pan-balance problems.



One triangle weighs
as much as _____ balls.



One pen weighs
as much as _____ paper clips.



M weighs
as much as _____ marbles.



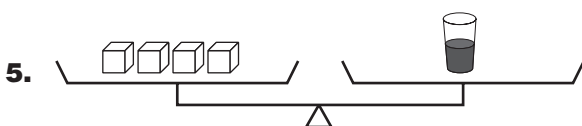
N weighs
as much as _____ marbles.



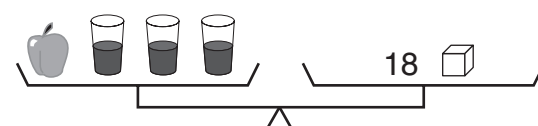
One \triangle weighs
as much as _____ \square s.



One \square weighs
as much as _____ marbles.



One cup of juice weighs
as much as _____ blocks.



One apple weighs
as much as _____ blocks.

Practice

Fill in the missing numbers to make true sentences.

6. _____ = $(7 + 45) / 2$

7. $((28 / 7) + 12) / 8 =$ _____

8. $((14 * 3) + 14) - 6 =$ _____

9. _____ = $(3 - 3) * ((34 / 2) * 115)$

LESSON
10•2**Measuring Time**

Franz buys two sandglasses from an antique dealer. However, when he gets home he realizes the sand in the sandglasses does not measure 1 hour. The first sandglass measures a nine-minute interval, and the other sandglass measures a thirteen-minute interval.



Franz wants to make a special cleaning solution to clean his new sandglasses. The solution needs to boil for 30 minutes. Can Franz use his sandglasses to measure 30 minutes from the time the solution starts to boil?

Explain your solution by describing what Franz should do.

STUDY LINK
10•3

Writing Algebraic Expressions



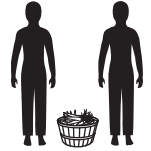
Complete each statement below with an algebraic expression, using the suggested variable.



1. Lamont, Augusto, and Mario grow carrots in three garden plots. Augusto harvests two times as many carrots as the total number of carrots that Lamont and Mario harvest. So Augusto harvests



Augusto

Lamont and Mario harvested $L + M$ carrots.

_____ carrots.

2. Rhasheema and Alexis have a lemonade stand at their school fair. They promise to donate one-fourth of the remaining money (m) after they repay the school for lemons (l) and sugar (s). So the girls donate

_____ dollars.

3. a. State in words the rule for the “What’s My Rule?” table at the right.

- b. Circle the number sentence that describes the rule.

$$Q = (3 + N) * 5 \quad Q = 3 * (N + 5) \quad Q = 3N + 5$$

N	Q
2	11
4	17
6	23
8	29
10	35

4. a. State in words the rule for the “What’s My Rule?” table at the right.

- b. Circle the number sentence that describes the rule.

$$R = E * 6 * 15 \quad R = (E * 6) + 15 \quad R = E * 15 + 6$$

E	R
7	57
10	75
31	201
3	33
108	663

Practice

5. $384 * 1.5 =$ _____

6. $50.3 * 89 =$ _____

7. $\frac{843}{7} =$ _____

8. $70.4 / 8 =$ _____

LESSON
10•3

“What’s My Rule?”



1. Write a rule in words for the “What’s My Rule?” table.

in	out

2. Work with a partner to complete the table. Take turns: one partner enters an *in* value, and the other partner follows the rule to enter an *out* value.

3. Write the rule as an algebraic expression.

4. Think of a rule for the “What’s My Rule?” table. Then use your rule to complete 3 rows in the table. Have your partner find the rule and complete the table.

in	out

5. Write your rule in words and as an algebraic expression.

- a. Rule in words:

- b. Rule as an algebraic expression:

6. What are important things to remember when writing rules or making a “What’s My Rule?” table for a partner to find the rule?

STUDY LINK
10•4

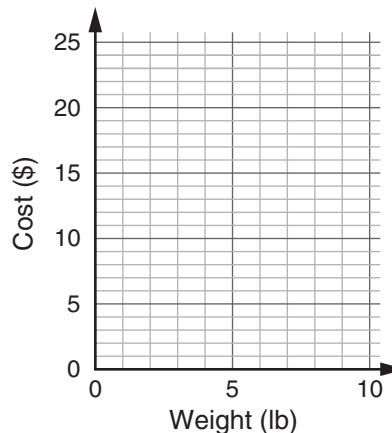
Representing Rates



Complete each table below. Then graph the data and connect the points.

- 1. a.** Cherry tomatoes cost \$2.50 per pound.
 Rule: Cost = \$2.50 * number of pounds

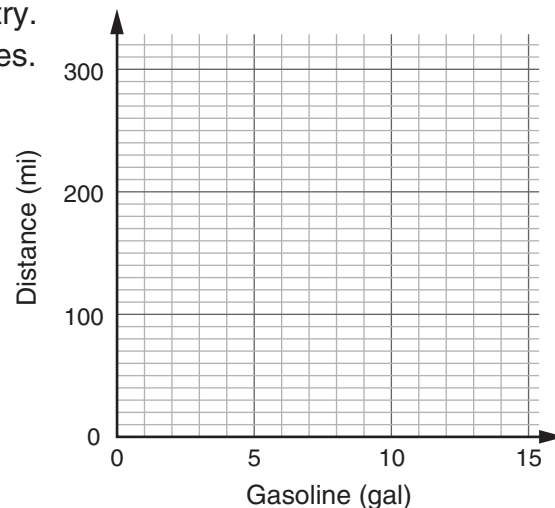
Weight (lb) (w)	Cost (\$) ($2.50 * w$)
1	
3	
	15.00
10	



- b.** Plot a point to show the cost of 8 pounds.
 How much would 8 pounds of cherry tomatoes cost? _____
- c.** Would you use the graph, the rule, or the table to find out how much 50 pounds of cherry tomatoes would cost? Explain.
- _____
- _____

- 2. a.** Chantel is planning a trip to drive across country.
 Her car uses 1 gallon of gasoline every 24 miles.
 Rule: distance = 24 * number of gallons

Gasoline (gal) (g)	Distance (mi) ($24 * g$)
1	
4	
	168
13	



- b.** Plot a point to show the distance the car would travel on 6 gallons of gasoline. How many miles would it go? _____
- c.** Would you use the graph, the rule, or the table to find out how far the car would travel on 9 gallons of gasoline? Explain. _____
- _____

LESSON
10•4

Solving Rate Problems



Rate describes a relationship between two quantities with different units. Rate tells how many of one type of thing there are for a certain number of another type of thing. Rates are often expressed with phrases that include the word *per*. For example, miles per hour, cost per ounce, or books per student.

One example of rate is speed. A basic formula is $\text{distance} = \text{rate} * \text{time}$. Multiplication can be used for many different problems involving rates. For example, $\text{distance} = \text{rate} * \text{gallons}$, $\text{total cost} = \text{rate} * \text{ounces}$, or $\text{total books} = \text{rate} * \text{students}$.

To solve a problem using a formula, first replace variables with the known values.

Example:

Maribel can travel 5 miles per hour on her skateboard. How far will she travel in 2 hours?

distance = rate * time	<i>d</i>	=	<i>r</i>	*	<i>t</i>
distance = 5 miles per hour * 2 hours	10	=	5	*	2
distance = 10 miles					

Maribel can travel 10 miles.

Use the formula to solve the following problem.

- Samuel's go-kart can travel 357 miles on 14 gallons of gas. His go-kart travels how many miles per gallon?

distance = rate * gallons of gas	<i>d</i>	=	<i>r</i>	*	<i>g</i>
distance = miles per gallon * 14 gallons of gas	_____	=	_____	*	_____
rate = _____					

- Samuel's go-kart can travel _____ miles per gallon of gas.

Explain your solution.

LESSON
10•4

“What’s My Rule?”



Complete each table below according to the rule.



1. Rule: Subtract the *in* number from 15.

in (<i>n</i>)	out ($15 - n$)
1	
2	
8	
	5
18	
	0

2. Rule: Triple the *in* number.

in (<i>d</i>)	out ($3 * d$)
7	
12	
	24
0.3	
	1
$\frac{1}{2}$	

3. Rule: Double the *in* number and add 3.

in (<i>x</i>)	out ($(2 * x) + 3$)
2	
4	
6	
	19
12	
	3

Complete each table below. Write the rule in words or as a formula. On the back of the page, graph the data in Problems 4 and 5.

4. Rule: _____

_____	_____
_____	_____

5. Rule: _____

_____	_____
_____	_____

6. Make up your own.

Rule: _____

in	out
4	2
12	6
16	8
2	
	$3\frac{1}{2}$
310	

in	out
1	1
2	3
3	5
4	
5	
	19

in	out

STUDY LINK
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Cricket Formulas



In 1897, the physicist, A. E. Dolbear, published an article titled “The Cricket as a Thermometer.” In it he claimed that outside temperatures can be estimated by counting the number of chirps made by crickets and then by using that number in the following formula:

$$\text{Outside temperature } (^{\circ}\text{F}) = \frac{(\text{number of cricket chirps per minute} - 40)}{4} + 50$$

- Write a number model for the formula. _____
- According to this formula, what is the estimated outside temperature if you count 80 chirps in a minute? _____

Other cricket formulas exist. The following formula is supposed to work particularly well with field crickets:

$$\text{Outside temperature } (^{\circ}\text{F}) = (\text{number of chirps in 15 seconds}) + 37$$

- Write a number model for the formula. _____
- According to this formula, what is the estimated outside temperature if you counted 35 chirps in 15 seconds? _____
- Compare the two formulas. If you count 30 chirps in 15 seconds, what is the estimated outside temperature for each formula?
 - First formula: _____
 - Second formula: _____

Practice

6. $7 - 2\frac{2}{5} =$ _____

7. $1\frac{1}{2} + 2\frac{2}{3} + 3\frac{3}{4} + \frac{1}{12} =$ _____

8. $\left(\frac{2}{3} * \frac{2}{3}\right) - \frac{2}{9} =$ _____

9. $\frac{12}{9} \div \frac{1}{3} =$ _____

LESSON
10•5
Graphing “What’s My Rule?” Tables

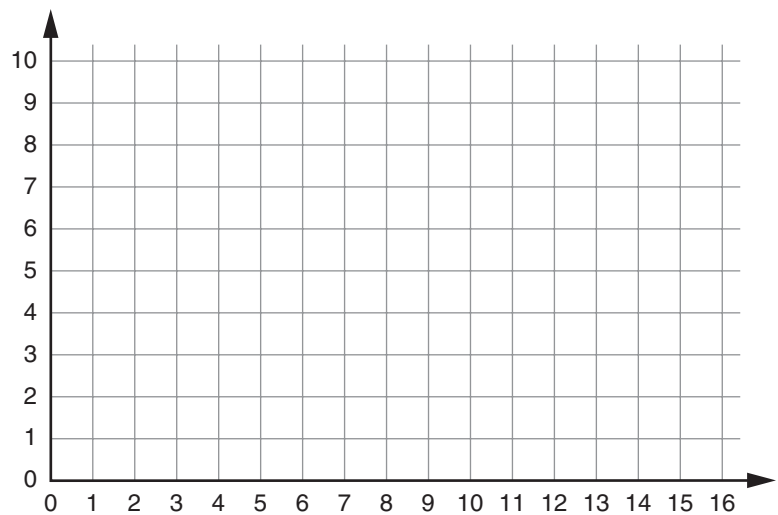
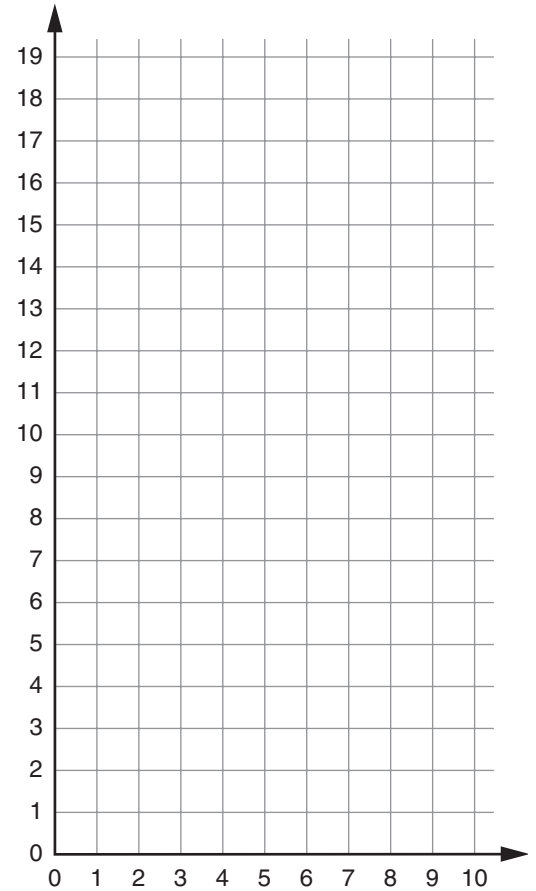

Complete the “What’s My Rule?” tables. Record the rule on the lines provided, and graph the data from the tables.

1. Rule: _____

in (x)	out $((2 * x) + 3)$
1	
2	
3	
	15
8	
	3

2. Rule: _____

in n	out $n \div 2$
6	3
9	$4\frac{1}{2}$
1	0.5
12	
	8



STUDY LINK
10•6

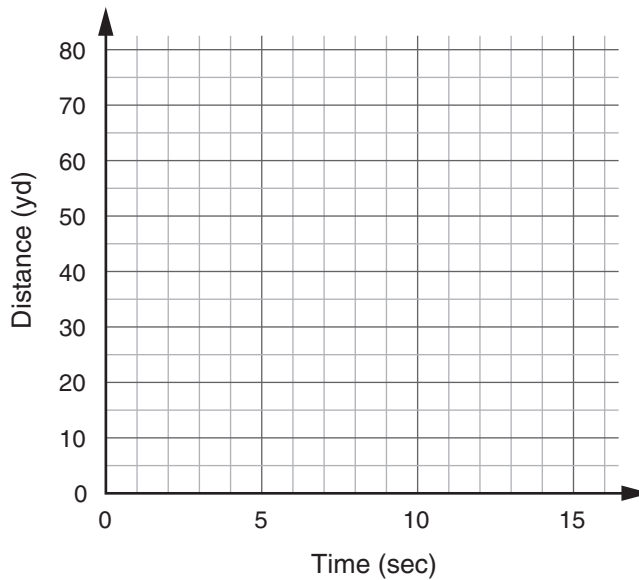
Interpreting Tables and Graphs



Natasha is 12 years old and runs an average of 6 yards per second. Derek is 8 years old and runs about 5 yards per second. Natasha challenged Derek to an 80-yard race and told him she would win even if he had a 10-yard head start.

1. Complete the table showing the distances Natasha and Derek are from the starting line after 1 second, 2 seconds, 3 seconds, and so on.

Time (sec)	Distance (yd)	
	Natasha	Derek
Start	0	10
1		
2		20
3	18	
4		
9		55
10		
11		
12		
13		



2. Use the table to write rules for the distance covered by Natasha and Derek.

Natasha's Rule: _____

Derek's Rule: _____

3. Graph the results of the race between Natasha and Derek on the grid above. Label each line.

4. a. Who wins the race? _____

b. What is the winning time? _____

c. At what time in the race did Natasha take the lead? _____

LESSON
10•6

Interpreting Table Data



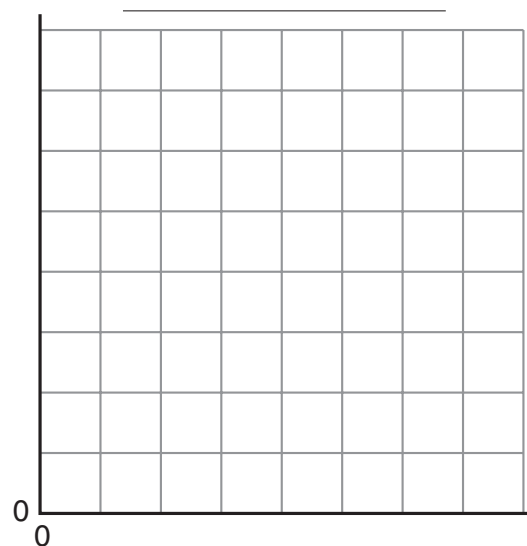
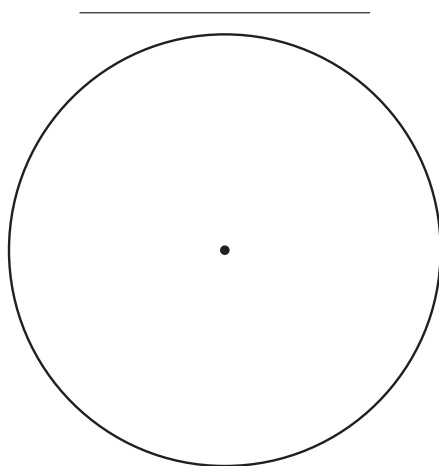
There are a number of choices when making a graph from table data.

- ◆ The type of graph is determined by the type of data represented.
- ◆ The title and labels for the graph are often the easiest to recognize from the table.
- ◆ Deciding on the scale to use for the y-axis of a line graph is more of a challenge. The intervals in the data can guide the choice of a scale.

1. Make a graph for each of the tables below.

Table 1	
Pinto bean plants grow an average of 1.5 inches each day.	
Day	Plant Height (in.)
0	0
1	1.5
2	3.0
3	4.5
4	6.0
5	7.5

Table 2	
Exterior colors of cars in the movie theater parking lot	
Exterior Color	Percent
Silver	25%
Yellow	5%
Black	25%
Red	10%
Blue	25%
White	10%



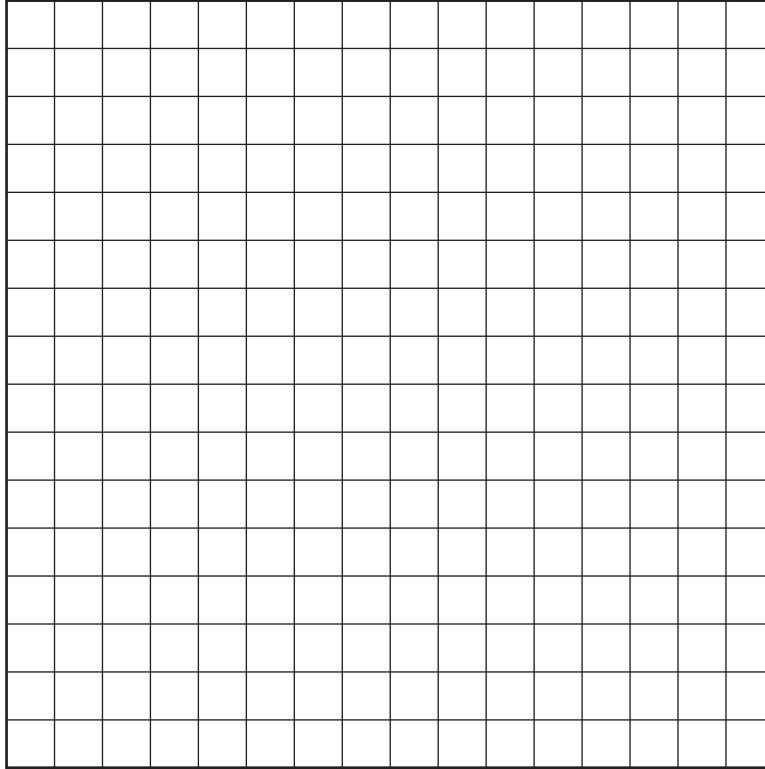
2. On the back of this page, explain why you chose which graph to use for each table.

STUDY LINK
10•7

Mystery Graphs



Create a mystery graph on the grid below. Be sure to label the horizontal and vertical axes. Describe the situation that goes with your graph on the lines provided.



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

LESSON
10•7**Exploring Silhouettes**

Objects and actions can often be recognized from their shapes, called **silhouettes**.
For each of the silhouettes below, write a description of the object or activity.

1.



2.



3.



4.



5.



6.



LESSON
10•7

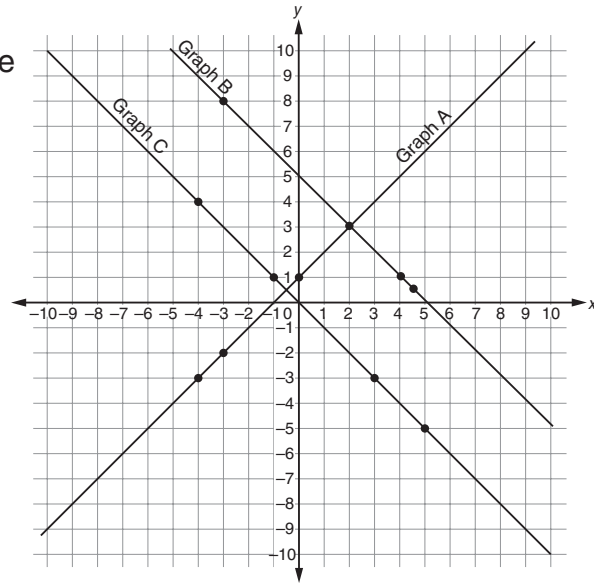
Making Tables from Graphs



When you plot the values of a table as coordinates on a grid and connect the points, the resulting figure can be called a **line graph**.

For each graph on the grid to the right:

- ◆ Find the coordinates of four points that lie on the graph.
- ◆ Write the four points in the “What’s My Rule?” table.
- ◆ Write the rule for the table.
- ◆ Check that your rule works for all the points on the graph.



1. Rule for Graph A: _____

x	y

2. Rule for Graph B: _____

x	y

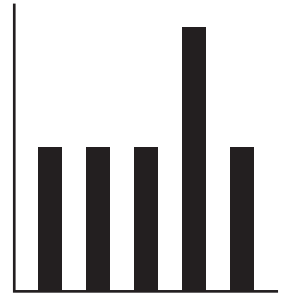
3. Rule for Graph C: _____

x	y

LESSON
10•7**Analyzing Graph Errors**

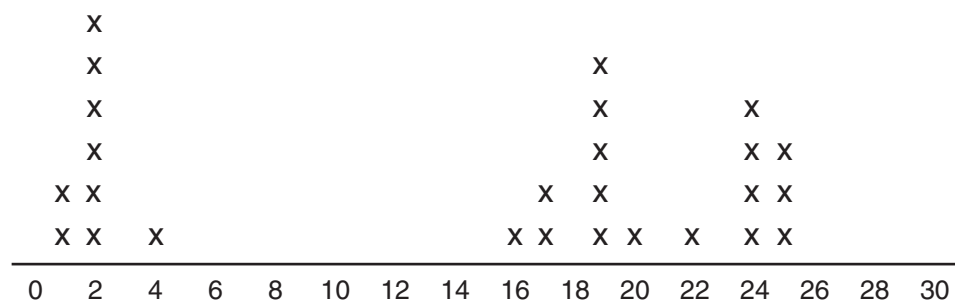
For each graph below, describe a possible error in the graph.

- The students in Ms. Wyn's fifth-grade class took a favorite color survey. About the same number of people voted for red, blue, and green. Orange and yellow got about the same number of votes, but the votes were a lot less than the other three colors. They made a bar graph of their results.

Favorite Colors

Describe at least one error in the Favorite Colors graph. Explain how you know this is an error.

- There are 26 students in Ms. Wyn's class. They wanted to find the mean number of books that students had read in their class. They found out that half the class had read five or fewer books and the other half had read more than 15 books. The mode for the class was 19 books. They made a line plot of their results.

Books We Have Read

Describe at least one error in the Books We Have Read graph. Explain how you know this is an error.

STUDY LINK
10•8

Finding Circumferences



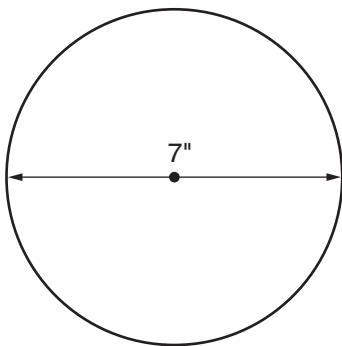
The formula for the circumference of a circle is:

$$\text{Circumference} = \pi * \text{diameter, or } C = \pi * d$$

Use the π key on your calculator to solve these problems. If your calculator doesn't have a π key, enter 3.14 each time you need π .

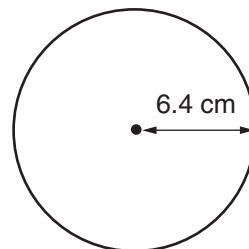
Find the circumference of each circle below. Show answers to the nearest tenth.

1. a.



Circumference \approx _____ inches

b.



Circumference \approx _____ centimeters

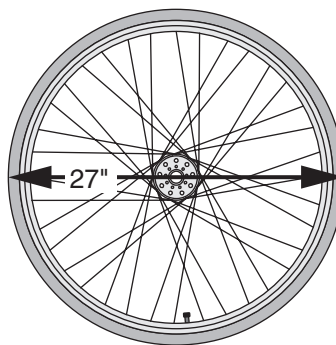
2. The wheels on Will's bicycle have a diameter of about 27 inches, including the tire.

a. What is the circumference of the tire?

About _____ inches

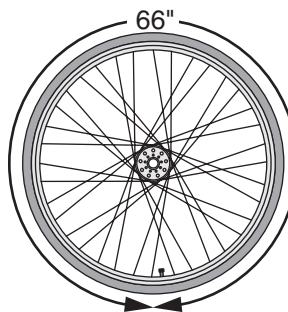
b. About how far will Will's bicycle travel if the wheels go around exactly once?

About _____ inches



3. Sofia measured the circumference of her bicycle tire. She found it was 66 inches. What is the diameter of the tire?

About _____ inches



LESSON
10•8
Can Your Body Pass through an Index Card?


1. Fold a 5-inch-by-8-inch index card in the middle, along the 5-inch width of the card.
2. Hold the halves of the folded card together. Cut the card as shown by the lines in Diagram A. Some cuts start at the fold and go almost to the edge of the card. Other cuts start at the edge and go almost to the fold. Be sure the first and last cuts start at the fold. Cuts should alternate between starting at the fold and starting at the edge.
3. Open the card. Cut along the fold from *X* to *Y* as shown in Diagram B. Be careful not to cut to the edges of the card.

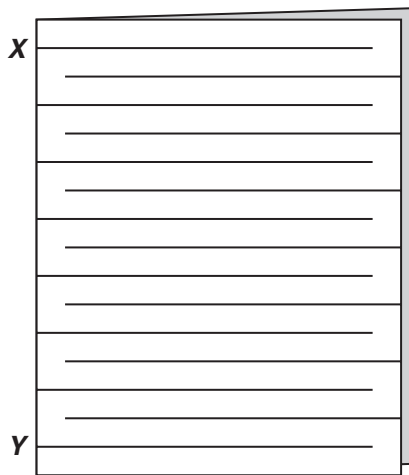


Diagram A

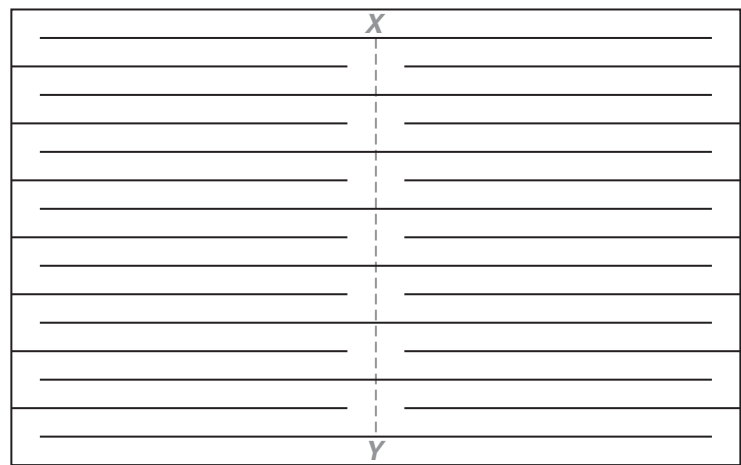


Diagram B

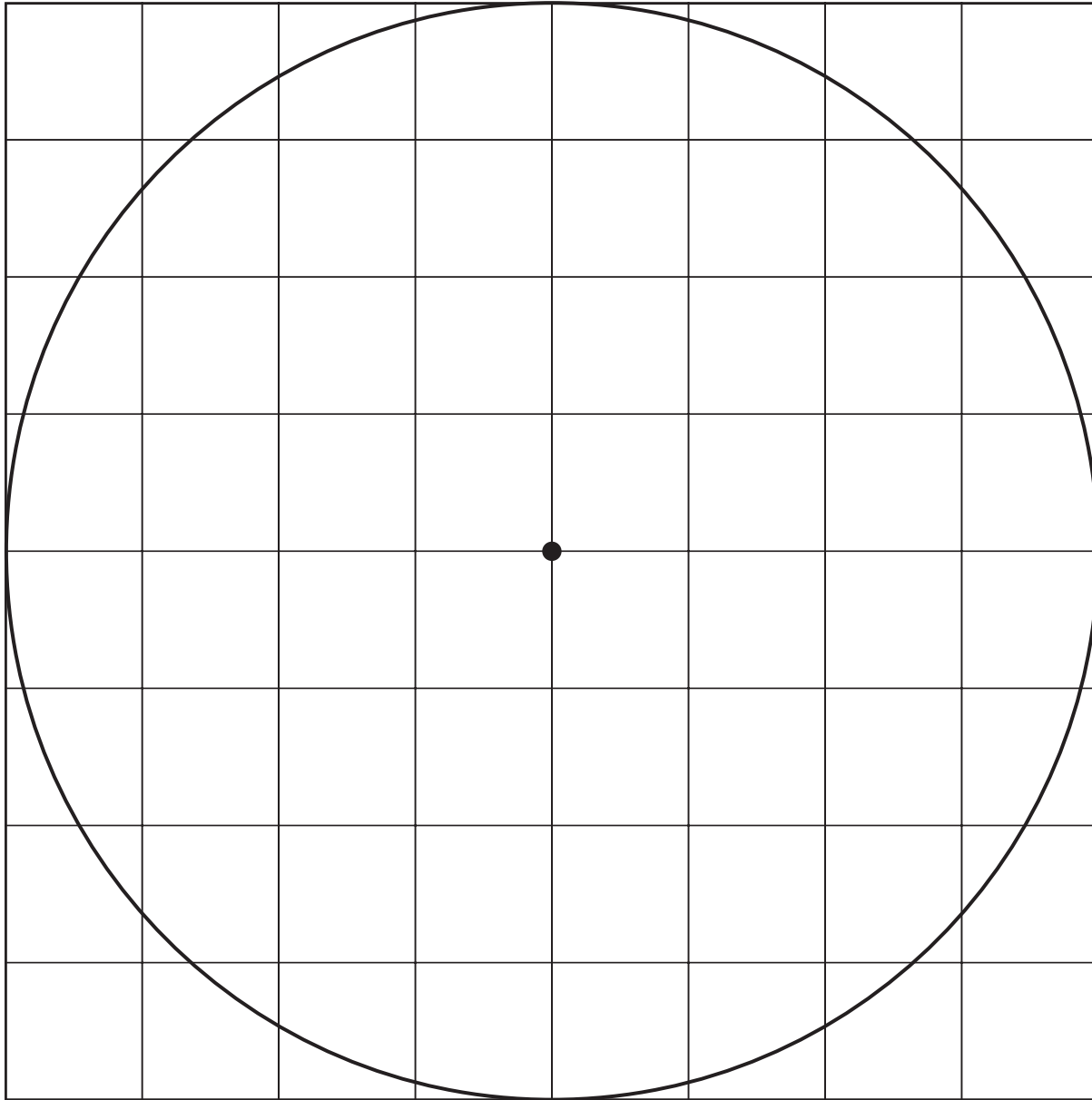
4. Pull the card apart carefully. You'll have a paper ring. Is it large enough for your body to pass through?

Try This

Use another 5-inch-by-8-inch index card. Can you cut out a ring that has a perimeter twice the perimeter of the ring you just made? Explain how you would do it.

LESSON
10•9

Counting Squares to Find the Area of a Circle



STUDY LINK
10•9

Area and Circumference



Circle the best measurement for each situation described below.

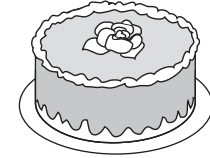
1. What size hat to buy (*Hint: The hat has to fit around a head.*)

area circumference perimeter



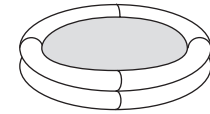
2. How much frosting covers the top of a round birthday cake

area circumference perimeter



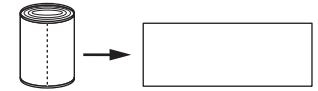
3. The amount of yard that will be covered by a circular inflatable swimming pool

area circumference perimeter



4. The length of a can label when you pull it off the can

area circumference perimeter



Fill in the oval next to the measurement that best completes each statement.

$$\text{Area of a circle: } A = \pi * r^2$$

$$\text{Circumference of a circle: } C = \pi * d$$

5. The radius of a circle is about 4 cm. The area of the circle is about

12 cm² 39 cm² 50 cm² 25 cm²

6. The area of a circle is about 28 square inches. The diameter of the circle is about

3 in. 6 in. 9 in. 18 in.

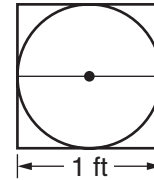
7. The circumference of a circle is about 31.4 meters. The radius of the circle is about

3 m 5 m 10 m 15 m

8. Explain how you found your answer for Problem 7.

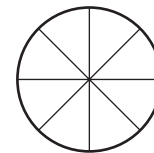
LESSON
10•9
Modeling πr^2


The figure of a circle drawn inside a square is a model that shows how the circumference of the circle is greater than 2 lengths around, but less than 4 lengths. This makes the circumference about 3 times the circle's diameter.

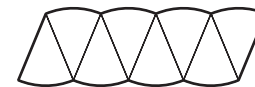


Follow the directions below to make a model that shows how the area of a circle can be found using the formula $A = \pi r^2$.

1. Cut along the lines of the circle to cut it into 8 pieces.



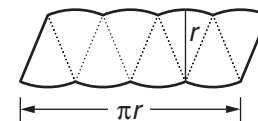
2. Arrange and glue the pieces on a sheet of construction paper so they approximate a parallelogram.



3. Use a colored pencil or marker to draw the outline of a parallelogram along the edges of your arranged circle pieces, and mark the measure of the height and the base.

The height of this figure is the same as the radius of the circle.

The base is $\frac{1}{2}$ the circumference of the circle. The circumference is approximately π times the diameter. Since the radius is $\frac{1}{2}$ of the diameter, the measure of $\frac{1}{2}$ the diameter can be written as π times the radius, or πr .

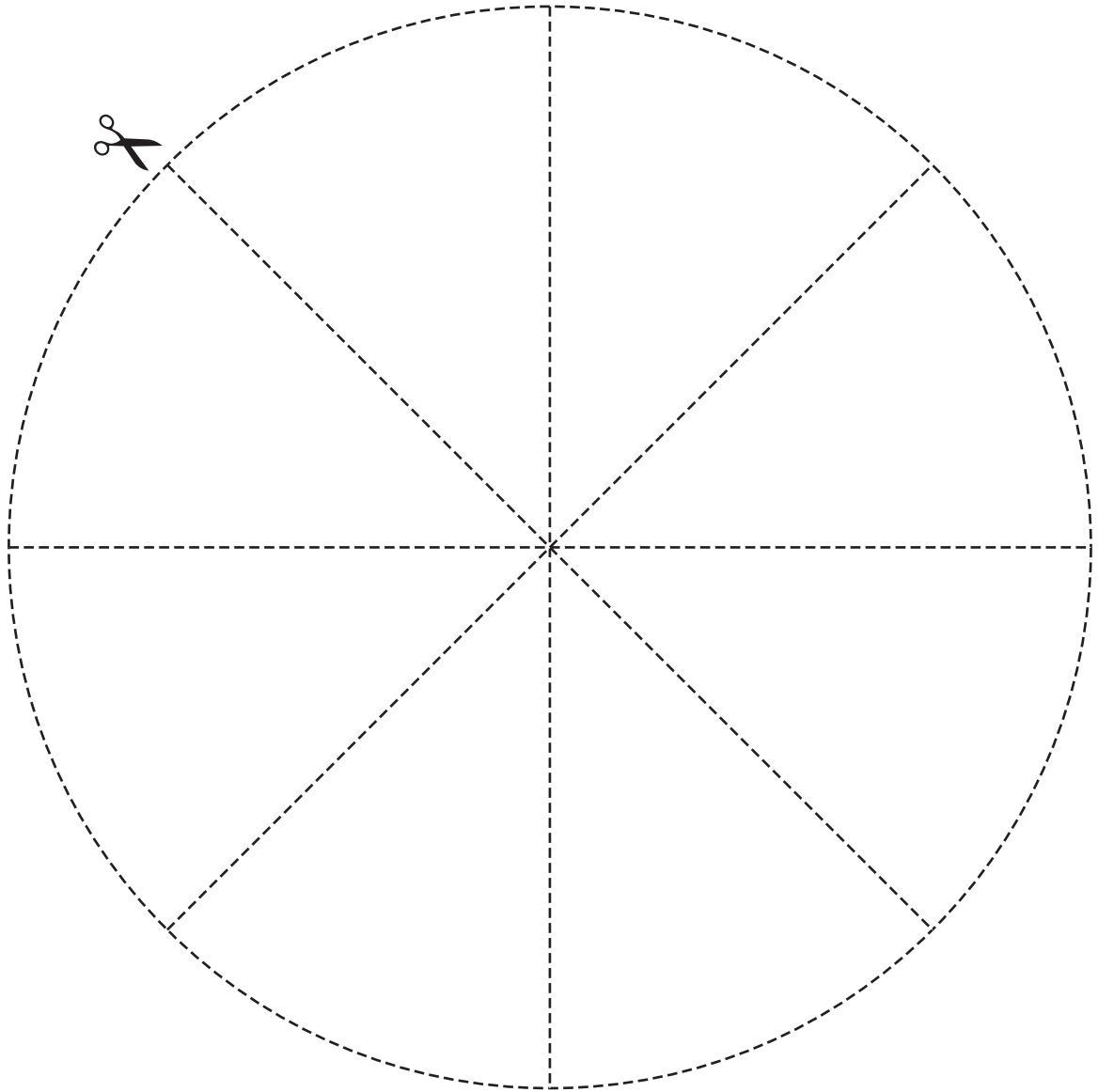


The formula for the area of a parallelogram is $A = b * h$. In our model, the formula can be written as $A = \pi r * r$, $A = \pi * (r * r)$, or $A = \pi r^2$.

4. Label your figure: $A = \pi * (r * r) = \pi r^2$.
5. Describe what you think is the most interesting thing about this model.

LESSON
10•9**A Model for πr^2** 

Cut along the dotted lines. Use the pieces for your model of the formula for the area of a circle.



LESSON
10•9
More Area and Circumference Problems

Circle Formulas

Circumference: $C = \pi * d$

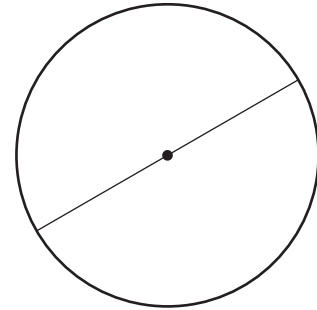
Area: $A = \pi * r^2$

where C is the circumference of a circle, A is its area, d is its diameter, and r is its radius.

Measure the diameter of the circle at the right to the nearest centimeter.

1. The diameter of the circle is _____.
2. The radius of the circle is _____.
3. The circumference of the circle is _____.
4. The area of the circle is _____.
5. Explain the meaning of the word *circumference*. _____

6.
 - a. Use your Geometry Template to draw a circle that has a diameter of 2 centimeters.
 - b. Find the circumference of your circle. _____
 - c. Find the area of your circle. _____
7.
 - a. Use your Geometry Template to draw a circle that has a radius of $1\frac{1}{2}$ inches.
 - b. Find the circumference of your circle. _____
 - c. Find the area of your circle. _____





Volume

Unit 11 focuses on developing your child's ability to think spatially. Many times, students might feel that concepts of area and volume are of little use in their everyday lives compared with computation skills. Encourage your child to become more aware of the relevance of 2- and 3-dimensional shapes. Point out geometric solids (pyramids, cones, and cylinders) as well as 2-dimensional shapes (squares, circles, and triangles) in your surroundings.

Volume (or capacity) is the measure of the amount of space inside a 3-dimensional geometric figure. Your child will develop formulas to calculate the volume of rectangular and curved solids in cubic units. The class will also review units of capacity, such as cups, pints, quarts, and gallons. Students will use units of capacity to estimate the volume of irregular objects by measuring the amount of water each object displaces when submerged. Your child will also explore the relationship between weight and volume by calculating the weight of rice an average Thai family of four consumes in one year and by estimating how many cartons would be needed to store a year's supply.

Area is the number of units (usually squares) that can fit onto a bounded surface, without gaps or overlaps. Your child will review formulas for finding the area of rectangles, parallelograms, triangles, and circles and use these formulas in calculating the surface area of 3-dimensional shapes.

The goal of this unit is not to have students memorize formulas, but to help them develop an appreciation for using and applying formulas in various settings. By the end of this unit, your child will have had many experiences using 2- and 3-dimensional geometry.



Please keep this Family Letter for reference as your child works through Unit 11.

Vocabulary

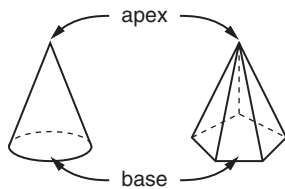
Important terms in Unit 11:

apex In a pyramid or cone, the vertex opposite the base.

base of a parallelogram The side of a parallelogram to which an altitude is drawn. The length of this side.

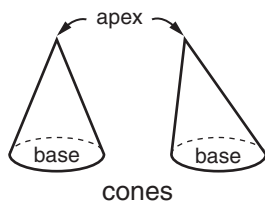
base of a prism or cylinder Either of the two parallel and congruent faces that define the shape of a prism or a cylinder.

base of a pyramid or cone The face of a pyramid or cone that is opposite its apex.



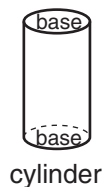
calibrate To divide or mark a measuring tool, such as a thermometer, with gradations.

cone A geometric solid with a circular base, a vertex (apex) not in the plane of the base, and all of the line segments with one endpoint at the apex and the other endpoint on the circumference of the base.

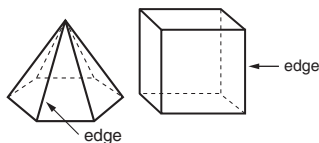


cube A polyhedron with 6 square faces. A cube has 8 vertices and 12 edges.

cylinder A geometric solid with two congruent, parallel circular regions for bases, and a curved face formed by all the segments with an endpoint on each circle that are parallel to the segment with endpoints at the center of the circles.



edge A line segment where two faces of a polyhedron meet.

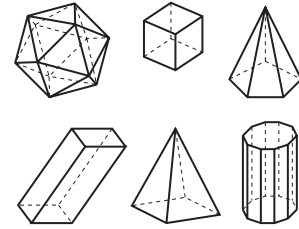


face A flat surface on a polyhedron.

geometric solid The surface or surfaces that make up a 3-dimensional shape, such as a prism, pyramid, cylinder, cone, or sphere. Despite its name, a geometric solid is hollow; it does not contain the points in its interior.

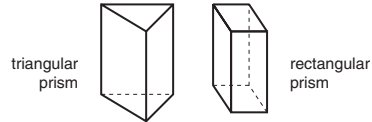
polyhedron

A 3-dimensional shape formed by polygons with their interiors (faces) and having no holes.



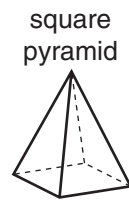
polyhedrons

prism A polyhedron with two parallel and congruent polygonal



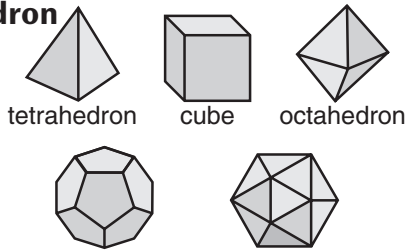
regions for bases and lateral faces formed by all the line segments with endpoints on corresponding edges of the bases. The lateral faces are all parallelograms. Prisms get their names from the shape of their bases.

pyramid A polyhedron made up of any polygonal region for a base, a point (apex) not in the plane of the base, and all of the line segments with one endpoint at the apex and the other on an edge of the base. All the faces except perhaps the base are triangular. Pyramids get their names from the shape of their base.



regular polyhedron

A polyhedron whose faces are all congruent regular polygons and in which the same number of faces meet at each vertex.

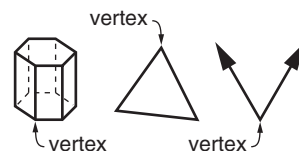


The five regular polyhedrons

sphere The set of all points in space that are a given distance from a given point. The given point is the center of the sphere, and the given distance is the radius.

surface area A measure of the surface of a 3-dimensional figure.

vertex (vertices or vertexes) The point where the rays of an angle, the sides of a polygon, or the edges of a polyhedron meet.



Do-Anytime Activities

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

1. Have your child compile a 2- and 3-dimensional shapes portfolio or create a collage of labeled shapes. Images can be taken from newspapers, magazines, photographs, and so on.

2. Explore Kitchen Measures

The most common use of measuring volume is cooking. Work with your child to make a favorite recipe. (Doubling the recipe can be good practice in computing with fractions.) Ask your child to use measuring spoons and cups to find the capacity of various containers. The data can be organized in a table.

Container	Capacity
Coffee mug	$1\frac{1}{4}$ cups
Egg cup	3 tablespoons

Building Skills through Games

In Unit 11, your child will practice operations with whole numbers and geometry skills by playing the following games. Detailed instructions for each game are in the *Student Reference Book* or the journal:

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

This is a game for two or three players using the Everything Math Deck or a complete deck of number cards. Playing *Name That Number* helps students review operations with whole numbers, including the order of operations.

3-D Shape Sort See *Student Reference Book*, page 332.

This game is similar to *Polygon Capture*. Partners or 2 teams each with 2 players need 16 Property cards and 12 Shape cards to play. *3-D Shape Sort* gives students practice identifying properties of 3-dimensional shapes.

Rugs and Fences See journal page 380.

This game uses 32 Polygon cards and 16 Area and Perimeter cards and is played by partners. *Rugs and Fences* gives students practice finding the area and perimeter of polygons.

As You Help Your Child with Homework

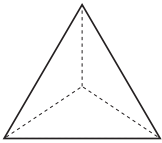
As your child brings assignments home, you might want to go over the instructions together, clarifying them as necessary. The answers listed below will guide you through some of this unit's Study Links.

Study Link 11•1

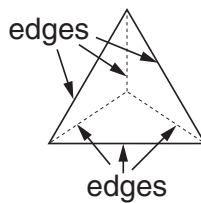
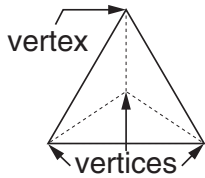
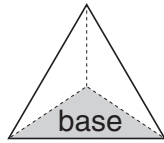
- Answers vary.
- D

Study Link 11•2

1.



triangular pyramid



Study Link 11•3

Sample answers:

- 2.8 cm; 4.3 cm; 24.6 cm^2 ; 105.9 cm^3
- $30 * 30 * 18 = 16,200$
- more; $283,500,000 \text{ cm}^3$
- $5\frac{3}{8}$

Study Link 11•4

- <
- <
- >
- Because both pyramids have the same height, compare the areas of the bases. The base of the square pyramid has an area of $5 * 5 = 25 \text{ m}^2$. The base area of the triangular pyramid is $\frac{1}{2} * 5 * 5$ or $12\frac{1}{2} \text{ m}^2$.
- $10\frac{16}{27}$
- $1\frac{11}{21}$
- 600,000
- 25.39

Study Link 11•5

Most of the space taken up by a handful of cotton is air between the fibers.

Study Link 11•6

- >
- =
- <
- <
- <
- =
- cubic inches
- gallons
- gallons
- milliliters
- cubic centimeters
- capacity
- volume
- 250
- 137,685
- $10\frac{2}{5}$
- 0.48

Study Link 11•7

- 88 in^2 ; Sample answer: I found the area of each of the 6 sides and then added them together.
- Yes. A 4 in. by 4 in. by $3\frac{1}{2}$ in. box has a volume of 56 in^3 and a surface area of 88 in^2 .
- Volume: 502.4 cm^3 ; Surface area: 351.7 cm^2
- Volume: 216 in^3 ; Surface area: 216 in^2