NAME | DATE

Looking for Bridges page 1 of 2

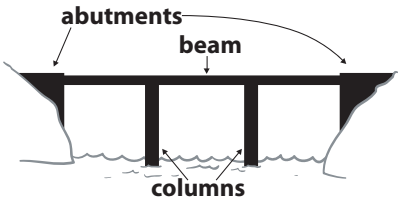
Note to Families

We are beginning a unit of study about bridges. Please take some time to locate examples of the three kinds of bridges shown below. You can find them in your neighborhood, or you could take a drive around your town or city. If you have access to the Internet, you could also find examples online. You might also find examples in books at home or the library. For each bridge, record its name, location, type (beam, arch, or suspension), span length (an estimation will do), and other special features on the table on the back of this sheet.

Three Basic Kinds of Bridges

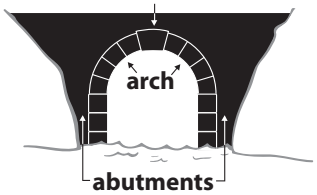
Beam Bridge

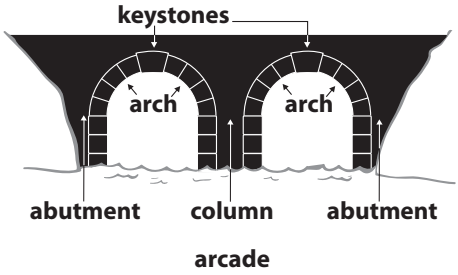
A beam bridge is constructed of a beam supported by at least two abutments or columns. Beam bridges tend to be simple and relatively inexpensive to build. They are most useful for bridging short spans.



Arch Bridge

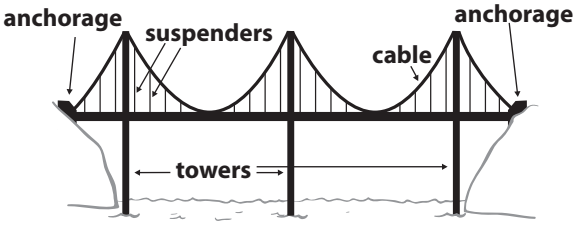
An arch bridge is made of an arch between two abutments. It may be made of just one arch between two abutments or of many arches, columns, and abutments linked together, which is called an arcade.





Suspension Bridge

Suspension bridges are made of roadways suspended from cables and suspenders that hang from towers. The cables extend all the way from an anchorage at one end of the bridge to another anchorage at the other end of the bridge. They are the most expensive kind of bridge to build and are capable of spanning the greatest distances.



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NAME | DATE

Looking for Bridges page 2 of 2

Name	Location	Type	Span	Special Features

Student responses will vary.

Some additional information that we learned together:

Answer Key

NAME | DATE

Comparing Mass page 1 of 2

1 The table shows the mass of different types of balls used in sports. Use the table to answer the questions below.

Type of Ball	Mass
Ping pong ball	3 g
Baseball	150 g
Basketball	600 g
Soccer ball	420 g
Football	430 g
Volleyball	270 g
Golf ball	45 g
Tennis ball	57 g
Bowling ball	9 kg

a Which ball has the most mass?

bowling ball

b Which two balls are closest in mass?

soccer ball and football

c What is the difference in mass between the bowling ball and the basketball? Show your work.

8,400 g or 8.4 kg
Student work will vary.

d Do two tennis balls have more mass or less mass than a baseball?

less

e How many ping pong balls equal the mass of one golf ball? Show your work.

15; work will vary.

NAME | DATE

Comparing Mass page 2 of 2

2 Solve the problems. Show all your work.

a The Arctic Animals Zoo's female caribou has a mass of 82 kg. The female polar bear's mass is 161 kg. How much more massive is the polar bear than the caribou?

79 kg; work will vary.

b The zookeeper says that a wolverine's mass is 3 times as much as that of an arctic hare. If a typical arctic hare has a mass of 5 kg, what is the mass of a typical wolverine?

15 kg; work will vary.

c The refrigerator where the black bear's food is stored holds 35 kg of food. If the bear eats 5 kg of food a day, how many days' worth of bear food can be stored in the refrigerator?

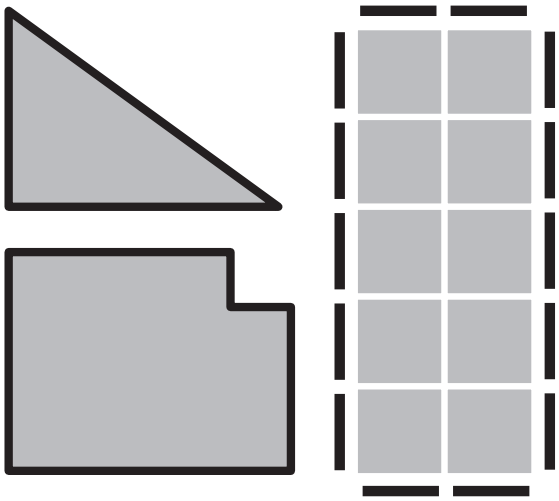
7 days worth of food; work will vary.

d **CHALLENGE** The Arctic Animals Zoo is planning a new habitat for 4 arctic wolves. Each wolf eats about 2 kilograms of food per day. How much food does the zookeeper need to have ready for the wolves' first 7 days at the zoo?

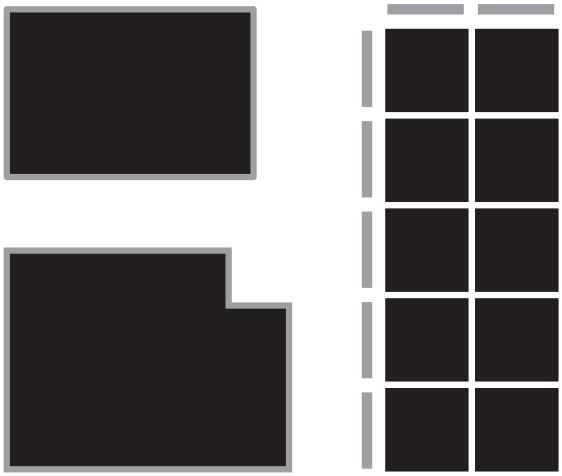
56 kg; work will vary.

NAME | DATE

Finding Area & Perimeter page 1 of 3

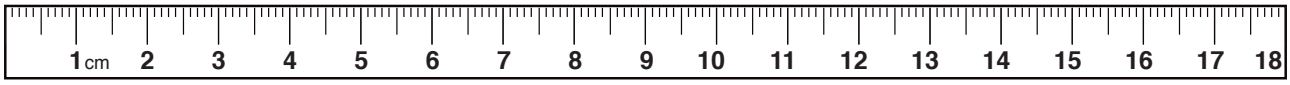


Perimeter is the distance all the way around a figure. Perimeter is measured in linear units like centimeters, meters, inches, and feet.



Area is the amount of surface a figure covers. Area is measured in square units like square centimeters, square meters, square inches, and square feet.

You can use any ruler or measuring tape marked in centimeters for this assignment, or cut out the centimeter ruler below. Keep the ruler for use in future assignments.



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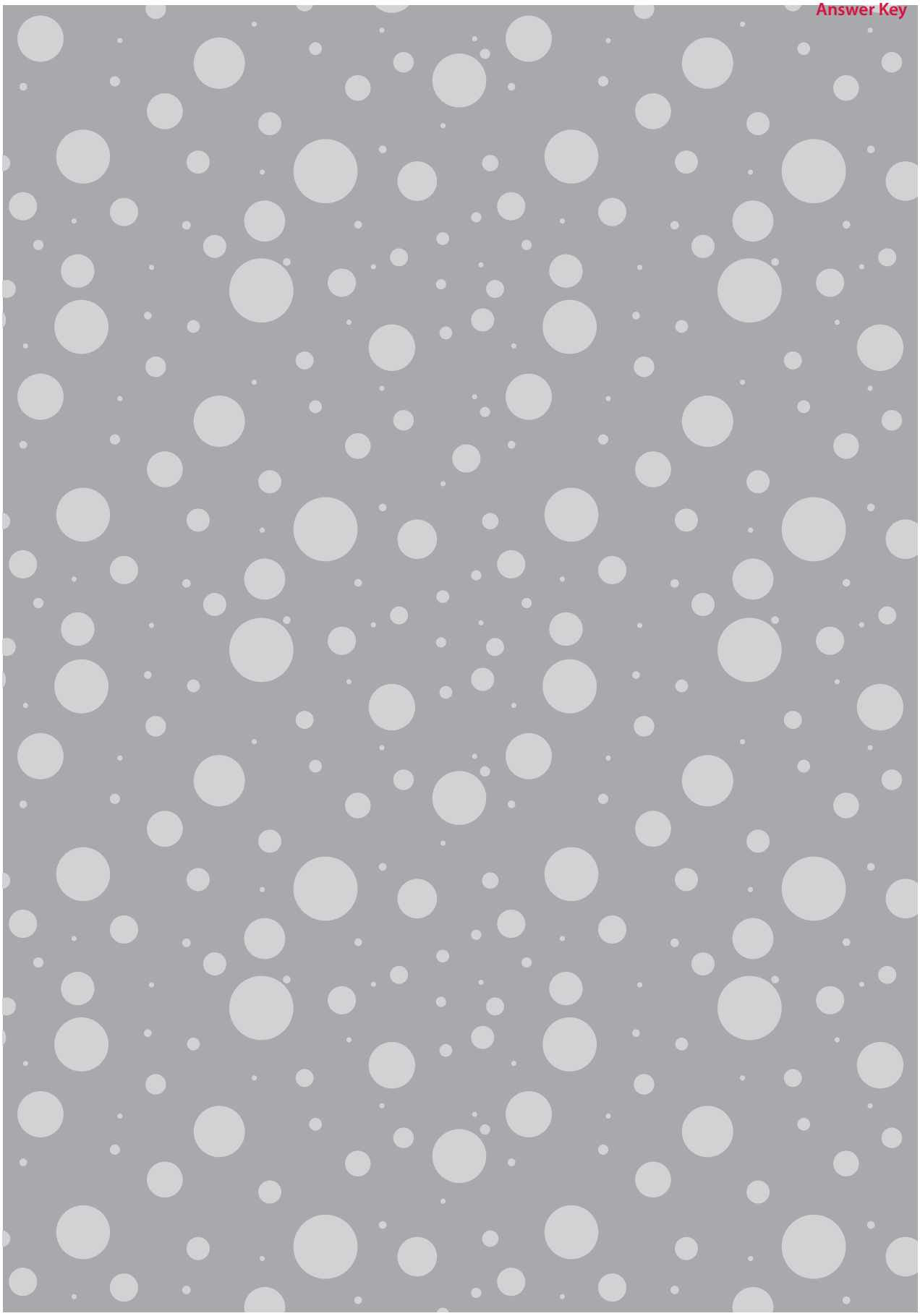
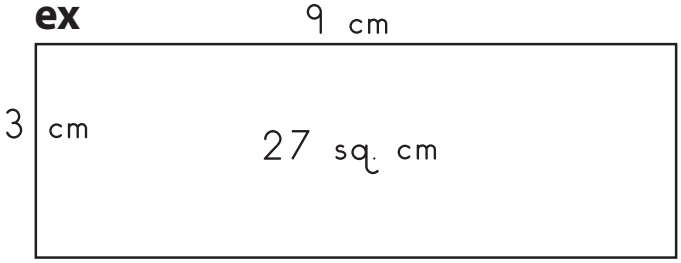


NAME | DATE

Finding Area & Perimeter page 2 of 3

1 Measure the dimensions (length and width) of each rectangle. Label the dimensions, then find the rectangle's area and perimeter using equations. Show your work. The first one is done as an example.

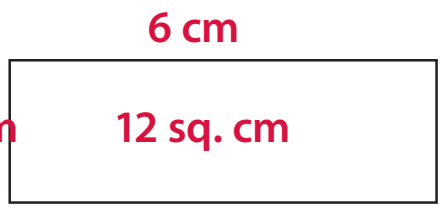
ex



Perimeter: (2 × 3) + (2 × 9) = 24 cm

Area: 3 × 9 = 27 sq. cm

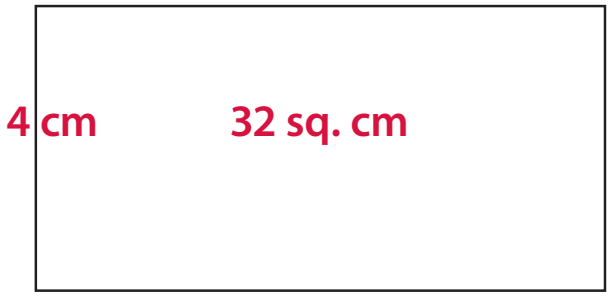
a



Perimeter: (2 + 6) × 2 = 16 cm

Area: 2 × 6 = 12 sq. cm

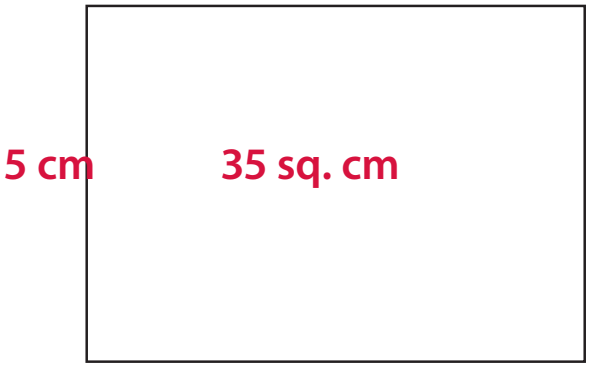
b



Perimeter: (2 × 4) + (2 × 8) = 24 cm

Area: 4 × 8 = 32 sq. cm

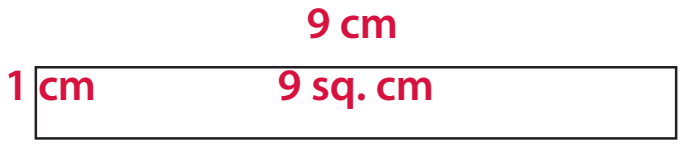
c



Perimeter: (5 + 7) × 2 = 24 cm

Area: 5 × 7 = 35 sq. cm

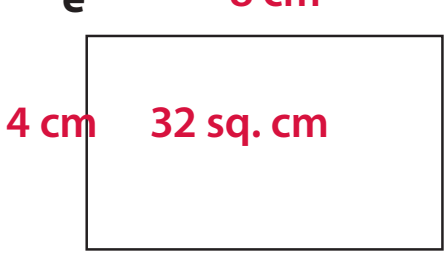
d



Perimeter: (2 × 1) + (2 × 9) = 20 cm

Area: 1 × 9 = 9 sq. cm

e



Perimeter: (4 + 8) × 2 = 24 cm

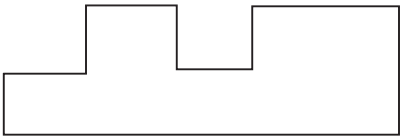
Area: 4 × 8 = 32 sq. cm

(continued on next page)

NAME | DATE

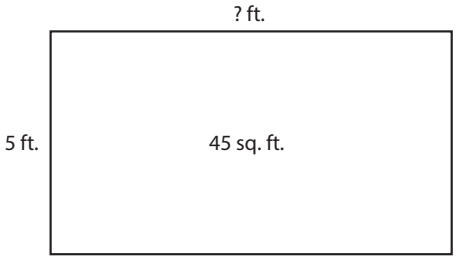
Finding Area & Perimeter page 3 of 3

2 Hector says you have to measure the length of every side of this figure to find its perimeter. Do you agree? Why or why not? Use numbers, labeled sketches, or words to explain your answer.



Responses will vary. Some will want to measure every side. Others might trust that all angles in the figure are right angles and be able to draw conclusions about side lengths without measuring them all.

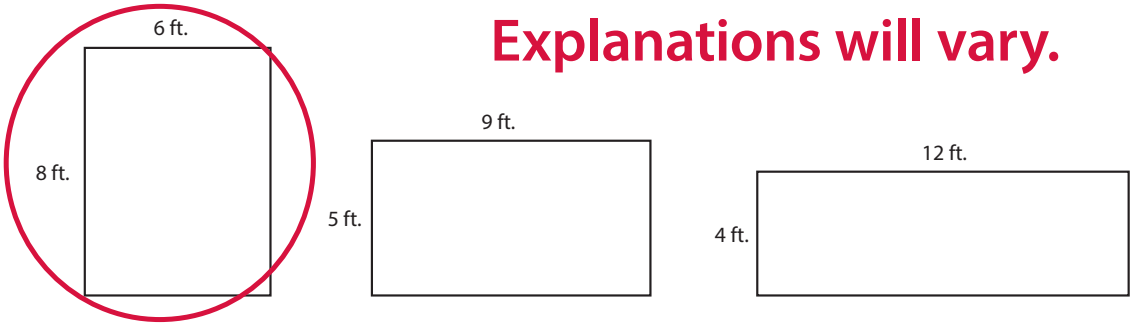
3 This rectangle has an area of 45 square feet. What is the missing dimension? Show your work.



9 ft.; work will vary.

4 Alexandra and her dad built a deck in their back yard. The deck's area is 48 square feet and its perimeter is 28 feet. Circle the drawing that shows the deck they built. Use numbers, sketches or words to explain your answer.

Explanations will vary.



5 **CHALLENGE** For which of these situations would you calculate area? For which of them would you calculate perimeter? Check a box for each one.

Situation	Area	Perimeter	Neither
Finding the number of tiles needed to cover a floor	✓		
Finding out the thickness of the dictionary			✓
Deciding how many feet of fencing is needed to surround a rectangular yard		✓	
Cutting a strip of tape as long as the whiteboard			✓
Finding out how much paint it will take to paint one wall of your room	✓		

NAME | DATE

Measuring Scavenger Hunt page 1 of 2

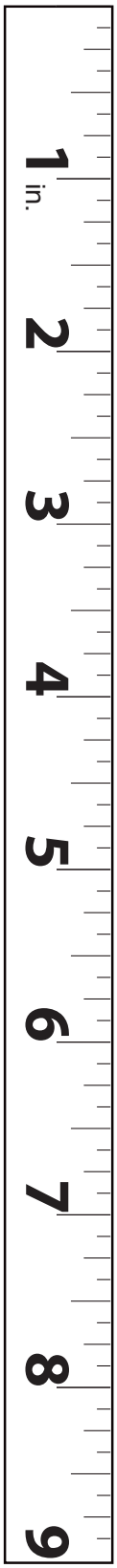
1 Look around your home, yard, or anywhere else to find objects that are about as long as the goal lengths in the table below. They don't have to be exact, just as close as you can find. Measure their actual lengths and calculate the difference between the goal and the actual length.

You can use any ruler, yardstick or measuring tape marked in inches, or use the inch ruler to the right. Cut out the ruler if you like. Keep it for use in future assignments.

Goal Length	Object	Actual Length	Difference
$4\frac{1}{2}$ inches			
2 inches			
$1\frac{1}{2}$ feet	Responses will vary.		
$\frac{3}{4}$ inch			
14 inches			

2 Now look for objects that have an area close to the areas in the table below. Measure the object's dimensions and record them in the table. (You can use the side or face of a three-dimensional object, as shown in the example.)

Goal Area	Object	Dimensions
50 square inches	the side of my toaster	$6\frac{1}{2}$ inches × $8\frac{1}{2}$ inches
4 square inches		
12 square inches	Responses will vary.	
24 square inches		



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NAME | DATE

Measuring Scavenger Hunt page 2 of 2

Footprints

3 An object's *footprint* is the space it takes up when it sits on a flat surface, like the floor or a piece of paper.

a Find an object with a rectangular or nearly rectangular base that you can fit on the centimeter grid below. Place it on the grid and trace its outline. This outline is its footprint.

b What object did you choose?

Responses will vary.

c What is the approximate area of the object's footprint? Show your work.

Responses will vary.

d **CHALLENGE** If you wanted to store 10 of these objects together on a shelf without stacking any of them on top of each other, how big would the shelf's area need to be?

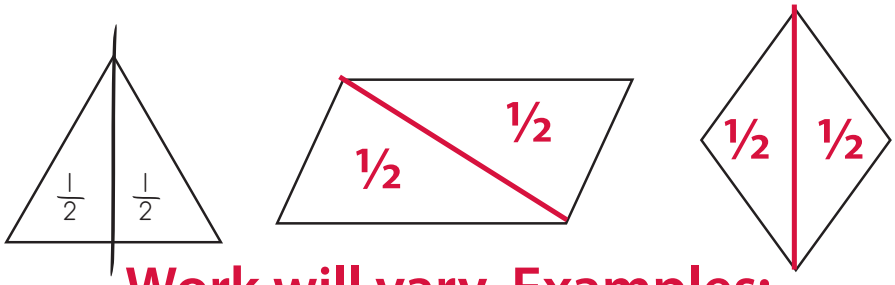
Responses will vary.

NAME | DATE

Dividing Shapes into Triangles page 1 of 2

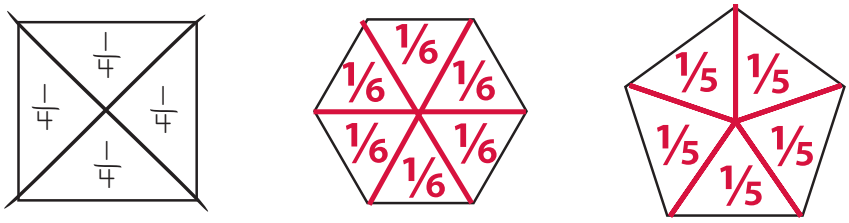
1 Divide the shapes. If you need to, measure to make sure the partitions are equal. You can use any ruler or measuring tape, or a paper ruler from the last two Home Connections.

a Draw lines to divide these shapes into two equal triangles. Label each triangle with a fraction to show its part of the whole. The first one has been done for you.

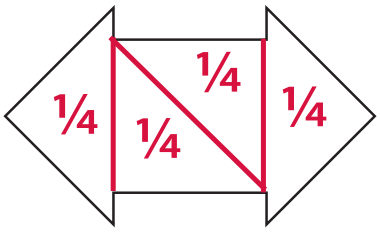


Work will vary. Examples:

b Draw lines to divide these shapes into as many triangles as they have sides. Label each triangle with a fraction to show its part of the whole. The first one has been done for you.



c Draw 3 lines to divide the shape into 4 congruent triangles and label each triangle with a fraction to show its part of the whole.



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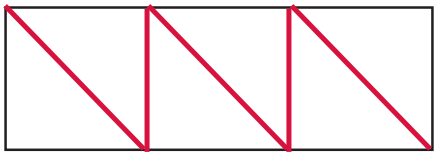
NAME | DATE

Dividing Shapes into Triangles page 2 of 2

2 Draw two shapes of your own, then divide them into equal triangles. Mark each triangle with a fraction to show its part of the whole.

Responses will vary.

3 a CHALLENGE Divide the rectangle into six equal triangles.



2 cm 2 cm 2 cm

b CHALLENGE How many triangles are in $\frac{1}{2}$ of the rectangle?

3 triangles

c CHALLENGE How many triangles are in $\frac{2}{3}$ of the rectangle?

4 triangles

NAME | DATE

Dress Rehearsal page 1 of 2

Red Barn Theater had a full day of rehearsal, technical work, costume and makeup checks, and other activities the Saturday before the opening night of their big play. Each activity started at a certain time, so people in the theater had to watch the clock to be on stage, backstage, or at other places in the theater at the right times.

1 There is an analog clock in the lobby and a digital clock in each of the dressing rooms. Read the clocks below and write the time to show when each event took place.

a Stage technicians started hanging lights at 7:52.

b The technicians did a dry tech run at 9:35.

c The cast finished their runthrough in the lobby at 11:37.

d The stage manager ordered pizzas and sandwiches for lunch at 11:44.

e Lunch was supposed to start at noon, but the technicians needed more time to finish, so everyone had lunch at 12:15.

f The cast and crew did a quick runthrough rehearsal of only the technical cues at 1:33.

g The cast did a costume parade for the directors in the lobby at 2:46.

h Hair and makeup was finished at 3:22.

i The full dress rehearsal started at 3:45.

j Everyone gathered for notes at 5:51.

(continued on next page)

NAME | DATE

Dress Rehearsal page 2 of 2

2 Notes begin immediately after the full dress rehearsal is complete. How long did the full dress rehearsal take? Show your work.

2 hrs 6 mins.
Work will vary.

3 During dress rehearsal, the show doesn't stop for intermission (they just quickly change the sound and lights for practice). During a public performance, the show will have a 15-minute intermission. How would the stage manager calculate the full time of the show including intermission? Write an equation to show your thinking. You can use letters in your equation to stand for unknown amounts.

Work and answers will vary. Examples:
2 hrs 6 minutes + 15 minutes = *t*
r* + 15 = *t
2 hrs 6 mins + 15 mins. = 2 hrs. 21 mins.

4 As soon as notes are done, the cast and crew put everything away and clean up the theater. After cleanup, everyone goes out for dinner. Notes took 18 minutes, and the cast and crew went out to dinner at 7:05. How long did it take for them to clean up? Show your work.

56 mins.
Work will vary.

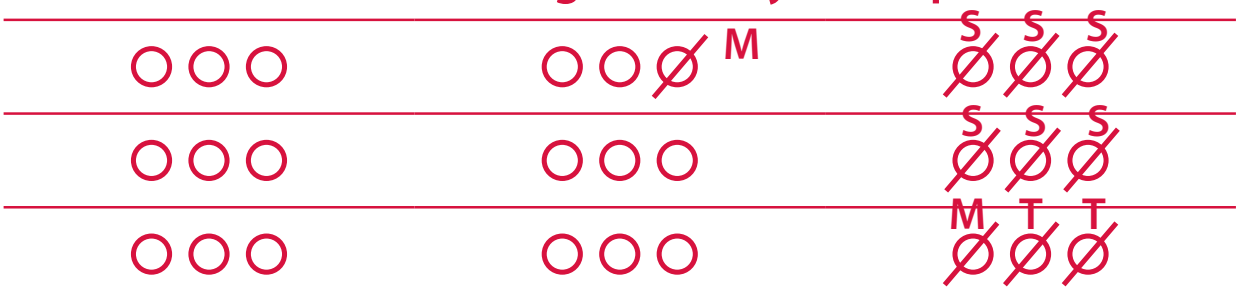
NAME | DATE

Garden Shop page 1 of 2

1 Casey works at the garden store, and one job he does there is to stock the shelves. Yesterday he had 27 cans of plant food to stock, so he put an equal number of cans on each of 3 empty shelves. Later that day, Tammy came by and bought 2 cans of plant food from the bottom shelf. A little while after that, Shane dropped in and bought 6 cans of plant food—3 from the top shelf and 3 from the middle shelf. Right before closing time, Michael bought 2 cans of plant food—1 from the bottom shelf and 1 from the top shelf. How many cans of plant food were on each shelf at the end of the day?

a Make a drawing or sketch a model to show the situation.

Student drawings will vary. Example:



b Solve the problem. Show all your work.

Top: 5 cans
Middle: 6 cans
Bottom: 6 cans

c How do you know that your answers make sense? Come up with a way to check your work and explain it here.

Student responses will vary.

(continued on next page)

NAME | DATE

Garden Shop page 2 of 2

2 Owen, Jack, and Kian were shopping for garden supplies with their dad. Their dad said that the kids could split the money he had left after he bought what they needed for the garden. They bought a trowel for $5, two packs of seeds for $1 each, and two bags of flower bulbs that were $4 each. Their dad paid with a $20 bill and a $10 bill, then divided the change among the kids. How much money did Owen, Jack, and Kian each get?

a Write a list of steps you will need to take to solve the problem.

Responses will vary. Example:
1. Determine the total cost.
2. Subtract from $30.
3. Divide the change by 3.

b Solve the problem. Show all your work.

Student work will vary. Example:
5 + 2 + 8 = $15
$30 – $15 = $15
$15 ÷ 3 = $5
$5 each

c How do you know that your answer makes sense? Come up with a way to check your work and explain it here.

Student responses will vary.

NAME | DATE

Most & Least Fractions page 1 of 2

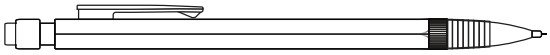
1 Mr. Wilder bought 36 mechanical pencils to give away as prizes to his students. One-fourth of the pencils were red and $\frac{1}{3}$ of the pencils were purple.

a Were more of the pencils red or purple?

purple

b **CHALLENGE** If the rest of the pencils were yellow, how many yellow pencils did Mr. Wilder buy? Show your work.

15 yellow pencils.
Student work will vary.



2 Ellie made 24 cupcakes to take to her friend's party. She put vanilla frosting on all of the cupcakes. Then she put chocolate sprinkles on $\frac{1}{4}$ of them and red sugar on $\frac{1}{2}$ of them. She left the rest of them plain with only frosting.

a What did most of the cupcakes have on them?

red sugar

b **CHALLENGE** What fraction of the cupcakes did Ellie leave with only frosting? Use numbers, words, or pictures to show your work.

¼ of the cupcakes
Student work will vary.

(continued on next page)

NAME | DATE

Most & Least Fractions page 2 of 2

3 Shawn is sorting his 12 favorite chapter books by theme onto a shelf. One-fourth of the books are about animals, $\frac{1}{6}$ of the books are about trucks, and $\frac{1}{2}$ of the books are about adventures. The rest of the books are about space.

a Which type of book will Shawn have the least of on his shelf?

truck books

b Which type of book will Shawn have the most of on his shelf?

adventure books

c Does Shawn have more favorite books about animals or about trucks? Write an expression using >, =, or < to show.

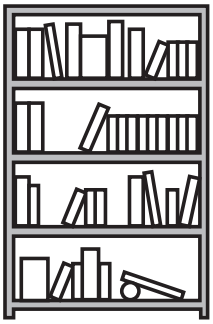
animals
3 > 2

d CHALLENGE What fraction of Shawn's favorite books are about space? Use numbers, words, or pictures to show your work.

1/12 are about space.
Student work will vary.

e CHALLENGE Does Shawn have more favorite books about animals or about space? Write an expression using >, =, or < to show.

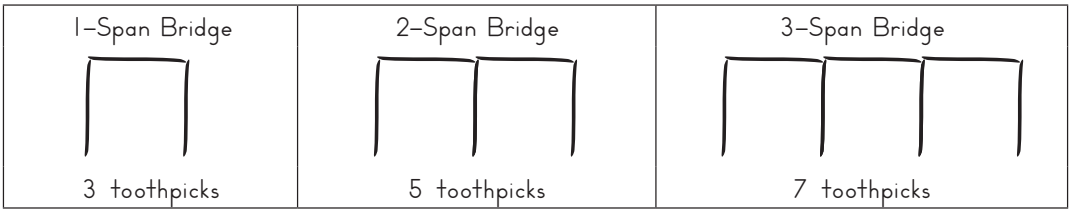
More of his favorite books are about animals.
3 > 1



NAME | DATE

Bridge Patterns page 1 of 2

1 Jameson built tiny beam bridges out of toothpicks. He drew sketches of his beam bridges like these:



a How many toothpicks will it take to build a beam bridge with 12 spans?

25 toothpicks

b Explain your answer using labeled sketches, numbers, and words.

Responses will vary. Example:
Double the number of spans and add 1 to determine the number of toothpicks.

c Fill in the table to show how many toothpicks are needed for each bridge.

Beam Bridge Spans	1	2	3	4	5	6	7	8	9	10	11	12
Number of Toothpicks	3	5	7	**9**	**11**	**13**	**15**	**17**	**19**	**21**	**23**	**25**

d **CHALLENGE** How many toothpicks will it take to build a beam bridge with 20 spans? Use words, pictures, or numbers to show your work and explain your answer.

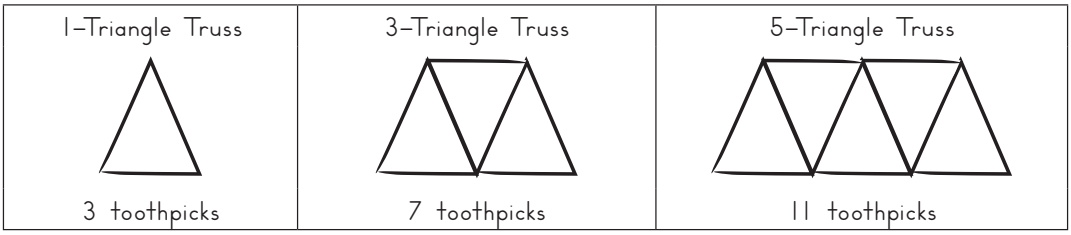
41 toothpicks
Work and explanations will vary.

(continued on next page)

NAME | DATE

Bridge Patterns page 2 of 2

2 Jameson built some tiny truss bridges using toothpicks, too. He made sketches of his bridges like those below.



a How many toothpicks will it take to build a truss bridge with 15 triangles?

31 toothpicks

b Explain your answer using labeled sketches, numbers, and words.

Responses will vary. Example:
Double the number of triangles and add 1 to determine the number of toothpicks.

c Fill in the table to show how many toothpicks are needed for each bridge.

Triangles	1	3	5	7	9	11	13	15	17
Number of Toothpicks	3	7	11	**15**	**19**	**23**	**27**	**31**	**25**

d **CHALLENGE** How many toothpicks will it take to build a truss bridge with 36 triangles? Use words, pictures, or numbers to show your work and explain your answer.

73 toothpicks
Work and explanations will vary.