EUREKA MATH

A STORY OF UNITS

Mathematics Curriculum

Grade 3 • MODULE 7

Geometry and Measurement Word Problems

Homework

Video tutorials: http://embarc.online

Version 3

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GRADE 3 • MODULE 7

Geometry and Measurement Word Problems

NOTE: Student sheets should be printed at 100% scale to preserve the intended size of figures for accurate measurements. Adjust copier or printer settings to *actual size,* and set page scaling to *none*.

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Name _____ Date _____

Max's family takes the train to visit the city zoo. Use the RDW process to solve the problems about Max's trip to the zoo. Use a letter to represent the unknown in each problem.

1. The sign below shows information about the train schedule into the city.

Train Fare–One Way
Adult……..$8
Child……..$6
Leaves every 15 minutes starting at 6:00 a.m.

a. Max's family buys 2 adult tickets and 3 child tickets. How much does it cost Max's family to take the train into the city?

b. Max's father pays for the tickets with $10 bills. He receives $6 in change. How many $10 bills does Max's father use to pay for the train tickets?

c. Max's family wants to take the fourth train of the day. It's 6:38 a.m. now. How many minutes do they have to wait for the fourth train?

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2. At the city zoo, they see 17 young bats and 19 adult bats. The bats are placed equally into 4 areas. How many bats are in each area?

3. Max's father gives the cashier $20 to pay for 6 water bottles. The cashier gives him $8 in change. How much does each water bottle cost?

4. The zoo has 112 types of reptiles and amphibians in their exhibits. There are 72 types of reptiles, and the rest are amphibians. How many more types of reptiles are there than amphibians in the exhibits?

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Name _____ Date _____

Use the RDW process to solve. Use a letter to represent the unknown in each problem.

1. A box containing 3 small bags of flour weighs 950 grams. Each bag of flour weighs 300 grams. How much does the empty box weigh?

2. Mr. Cullen needs 91 carpet squares. He has 49 carpet squares. If the squares are sold in boxes of 6, how many more boxes of carpet squares does Mr. Cullen need to buy?

3. Erica makes a banner using 4 sheets of paper. Each paper measures 9 inches by 10 inches. What is the total area of Erica's banner?

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4. Monica scored 32 points for her team at the Science Bowl. She got 5 four-point questions correct, and the rest of her points came from answering three-point questions. How many three-point questions did she get correct?

5. Kim's black kitten weighs 175 grams. Her gray kitten weighs 43 grams less than the black kitten. What is the total weight of the two kittens?

6. Cassias and Javier's combined height is 267 centimeters. Cassias is 128 centimeters tall. How much taller is Javier than Cassias?

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Name _____ Date _____

Use the RDW process to solve the problems below. Use a letter to represent the unknown in each problem.

1. Jerry pours 86 milliliters of water into 8 tiny beakers. He measures an equal amount of water into the first 7 beakers. He pours the remaining water into the eighth beaker. It measures 16 milliliters. How many milliliters of water are in each of the first 7 beakers?

2. Mr. Chavez's third graders go to gym class at 11:15. Students rotate through three activities for 8 minutes each. Lunch begins at 12:00. How many minutes are there between the end of gym activities and the beginning of lunch?

3. A box contains 100 pens. In each box there are 38 black pens and 42 blue pens. The rest are green pens. Mr. Cane buys 6 boxes of pens. How many green pens does he have in total?

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4. Greg has $56. Tom has $17 more than Greg. Jason has $8 less than Tom.

   a. How much money does Jason have?

   b. How much money do the 3 boys have in total?

5. Laura cuts 64 inches of ribbon into two parts and gives her mom one part. Laura's part is 28 inches long. Her mom cuts her ribbon into 6 equal pieces. How long is one of her mom's pieces of ribbon?

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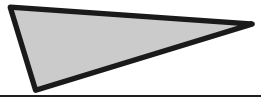
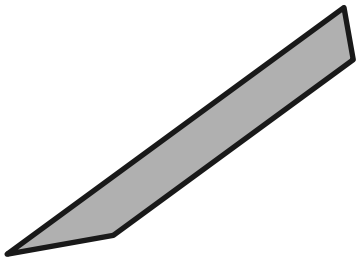
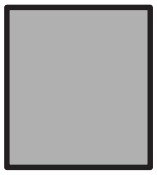
Name _____ Date _____

1. Complete the chart by answering true or false.

Attribute	Polygon	True or False
Example: **3 Sides**		True
4 Sides		
2 Sets of Parallel Sides		
4 Right Angles		
Quadrilateral		

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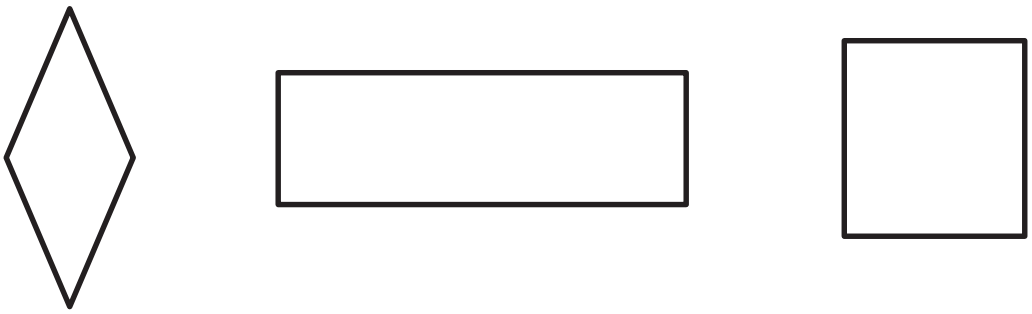
2. a. Each quadrilateral below has at least 1 set of parallel sides. Trace each set of parallel sides with a colored pencil.



b. Using a straightedge, sketch a different quadrilateral with at least 1 set of parallel sides.

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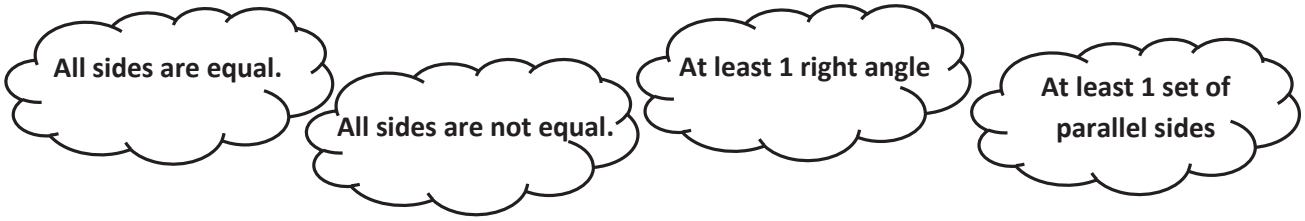
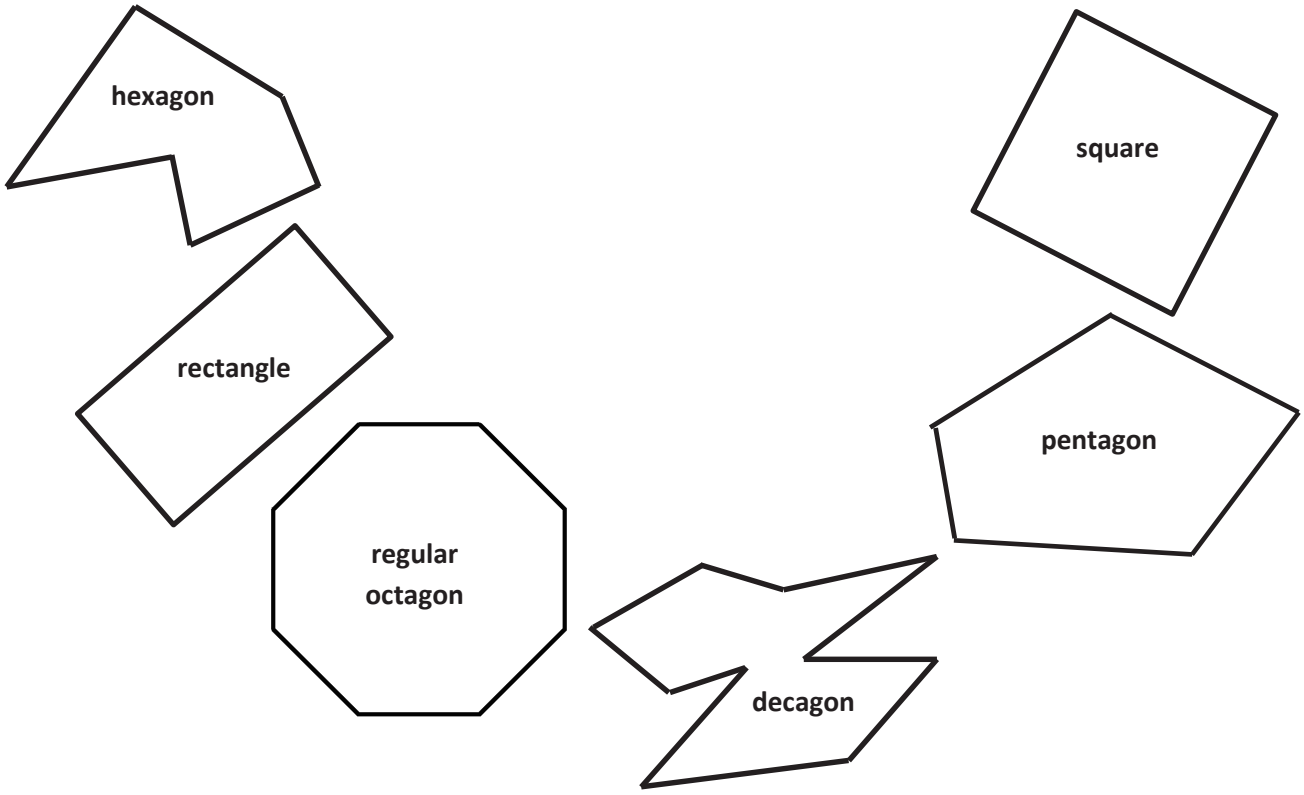
Name _____ Date _____

1. Match the polygons with their appropriate clouds. A polygon can match to more than 1 cloud.





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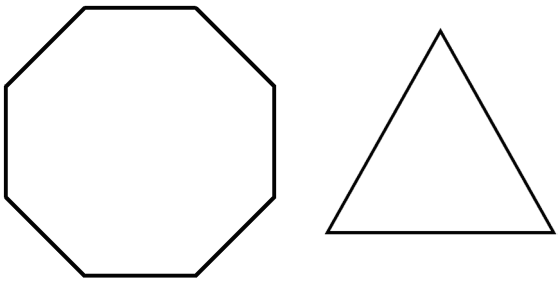
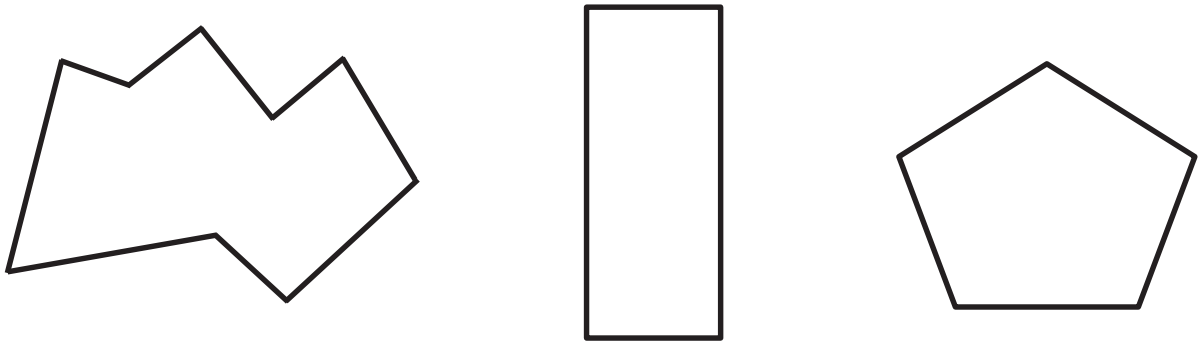
2. The two polygons below are regular polygons. How are these polygons the same? How are they different?



3. Lucia drew the polygons below. Are any of the polygons she drew regular polygons? Explain how you know.



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Name _____ Date _____

Use a ruler and a right angle tool to help you draw the figures with the given attributes below.

1. Draw a triangle that has no right angles.

2. Draw a quadrilateral that has at least 2 right angles.

3. Draw a quadrilateral with 2 equal sides. Label the 2 equal side lengths of your shape.

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4. Draw a hexagon with at least 2 equal sides. Label the 2 equal side lengths of your shape.

5. Draw a pentagon with at least 2 equal sides. Label the 2 equal side lengths of your shape.

6. Cristina describes her shape. She says it has 3 equal sides that are each 4 centimeters in length. It has no right angles. Do your best to draw Cristina's shape, and label the side lengths.

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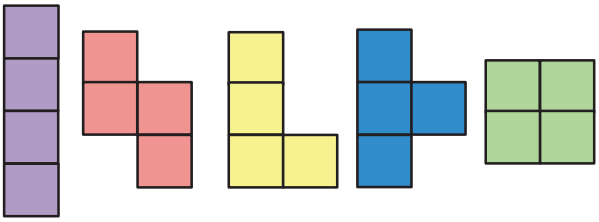
Name _____ Date _____

1. Color tetrominoes on the grid to create three different rectangles. You may use the same tetromino more than once.



Tetrominoes

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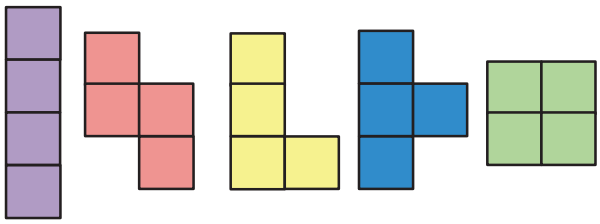
2. Color tetrominoes on the grid below to:

   a. Create a square with an area of 16 square units.
   b. Create at least two different rectangles, each with an area of 24 square units.

   You may use the same tetromino more than once.



Tetrominoes

3. Explain how you know the rectangles you created in Problem 2(b) have the correct area.

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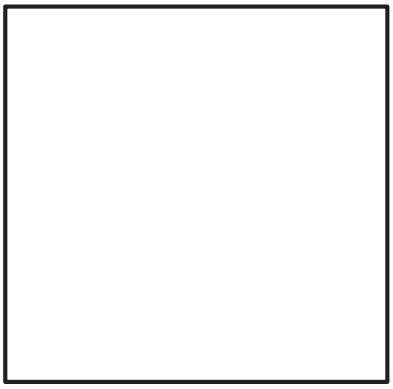
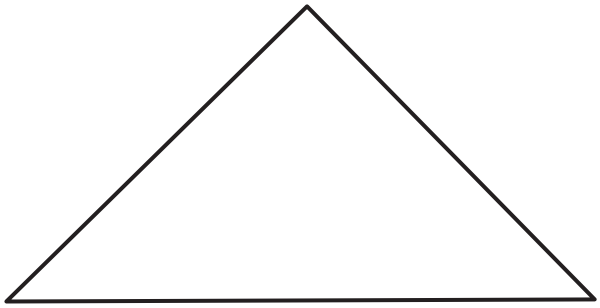
Name _____ Date _____

1. Draw a line to divide the square below into 2 equal triangles.



2. Draw a line to divide the triangle below into 2 equal, smaller triangles.



3. Draw a line to divide the trapezoid below into 2 equal trapezoids.

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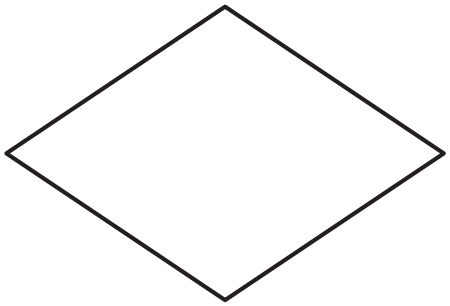
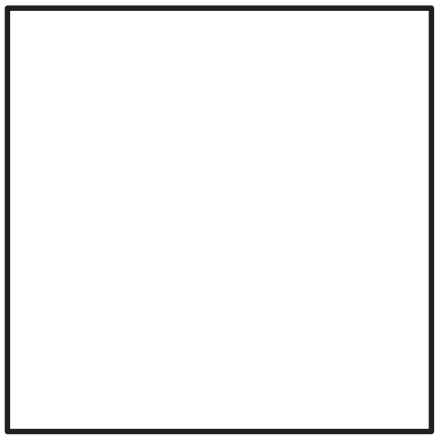
4. Draw 2 lines to divide the quadrilateral below into 4 equal triangles.



5. Draw 4 lines to divide the square below into 8 equal triangles.



6. Describe the steps you took to divide the square in Problem 5 into 8 equal triangles.

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Name _____ Date _____

1. Use at least two tangram pieces to make and draw each of the following shapes. Draw lines to show where the tangram pieces meet.

   a. A triangle.

   b. A square.

   c. A parallelogram.

   d. A trapezoid.

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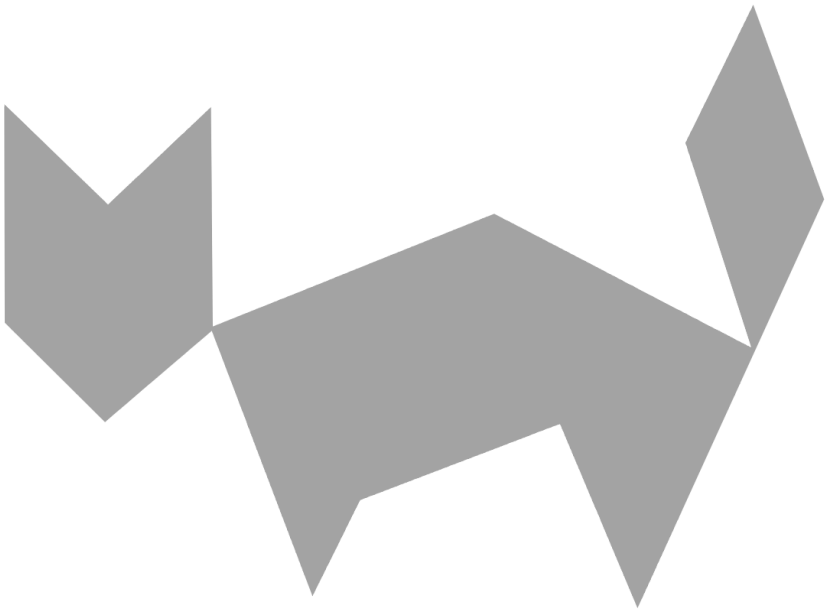
2. Use your tangram pieces to create the cat below. Draw lines to show where the tangram pieces meet.



3. Use the five smallest tangram pieces to make a square. Sketch your square below, and draw lines to show where the tangram pieces meet.

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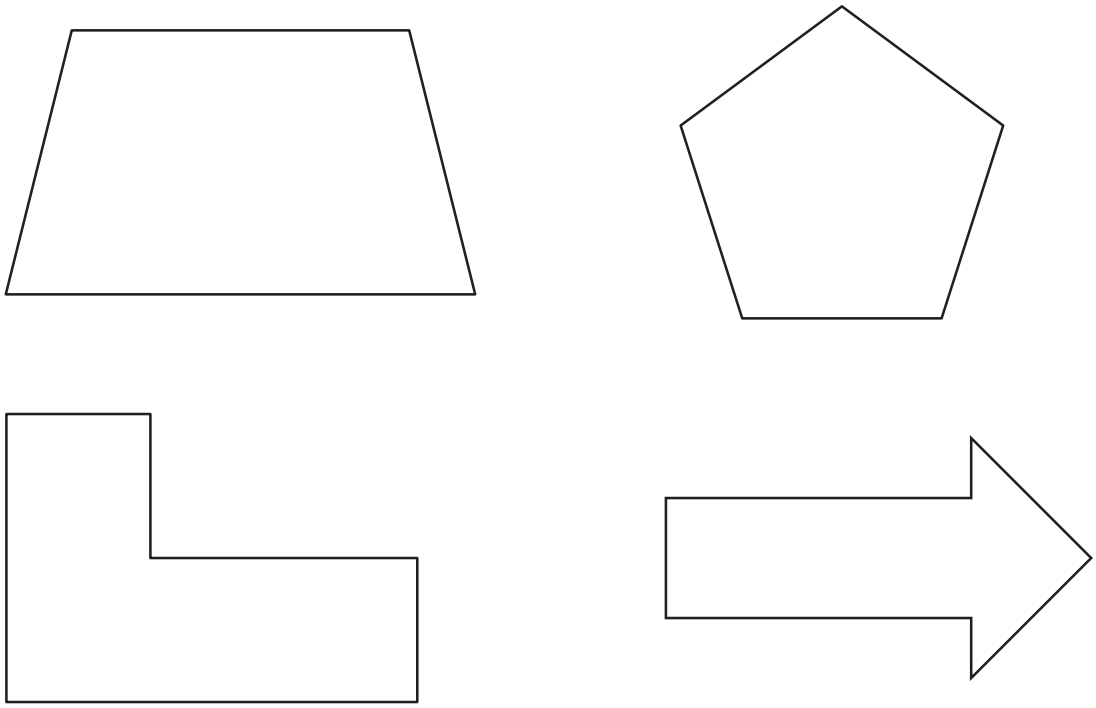
Name _____ Date _____

1. Trace the perimeter of the shapes below.



a. Explain how you know you traced the perimeters of the shapes above.

b. Explain how you could use a string to figure out which shape above has the greatest perimeter.

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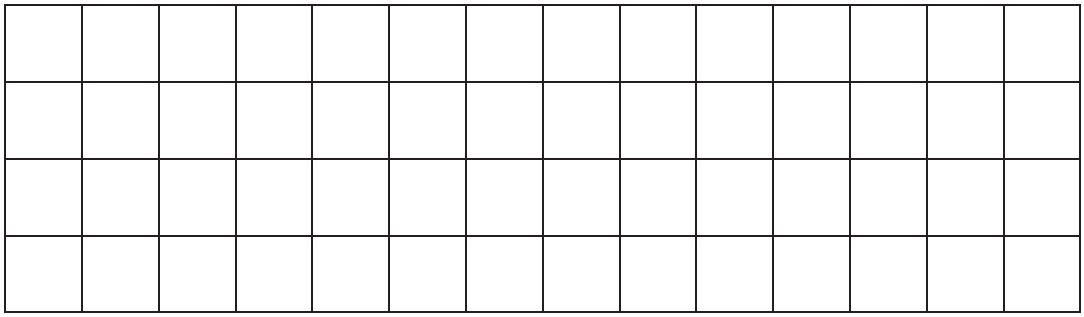
2. Draw a rectangle on the grid below.

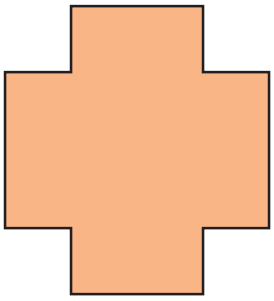


   a. Trace the perimeter of the rectangle.

   b. Shade the area of the rectangle.

   c. How is the perimeter of the rectangle different from the area of the rectangle?

3. Maya draws the shape shown below. Noah colors the inside of Maya's shape as shown. Noah says he colored the perimeter of Maya's shape. Maya says Noah colored the area of her shape. Who is right? Explain your answer.



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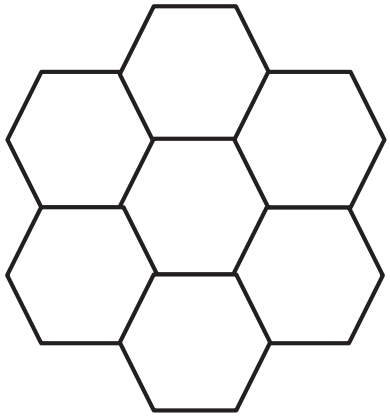
Name _____ Date _____

1. Samson tessellates regular hexagons to make the shape below.



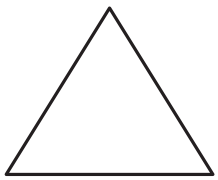
a. Outline the perimeter of Samson's new shape with a highlighter.

b. Explain how Samson could use a string to measure the perimeter of his new shape.

c. How many sides does his new shape have?

d. Shade in the area of his new shape with a colored pencil.

2. Estimate to draw at least four copies of the given triangle to make a new shape, without gaps or overlaps. Outline the perimeter of your new shape with a highlighter. Shade in the area with a colored pencil.



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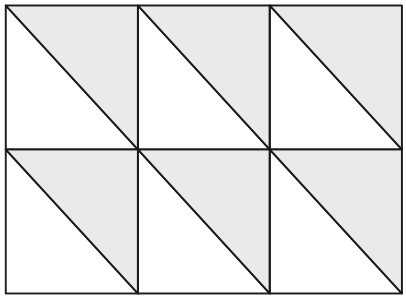
3. The marks on the strings below show the perimeters of Shyla's and Frank's shapes. Whose shape has a greater perimeter? How do you know?

Shyla's String:

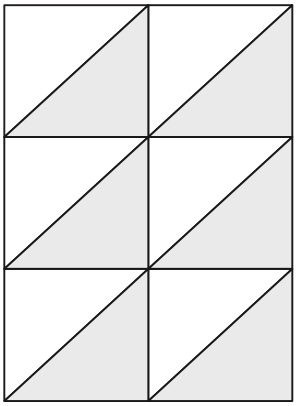
Frank's String:

4. India and Theo use the same shape to create the tessellations shown below.

India's Tessellation



Theo's Tessellation



a. Estimate to draw the shape India and Theo used to make their tessellations.

b. Theo says both tessellations have the same perimeter. Do you think Theo is right? Why or why not?

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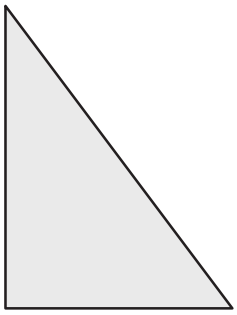
Name _____ Date _____

1. Measure and label the side lengths of the shapes below in centimeters. Then, find the perimeter of each shape.

a.



Perimeter = _____cm +_____cm +_____cm

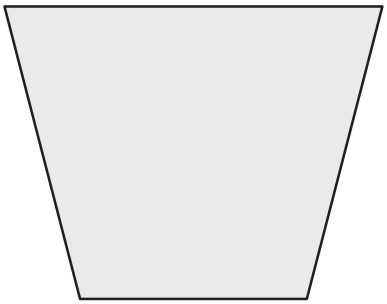
= _____ cm

b.

Perimeter = _____

= _____ cm

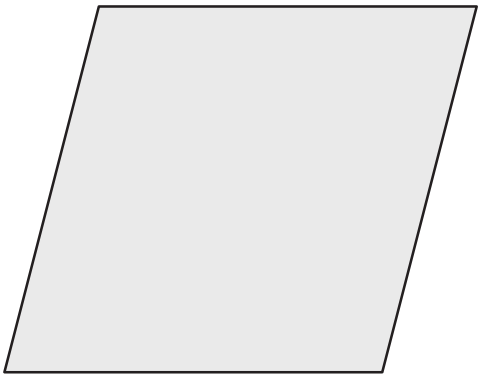
c.



Perimeter = _____

= _____ cm

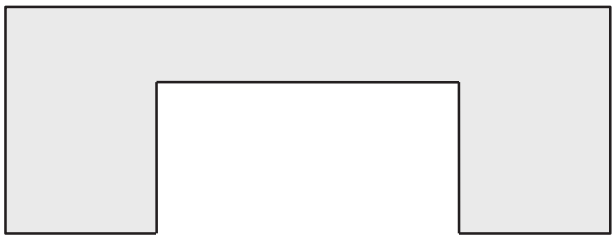
d.



Perimeter = _____

= _____ cm

e.



Perimeter = _____

= _____ cm

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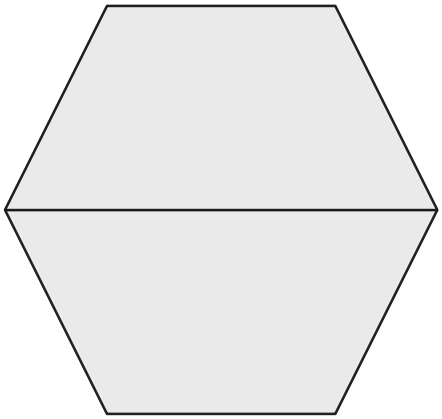
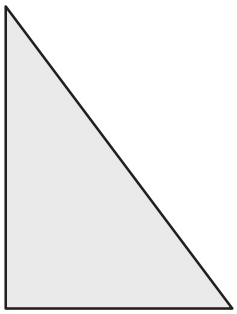
2. Melinda draws two trapezoids to create the hexagon shown below. Use a ruler to find the side lengths of Melinda's hexagon in centimeters. Then, find the perimeter.

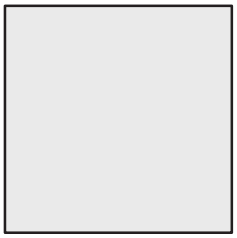


3. Victoria and Eric draw the shapes shown below. Eric says his shape has a greater perimeter because it has more sides than Victoria's shape. Is Eric right? Explain your answer.

Victoria's Shape



Eric's Shape



4. Jamal uses his ruler and a right angle tool to draw the rectangle shown below. He says the perimeter of his rectangle is 32 centimeters. Do you agree with Jamal? Why or why not?

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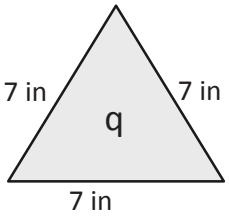
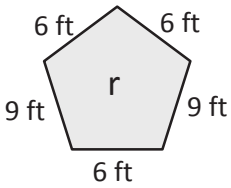
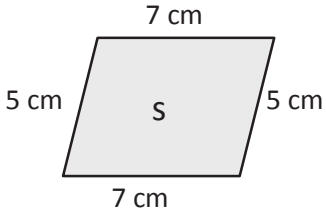
Name _____ Date _____

1. Find the perimeters of the shapes below. Include the units in your equations. Match the letter inside each shape to its perimeter to solve the riddle. The first one has been done for you.

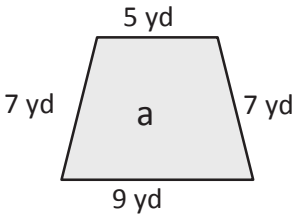


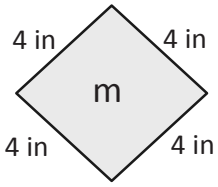


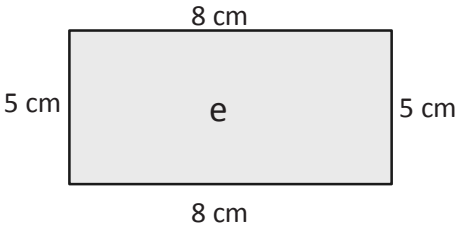


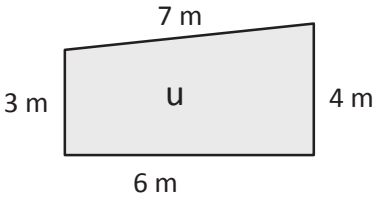
P = 7 in + 7 in + 7 in

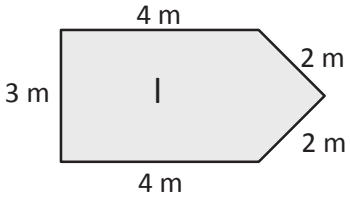
P = 21 in











What kind of meals do math teachers eat?

_____	_____	_____	_____	_____	_____		_____	_____	_____	_____	_____ !
24	21	20	28	36	26		16	26	28	15	24

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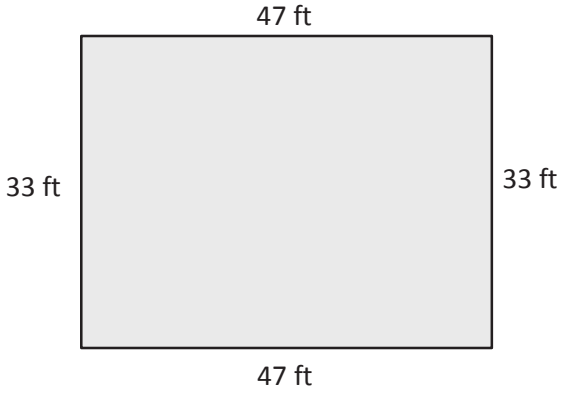
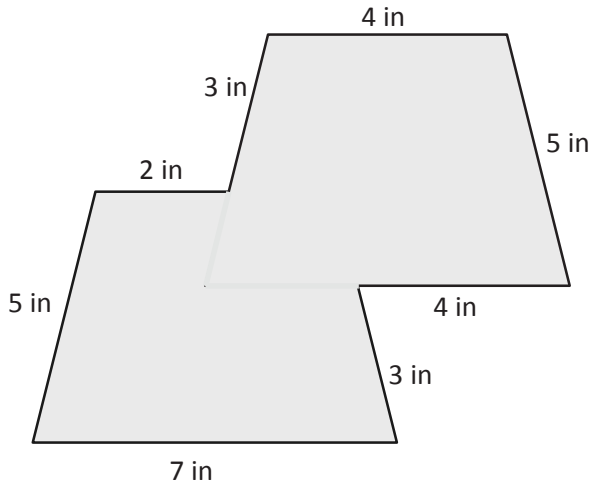
2. Alicia's rectangular garden is 33 feet long and 47 feet wide. What is the perimeter of Alicia's garden?



3. Jaques measured the side lengths of the shape below.



a. Find the perimeter of Jaques's shape.

b. Jaques says his shape is an octagon. Is he right? Why or why not?

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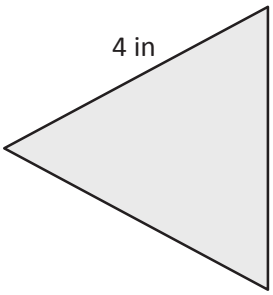
Name _____ Date _____

1. Label the unknown side lengths of the regular shapes below. Then, find the perimeter of each shape.

a.

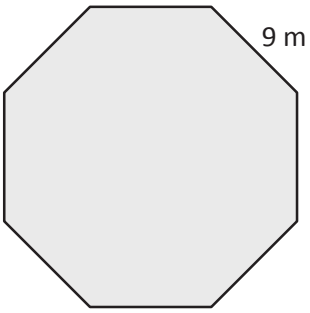


Perimeter = _____ in

b.

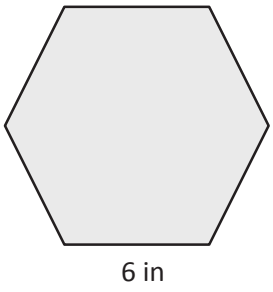
Perimeter = _____ cm

c.



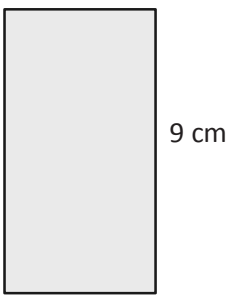
Perimeter = _____ m

d.



Perimeter = _____ in

2. Label the unknown side lengths of the rectangle below. Then, find the perimeter of the rectangle.



Perimeter = _____ cm

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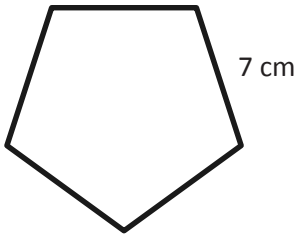
3. Roxanne draws a regular pentagon and labels a side length as shown below. Find the perimeter of Roxanne's pentagon.



4. Each side of a square field measures 24 meters. What is the perimeter of the field?

5. What is the perimeter of a rectangular sheet of paper that measures 8 inches by 11 inches?

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Name _____ Date _____

1. Miguel glues a ribbon border around the edges of a 5-inch by 8-inch picture to create a frame. What is the total length of ribbon Miguel uses?

2. A building at Elmira College has a room shaped like a regular octagon. The length of each side of the room is 5 feet. What is the perimeter of this room?

3. Manny fences in a rectangular area for his dog to play in the backyard. The area measures 35 yards by 45 yards. What is the total length of fence that Manny uses?

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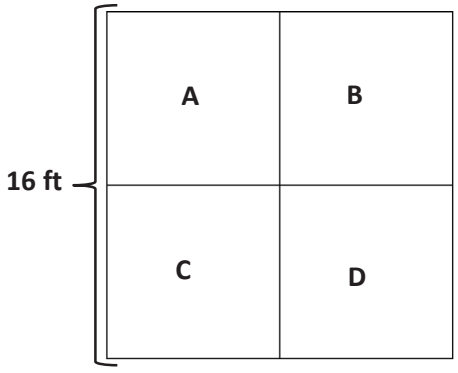
4. Tyler uses 6 craft sticks to make a hexagon. Each craft stick is 6 inches long. What is the perimeter of Tyler's hexagon?

5. Francis made a rectangular path from her driveway to the porch. The width of the path is 2 feet. The length is 28 feet longer than the width. What is the perimeter of the path?

6. The gym teacher uses tape to mark a 4-square court on the gym floor as shown. The outer square has side lengths of 16 feet. What is the total length of tape the teacher uses to mark Square A?



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Name _____ Date _____

1. a. Find the perimeter of 5 circular objects from home to the nearest quarter inch using string. Record the name and perimeter of each object in the chart below.

Object	Perimeter (to the nearest quarter inch)
Example: Peanut Butter Jar Cap	$9\frac{1}{2}$ inches

b. Explain the steps you used to find the perimeter of the circular objects in the chart above.

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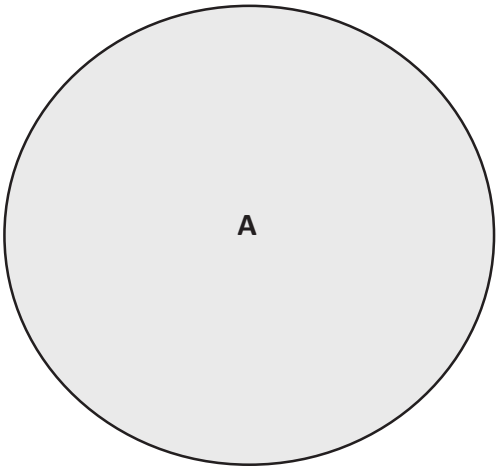
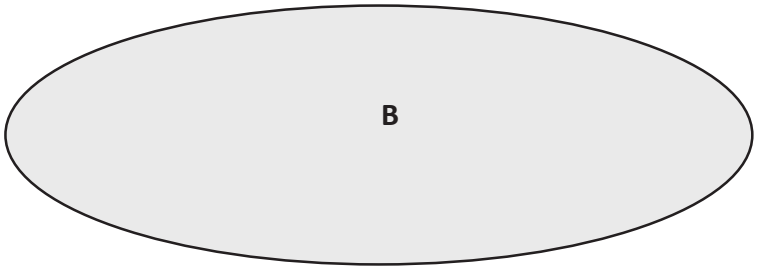
2. Use your string and ruler to find the perimeter of the two shapes below to the nearest quarter inch.





Perimeter = _____ Perimeter = _____

a. Which shape has a greater perimeter?

b. Find the difference between the two perimeters.

3. Describe the steps you took to find the perimeter of the objects in Problem 2. Would you use this method to find the perimeter of a square? Explain why or why not.

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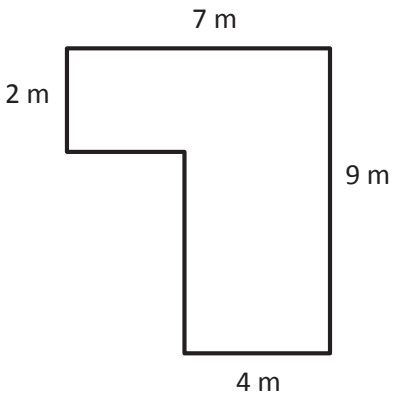
Name _____ Date _____

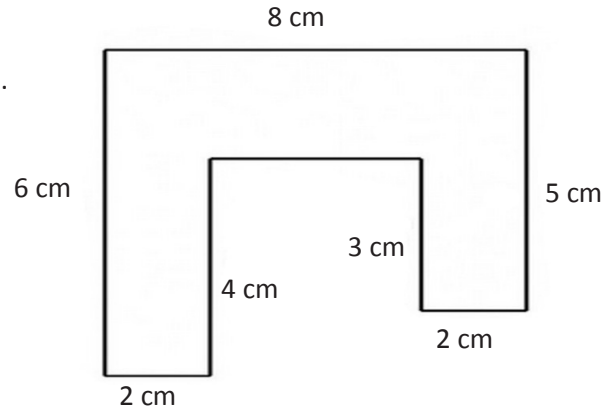
1. The shapes below are made up of rectangles. Label the unknown side lengths. Then, write and solve an equation to find the perimeter of each shape.

a.



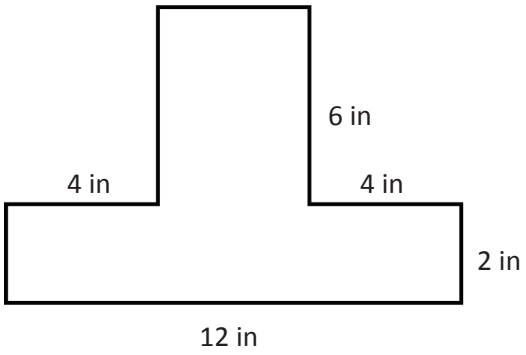
P =

b.



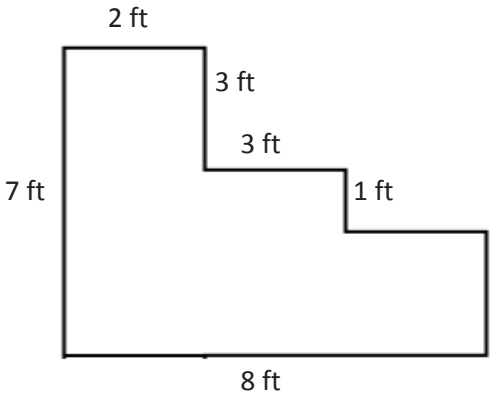
P =

c.



P =

d.



P =

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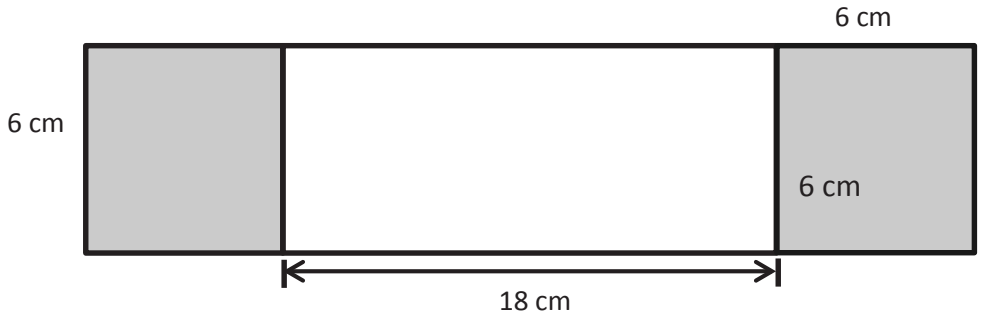
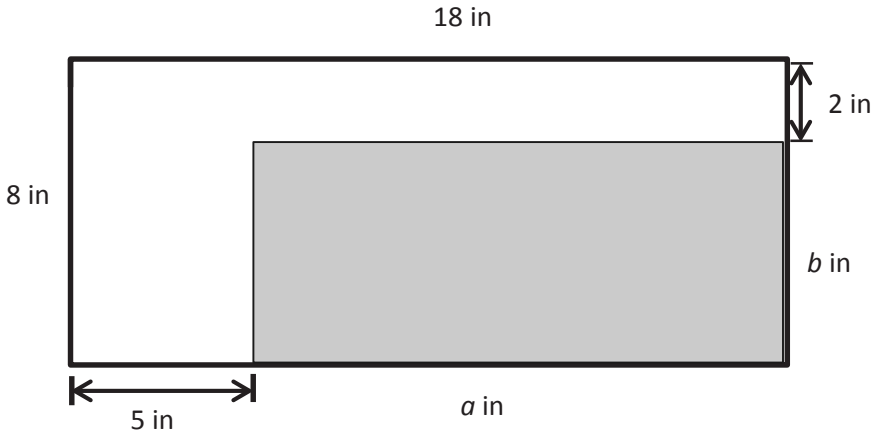
2. Sari draws and labels the squares and rectangle below. Find the perimeter of the new shape.



3. Label the unknown side lengths. Then, find the perimeter of the shaded rectangle.



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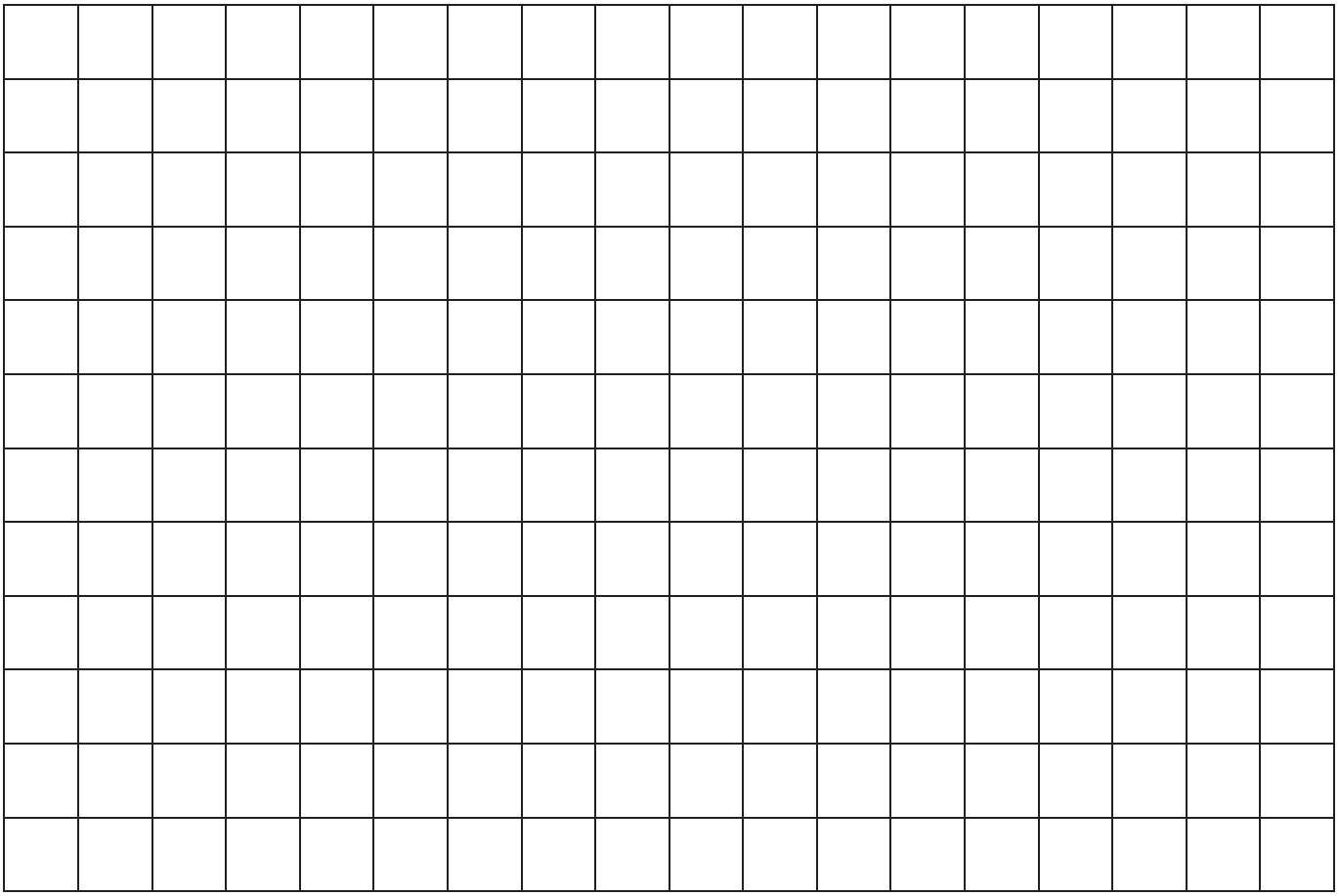
Name _____ Date _____

1. Shade in squares on the grid below to create as many rectangles as you can with an area of 18 square centimeters.



2. Find the perimeter of each rectangle in Problem 1 above.

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3. Estimate to draw as many rectangles as you can with an area of 20 square centimeters. Label the side lengths of each rectangle.

a. Which rectangle above has the greatest perimeter? How do you know just by looking at its shape?

b. Which rectangle above has the smallest perimeter? How do you know just by looking at its shape?

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Name _____ Date _____

1. Cut out the unit squares at the bottom of the page. Then, use them to make rectangles for each given number of unit squares. Complete the charts to show how many rectangles you can make for each given number of unit squares. You might not use all the spaces in each chart.

Number of unit squares = **6**

Number of rectangles I made: ____

Width	Length

Number of unit squares = **7**

Number of rectangles I made: ____

Width	Length

Number of unit squares = **8**

Number of rectangles I made: ____

Width	Length

Number of unit squares = **9**

Number of rectangles I made: ____

Width	Length

Number of unit squares = **10**

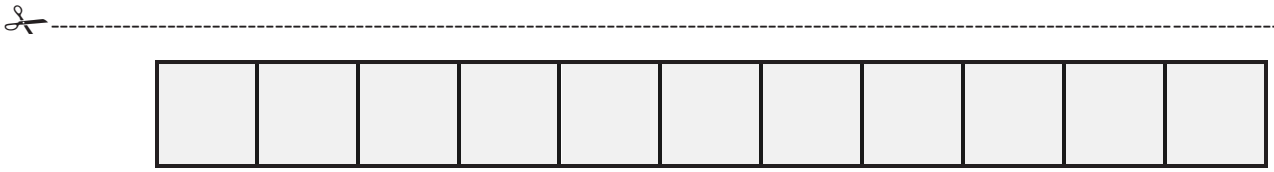
Number of rectangles I made: ____

Width	Length

Number of unit squares = **11**

Number of rectangles I made: ____

Width	Length



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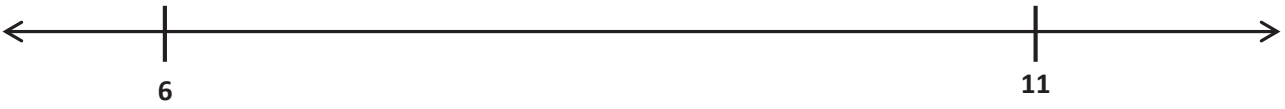
2. Create a line plot with the data you collected in Problem 1.

Number of Rectangles Made with Unit Squares



Number of Unit Squares Used

X = 1 Rectangle

a. Luke looks at the line plot and says that all odd numbers of unit squares produce only 1 rectangle. Do you agree? Why or why not?

b. How many X's would you plot for 4 unit squares? Explain how you know.

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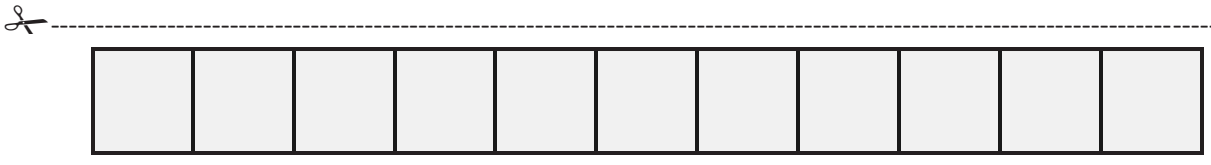
Name _____ Date _____

1. Cut out the unit squares at the bottom of the page. Then, use them to make as many rectangles as you can with a perimeter of 10 units.

   a. Estimate to draw your rectangles below. Label the side lengths of each rectangle.

   b. Find the areas of the rectangles in part (a) above.



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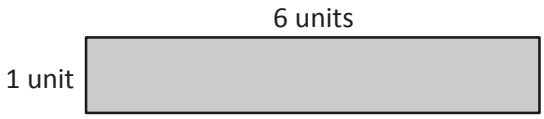
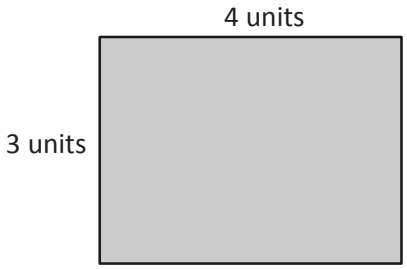
2. Gino uses unit square tiles to make rectangles with a perimeter of 14 units. He draws his rectangles as shown below. Using square unit tiles, can Gino make another rectangle that has a perimeter of 14 units? Explain your answer.





3. Katie draws a square that has a perimeter of 20 centimeters.

   a. Estimate to draw Katie's square below. Label the length and width of the square.

   b. Find the area of Katie's square.

   c. Estimate to draw a different rectangle that has the same perimeter as Katie's square.

   d. Which shape has a greater area, Katie's square or your rectangle?

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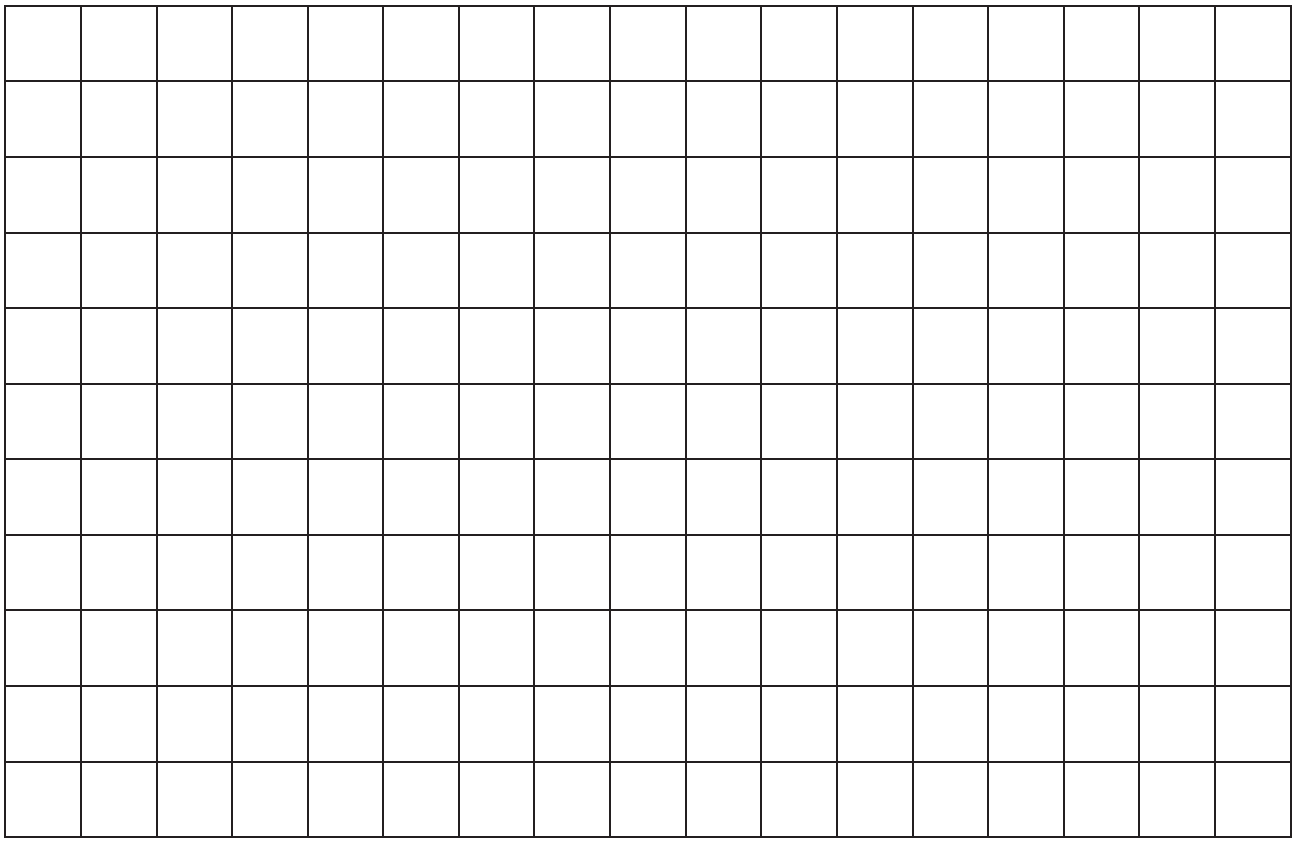
Name _____ Date _____

1. Margo finds as many rectangles as she can with a perimeter of 14 centimeters.

   a. Shade Margo's rectangles on the grid below. Label the length and width of each rectangle.



   b. Find the areas of the rectangles in part (a) above.

   c. The perimeters of the rectangles are the same. What do you notice about the areas?

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2. Tanner uses unit squares to build rectangles that have a perimeter of 18 units. He creates the chart below to record his findings.

   a. Complete Tanner's chart. You might not use all the spaces in the chart.

Perimeter = 18 units Number of rectangles I made: _____		
Width	Length	Area
1 unit	8 units	8 square units

   b. Explain how you found the widths and lengths in the chart above.

3. Jason and Dina both draw rectangles with perimeters of 12 centimeters, but their rectangles have different areas. Explain with words, pictures, and numbers how this is possible.

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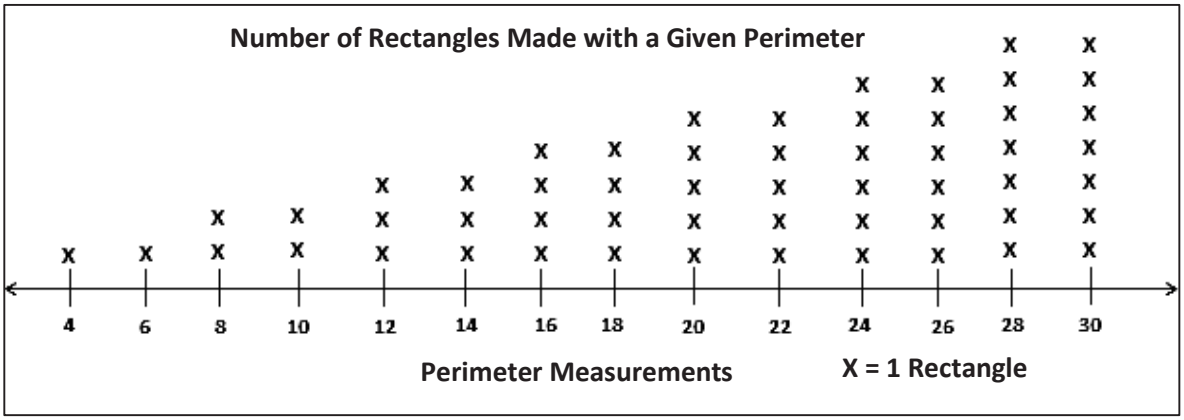
Name _____ Date _____

1. The following line plot shows the number of rectangles a student made using square unit tiles. Use the line plot to answer the questions below.



a. Why are all of the perimeter measurements even? Do all rectangles have even perimeters?

b. Explain the pattern in the line plot. What types of side lengths make this pattern possible?

c. How many X's would you draw for a perimeter of 32? Explain how you know.

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2. Luis uses square inch tiles to build a rectangle with a perimeter of 24 inches. Does knowing this help him find the number of rectangles he can build with an area of 24 square inches? Why or why not?

3. Esperanza makes a rectangle with a piece of string. She says the perimeter of her rectangle is 33 centimeters. Explain how it's possible for her rectangle to have an odd perimeter.

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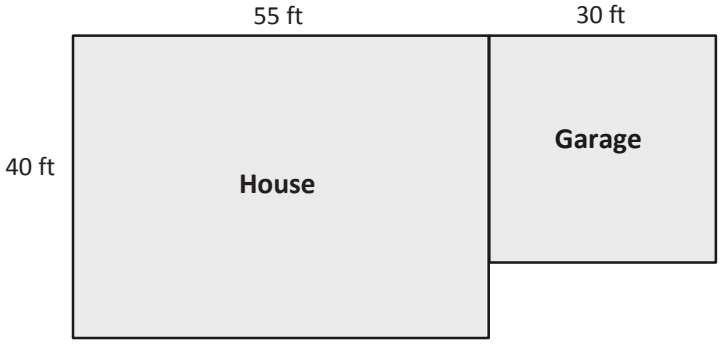
Name _____ Date _____

1. Rosie draws a square with a perimeter of 36 inches. What are the side lengths of the square?

2. Judith uses craft sticks to make two 24-inch by 12-inch rectangles. What is the total perimeter of the 2 rectangles?

3. An architect draws a square and a rectangle, as shown below, to represent a house that has a garage. What is the total perimeter of the house with its attached garage?



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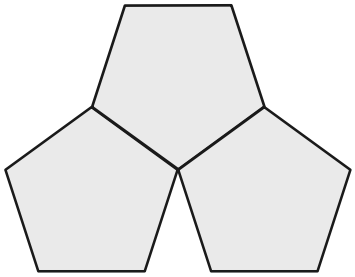
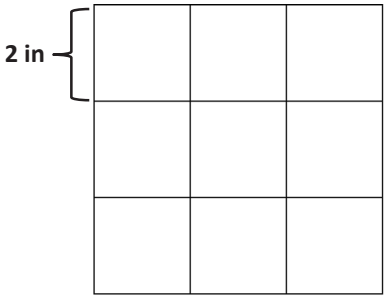
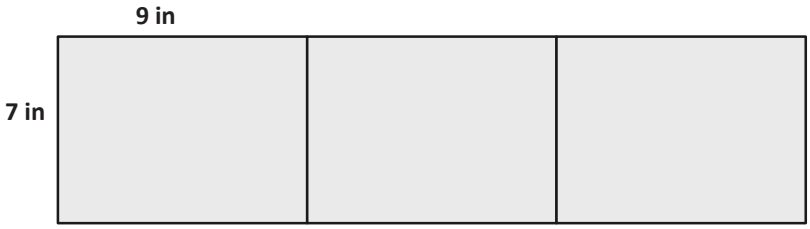
4. Manny draws 3 regular pentagons to create the shape shown below. The perimeter of 1 of the pentagons is 45 inches. What is the perimeter of Manny's new shape?



5. Johnny uses 2-inch square tiles to make a square, as shown below. What is the perimeter of Johnny's square?



6. Lisa tapes three 7-inch by 9-inch pieces of construction paper together to make a happy birthday sign for her mom. She uses a piece of ribbon that is 144 inches long to make a border around the outside edges of the sign. How much ribbon is leftover?



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Name _____ Date _____

1. Brian draws a square with a perimeter of 24 inches. What is the width and length of the square?

2. A rectangle has a perimeter of 18 centimeters.

   a. Estimate to draw as many different rectangles as you can that have a perimeter of 18 centimeters. Label the width and length of each rectangle.

   b. How many different rectangles did you find?

   c. Explain the strategy you used to find the rectangles.

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3. The chart below shows the perimeters of three rectangles.

   a. Write possible widths and lengths for each given perimeter.

Rectangle	Perimeter	Width and Length
A	6 cm	_____ cm by _____ cm
B	10 cm	_____ cm by _____ cm
C	14 cm	_____ cm by _____ cm

   b. Double the perimeters of the rectangles in part (a). Then, find possible widths and lengths.

Rectangle	Perimeter	Width and Length
A	12 cm	_____ cm by _____ cm
B		_____ cm by _____ cm
C		_____ cm by _____ cm

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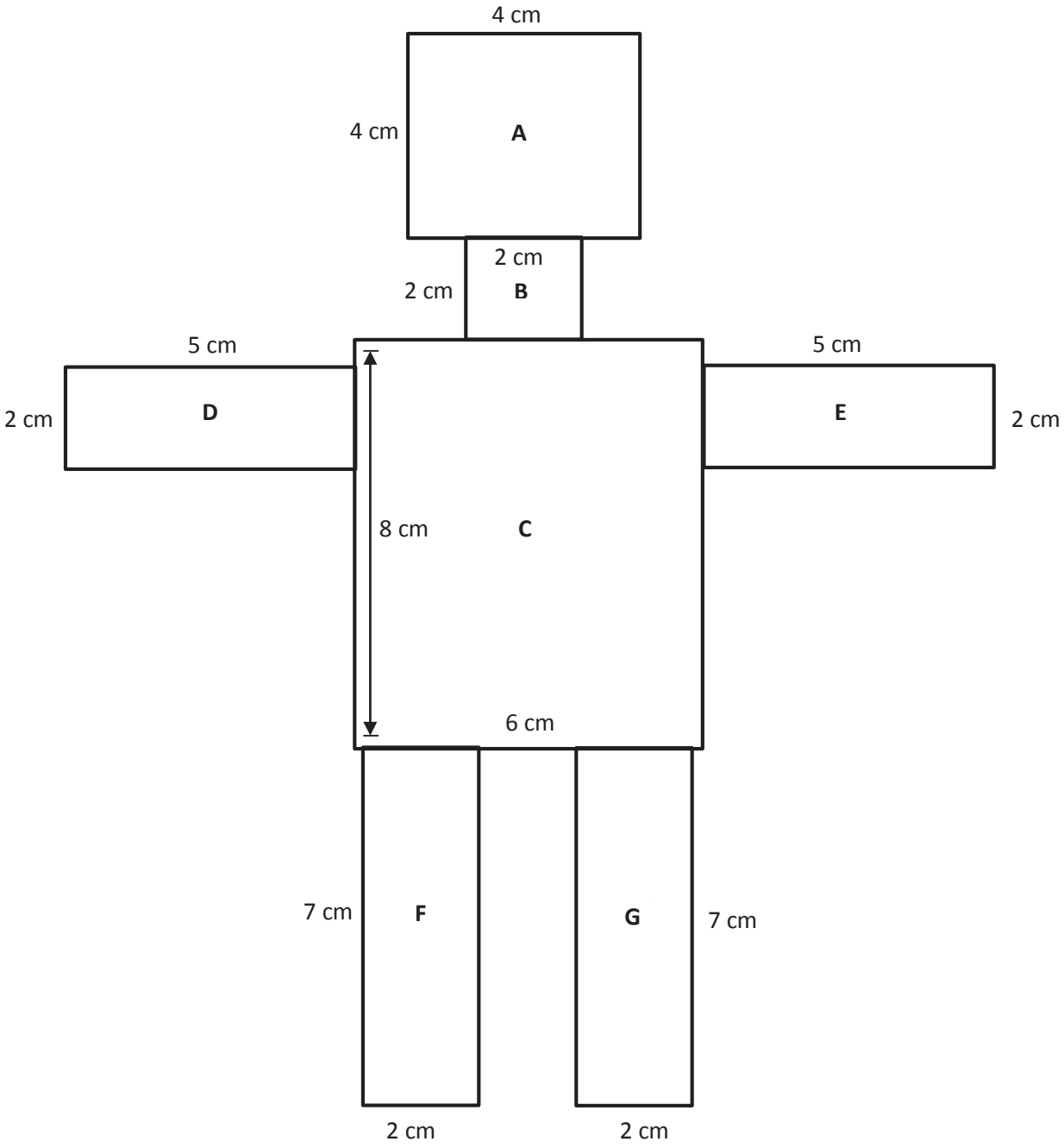
Name _____ Date _____

The robot below is made of rectangles. The side lengths of each rectangle are labeled. Find the perimeter of each rectangle, and record it in the table on the next page.



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Rectangle	Perimeter
A	P = 4 × 4 cm P = 16 cm
B	
C	
D	
E	
F	
G	

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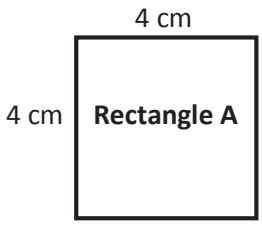
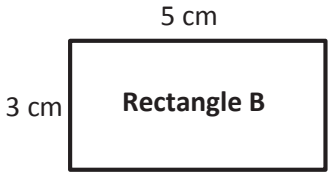
Name _____ Date _____

1. Use Rectangles A and B to answer the questions below.





a. What is the perimeter of Rectangle A?

b. What is the perimeter of Rectangle B?

c. What is the area of Rectangle A?

d. What is the area of Rectangle B?

e. Use your answers to parts (a–d) to help you explain the relationship between area and perimeter.

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2. Each student in Mrs. Dutra's class draws a rectangle with whole number side lengths and a perimeter of 28 centimeters. Then, they find the area of each rectangle and create the table below.

Area in Square Centimeters	Number of Students
13	2
24	1
33	3
40	5
45	4
48	2
49	2

a. Give two examples from Mrs. Dutra's class to show how it is possible to have different areas for rectangles that have the same perimeter.

b. Did any students in Mrs. Dutra's class draw a square? Explain how you know.

c. What are the side lengths of the rectangle that most students in Mrs. Dutra's class made with a perimeter of 28 centimeters?

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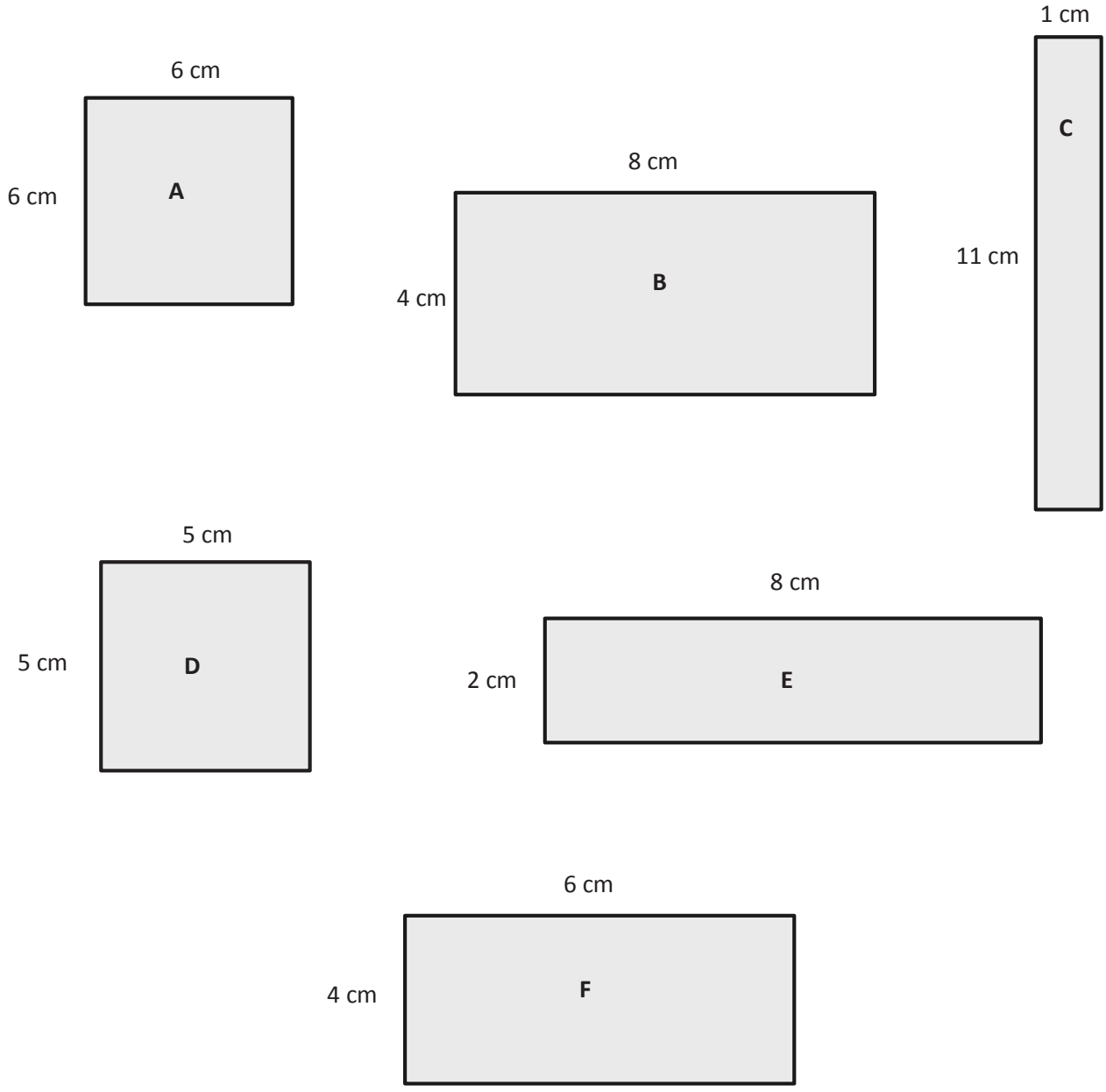
Name _____ Date _____

Record the perimeters and areas of the rectangles in the chart on the next page.



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1. Find the area and perimeter of each rectangle.

Rectangle	Width and Length	Perimeter	Area
A	_____ cm by _____cm		
B	_____ cm by _____cm		
C	_____ cm by _____cm		
D	_____ cm by _____cm		
E	_____ cm by _____cm		
F	_____ cm by _____cm		

2. What do you notice about the perimeters of Rectangles A, B, and C?

3. What do you notice about the perimeters of Rectangles D, E, and F?

4. Which two rectangles are squares? Which square has the greater perimeter?

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Name _____ Date _____

1. Carl draws a square that has side lengths of 7 centimeters.

   a. Estimate to draw Carl's square, and label the side lengths.

   b. What is the area of Carl's square?

   c. What is the perimeter of Carl's square?

   d. Carl draws two of these squares to make one long rectangle. What is the perimeter of this rectangle?

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2. Mr. Briggs puts food for the class party on a rectangular table. The table has a perimeter of 18 feet and a width of 3 feet.

   a. Estimate to draw the table, and label the side lengths.

   b. What is the length of the table?

   c. What is the area of the table?

   d. Mr. Briggs puts three of these tables together side by side to make 1 long table. What is the area of the long table?

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Name _____ Date _____

1. Katherine puts two squares together to make the rectangle below. The side lengths of the squares measure 8 inches.

a. What is the perimeter of the rectangle Katherine made with her 2 squares?

b. What is the area of Katherine's rectangle?

c. Katherine decides to draw another rectangle of the same size. What is the area of the new, larger rectangle?

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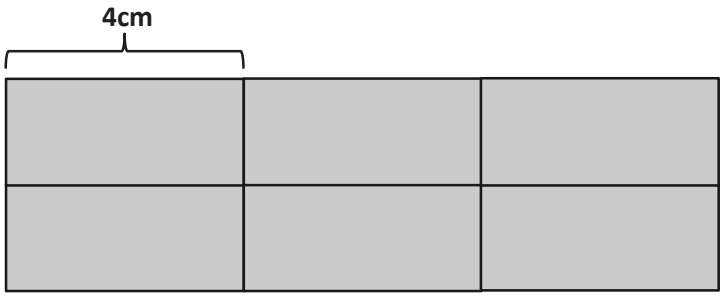
2. Daryl draws 6 equal-sized rectangles as shown below to make a new, larger rectangle. The area of one of the small rectangles is 12 square centimeters, and the width of the small rectangle is 4 centimeters.



a. What is the perimeter of Daryl's new rectangle?

b. What is the area of Daryl's new rectangle?

3. The recreation center soccer field measures 35 yards by 65 yards. Chris dribbles the soccer ball around the perimeter of the field 4 times. What is the total number of yards Chris dribbles the ball?

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Name _____ Date _____

Use this form to critique Student A's problem-solving work on the next page.

Student:	**Student A**	**Problem Number:**	
Strategies Student A Used:			
Things Student A Did Well:			
Suggestions for Improvement:			
Strategies I Would Like to Try Based on Student A's Work:			

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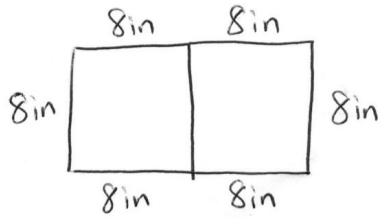
Name **STUDENT A** Date _____

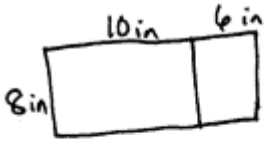
1. Katherine puts 2 squares together to make the rectangle below. The side lengths of the squares measure 8 inches.

a. What is the perimeter of Katherine's rectangle?



P = 6 × 8in
P = 48 in
The perimeter is 48 inches.

b. What is the area of Katherine's rectangle?



A = (8 × 10) + (8 × 6)
A = 80 + 48
A = 128
The area is 128 sq in.

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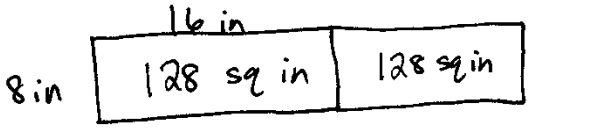
c. Katherine draws 2 of the rectangles in Problem 1 side by side. Her new, larger rectangle is shown below. What is the area of the new, larger rectangle?



A= 128 sq in + 128 sq in
A= 256 sq in

The area of the new rectangle is 256 sq in.

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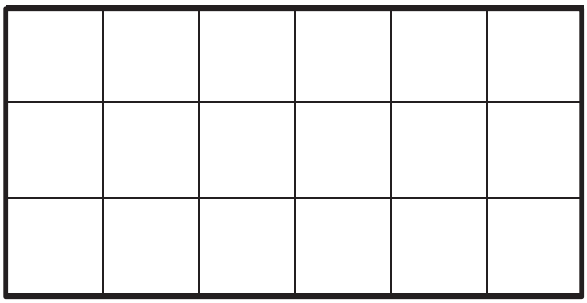
Name _____ Date _____

1. Use the rectangle below to answer Problem 1(a–d).



a. What is the area of the rectangle in square units?

b. What is the area of half of the rectangle in square units?

c. Shade in half of the rectangle above. Be creative with your shading!

d. Explain how you know you shaded in half of the rectangle.

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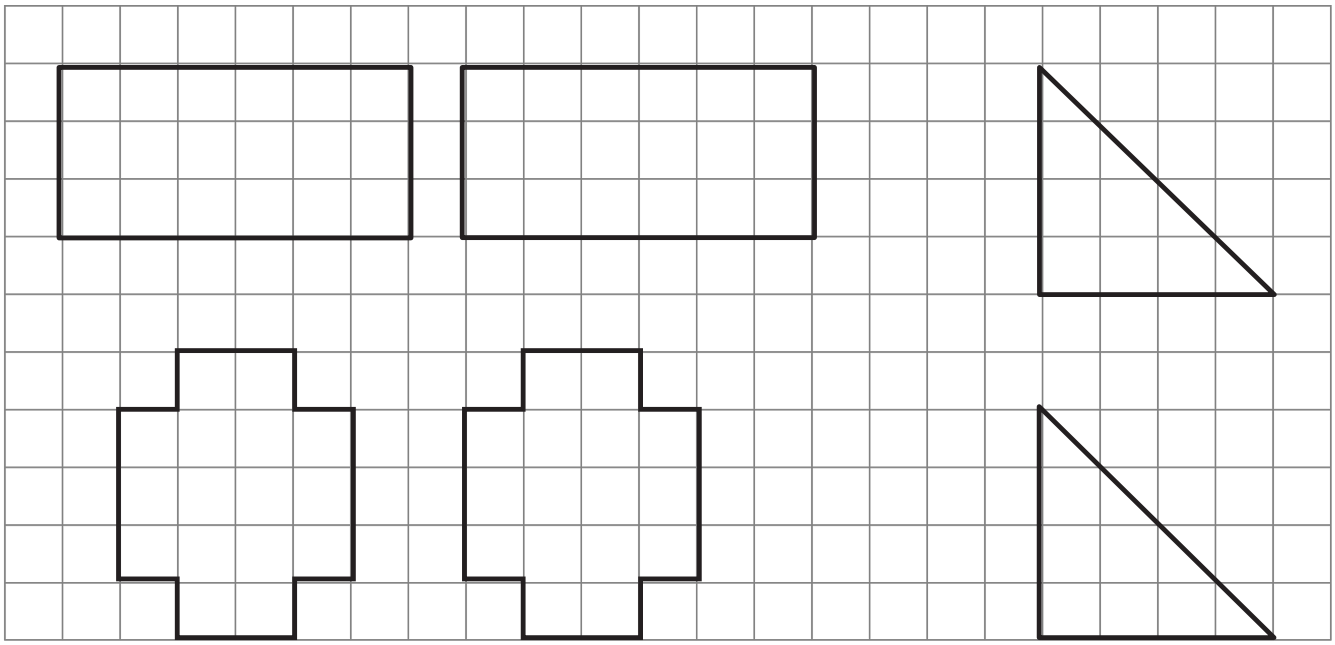
2. During math class, Arthur, Emily, and Gia draw a shape and then shade one-half of it. Analyze each student's work. Determine if each student was correct or not, and explain your thinking.

Student	Drawing	Your Analysis
Arthur		
Emily		
Gia		

3. Shade the grid below to show two different ways of shading half of each shape.



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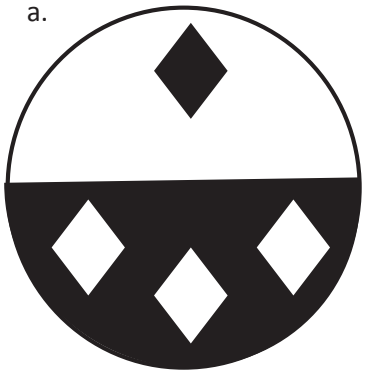
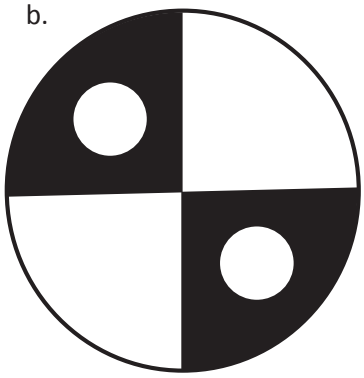
Name _____ Date _____

1. Estimate to finish shading the circles below so that each circle is about one-half shaded.

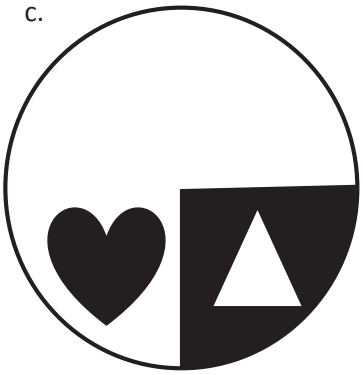
a.



b.



c.



2. Choose one of the circles in Problem 1, and explain how you know it's about one-half shaded.

Circle _____

3. Can you say the circles in Problem 1 are exactly one-half shaded? Why or why not?

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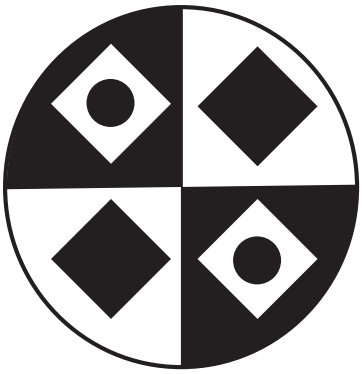
4. Marissa and Jake shade in circles as shown below.

Marissa's Circle

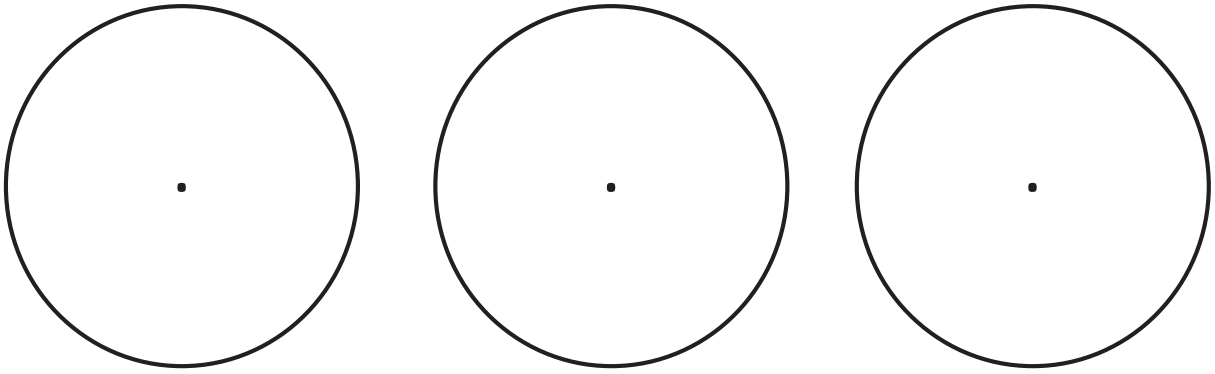
Jake's Circle



a. Whose circle is about one-half shaded? How do you know?

b. Explain how the circle that is not one-half shaded can be changed so that it is one-half shaded.

5. Estimate to shade about one-half of each circle below in an unusual way.



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Name _____ Date _____

Teach a family member your favorite fluency game from class. Record information about the game you taught below.

Name of the game: _____

_____

Materials used: _____

_____

Name of the person you taught to play: _____

Describe what it was like to teach the game. Was it easy? Hard? Why? _____

_____

_____

_____

Will you play the game together again? Why or why not? _____

_____

_____

Was the game as fun to play at home as in class? Why or why not? _____

_____

_____

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