

Eureka Math™

Grade 3, Module 7

Student File_A

*Contains copy-ready classwork and homework
as well as templates (including cut outs)*

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10 9 8 7 6 5 4 3 2 1

Name _____

Date _____

Lena's family visits Little Tree Apple Orchard. Use the RDW process to solve the problems about Lena's visit to the orchard. Use a letter to represent the unknown in each problem.

1. The sign below shows information about hayrides at the orchard.



- a. Lena's family buys 2 adult tickets and 2 child tickets for the hayride. How much does it cost Lena's family to go on the hayride?
- b. Lena's mom pays for the tickets with \$5 bills. She receives \$3 in change. How many \$5 bills does Lena's mom use to pay for the hayride?
- c. Lena's family wants to go on the fourth hayride of the day. It's 11:38 now. How many minutes do they have to wait for the fourth hayride?

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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.

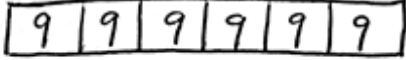
| Train Fare—One Way | |
|--|-----|
| Adult..... | \$8 |
| Child..... | \$6 |
| Leaves every 15 minutes starting at 6:00 a.m. | |

- 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?

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?

Student A

Total pencils



$$6 \times 9 = 54$$

Pencils she gave away

$$24 \times 2$$

$$(6 \times 4) \times 2$$

$$6 \times (4 \times 2)$$

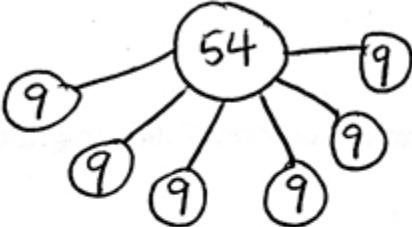
$$6 \times 8 = 48$$

$$\begin{array}{r} 414 \\ \cancel{54} \\ - 48 \\ \hline 6 \end{array}$$

Mrs. Mashburn has 6 pencils left.

Student B

Total pencils



$$6 \times 9 = 54$$

Pencils she gave away

$$g = 24 \times 2$$

$$g = 48$$

$$\begin{array}{r} 24 \\ + 24 \\ \hline 48 \end{array}$$

$$\begin{array}{r} 414 \\ \cancel{54} \\ - 48 \\ \hline 6 \end{array}$$

Mrs. Mashburn has 6 pencils left.

student work samples

Student C

414
~~348~~
—
66

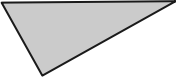
Mrs. Mashburn has
6 pencils left.

student work samples

Name _____

Date _____

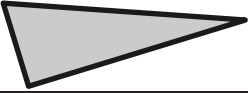
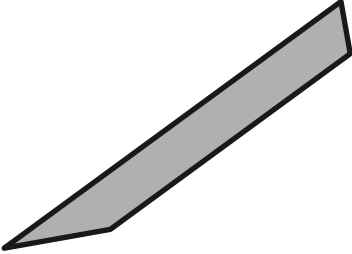



1. Cut out all the polygons (A–L) in the Template. Then, use the polygons to complete the following chart.

| Attribute | Write the letters of the polygons in this group. | Sketch 1 polygon from the group. |
|---|--|---|
| <i>Example:</i> 3 Sides | Polygons: Y, Z |  |
| 4 Sides | Polygons: | |
| At Least 1 Set of Parallel Sides | Polygons: | |
| 2 Sets of Parallel Sides | Polygons: | |
| 4 Right Angles | Polygons: | |
| 4 Right Angles and 4 Equal Sides | Polygons: | |

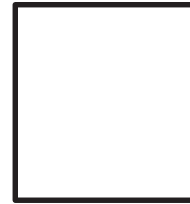
Name _____

Date _____

1. Complete the chart by answering true or false.

| Attribute | Polygon | True or False |
|----------------------------|---|---------------|
| <i>Example:</i> 3 Sides |  | True |
| 4 Sides |  | |
| 2 Sets of Parallel Sides |  | |
| 4 Right Angles |  | |
| Quadrilateral |  | |

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

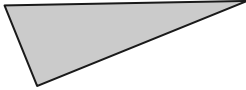


- b. Using a straightedge, sketch a different quadrilateral with at least 1 set of parallel sides.

Name _____

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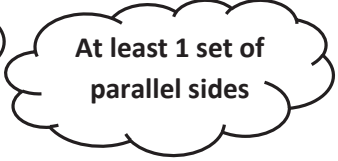
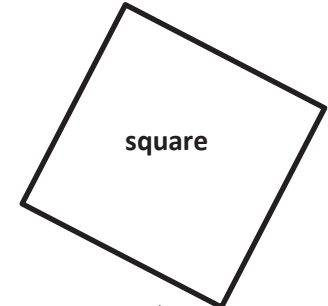
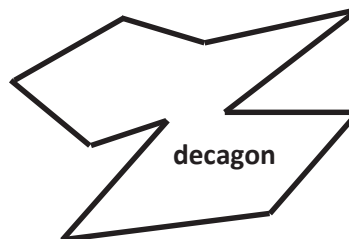
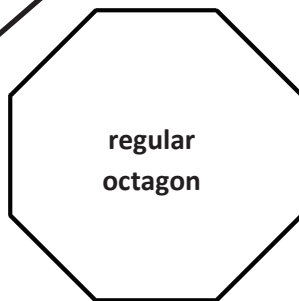
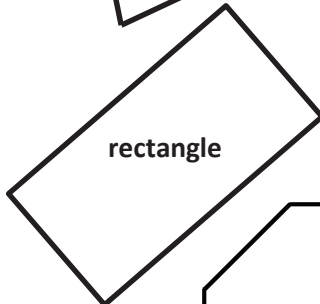
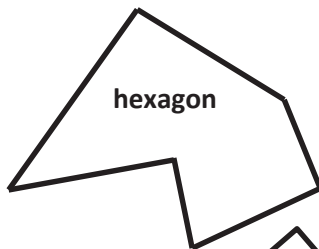
1. Cut out all the polygons (M–X) in the Template. Then, use the polygons to complete the following chart.

| Attribute | List polygons' letters for each group. | Sketch 1 polygon from the group. |
|---|--|---|
| <i>Example:</i> 3 Sides | Polygons: Y, Z |  |
| All Sides Are Equal | Polygons: | |
| All Sides Are Not Equal | Polygons: | |
| At Least 1 Right Angle | Polygons: | |
| At Least 1 Set of Parallel Sides | Polygons: | |

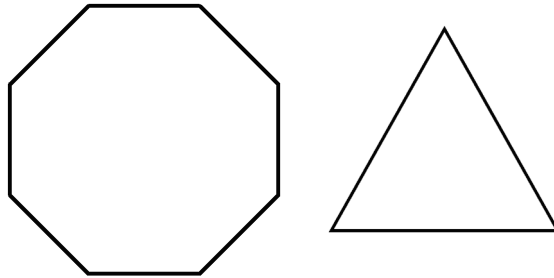
Name _____

Date _____

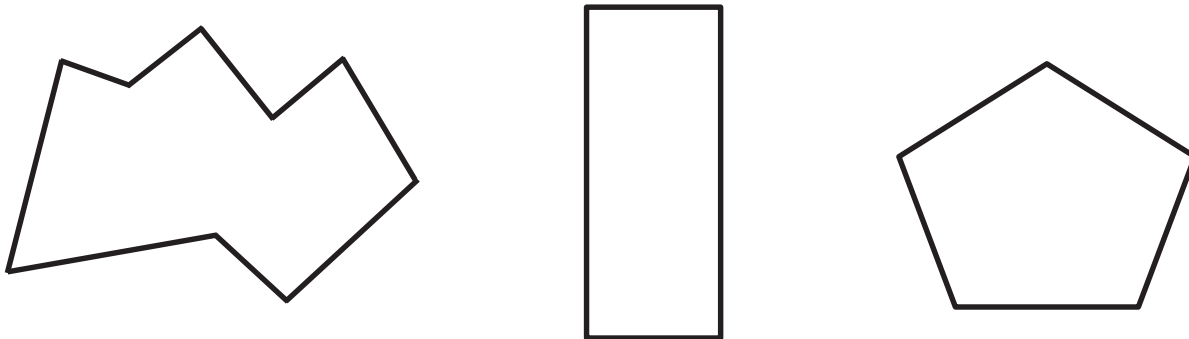
1. Match the polygons with their appropriate clouds. A polygon can match to more than 1 cloud.

All sides are equal.All sides are not equal.At least 1 right angleAt least 1 set of parallel sides

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.



4. Draw a pentagon with at least 2 equal sides. Label the 2 equal side lengths of your shape.
5. Draw a hexagon with at least 2 equal sides. Label the 2 equal side lengths of your shape.
6. Sam says that he drew a polygon with 2 sides and 2 angles. Can Sam be correct? Use pictures to help you explain your answer.

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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.

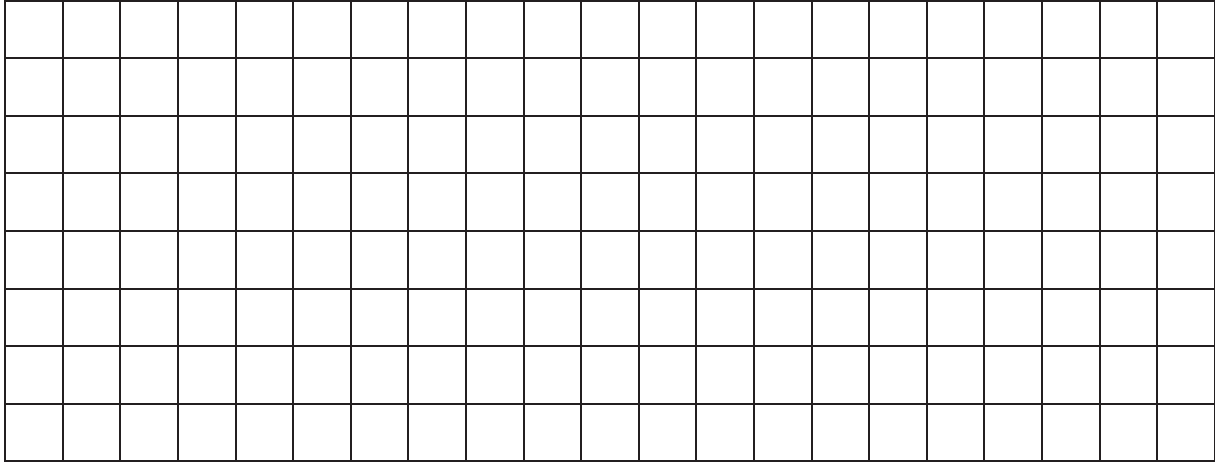
2. Draw a quadrilateral that has at least 2 right angles.

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

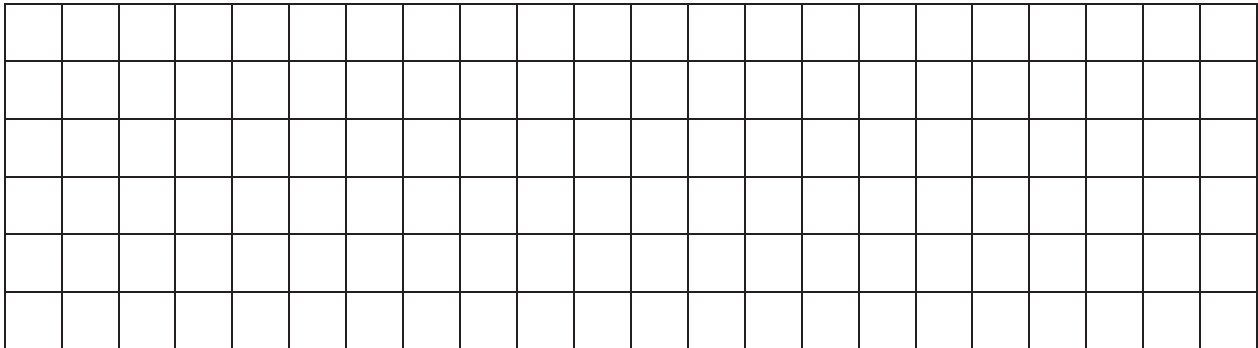
Name _____

Date _____

1. Use tetrominoes to create at least two different rectangles. Then, color the grid below to show how you created your rectangles. You may use the same tetromino more than once.

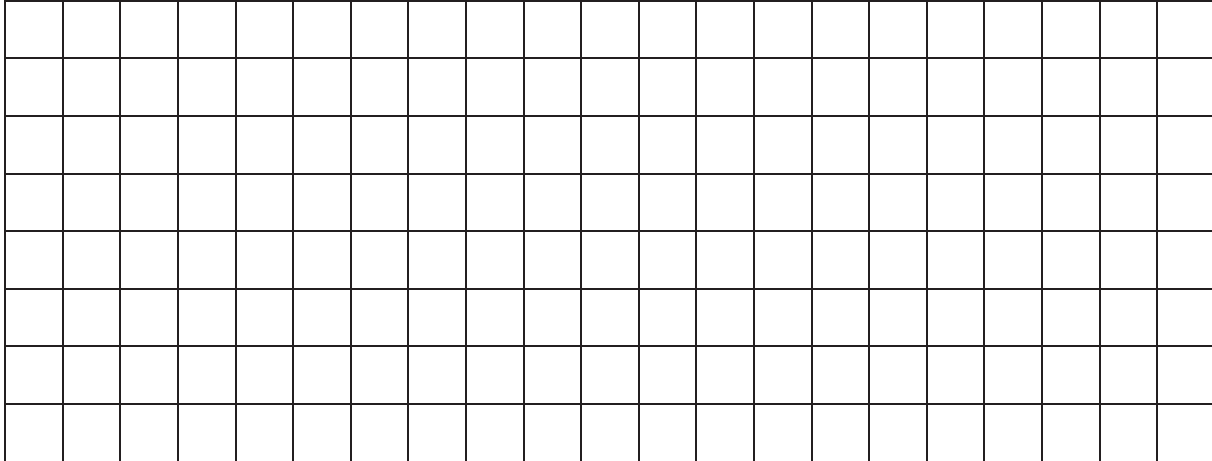


2. Use tetrominoes to create at least two squares, each with an area of 36 square units. Then, color the grid below to show how you created your squares. You may use the same tetromino more than once.



- a. Write an equation to show the area of a square above as the sum of the areas of the tetrominoes you used to make the square.
- b. Write an equation to show the area of a square above as the product of its side lengths.

3. a. Use tetrominoes to create at least two different rectangles, each with an area of 12 square units. Then, color the grid below to show how you created the rectangles. You may use the same tetromino more than once.



- b. Explain how you know the area of each rectangle is 12 square units.

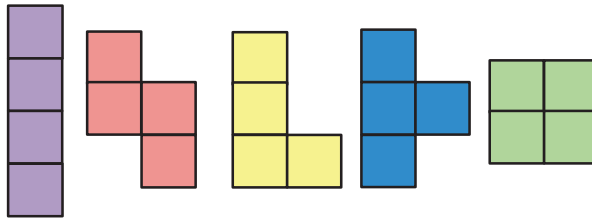
4. Marco created a rectangle with tetrominoes and traced its outline in the space below. Use tetrominoes to re-create it. Estimate to draw lines inside the rectangle below to show how you re-created Marco's rectangle.



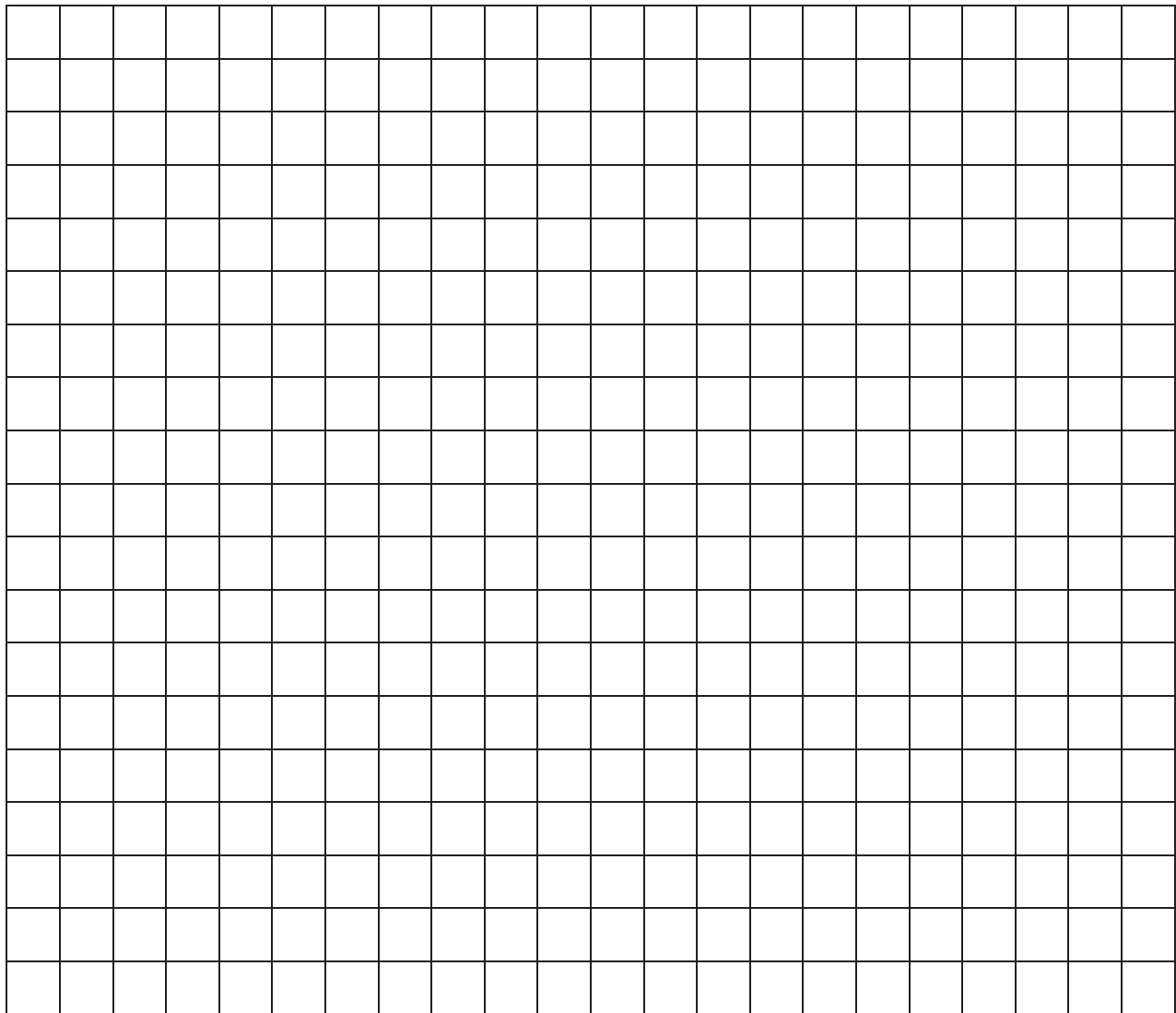
Name _____

Date _____

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



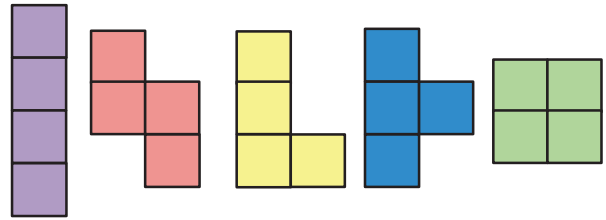
Tetrominoes



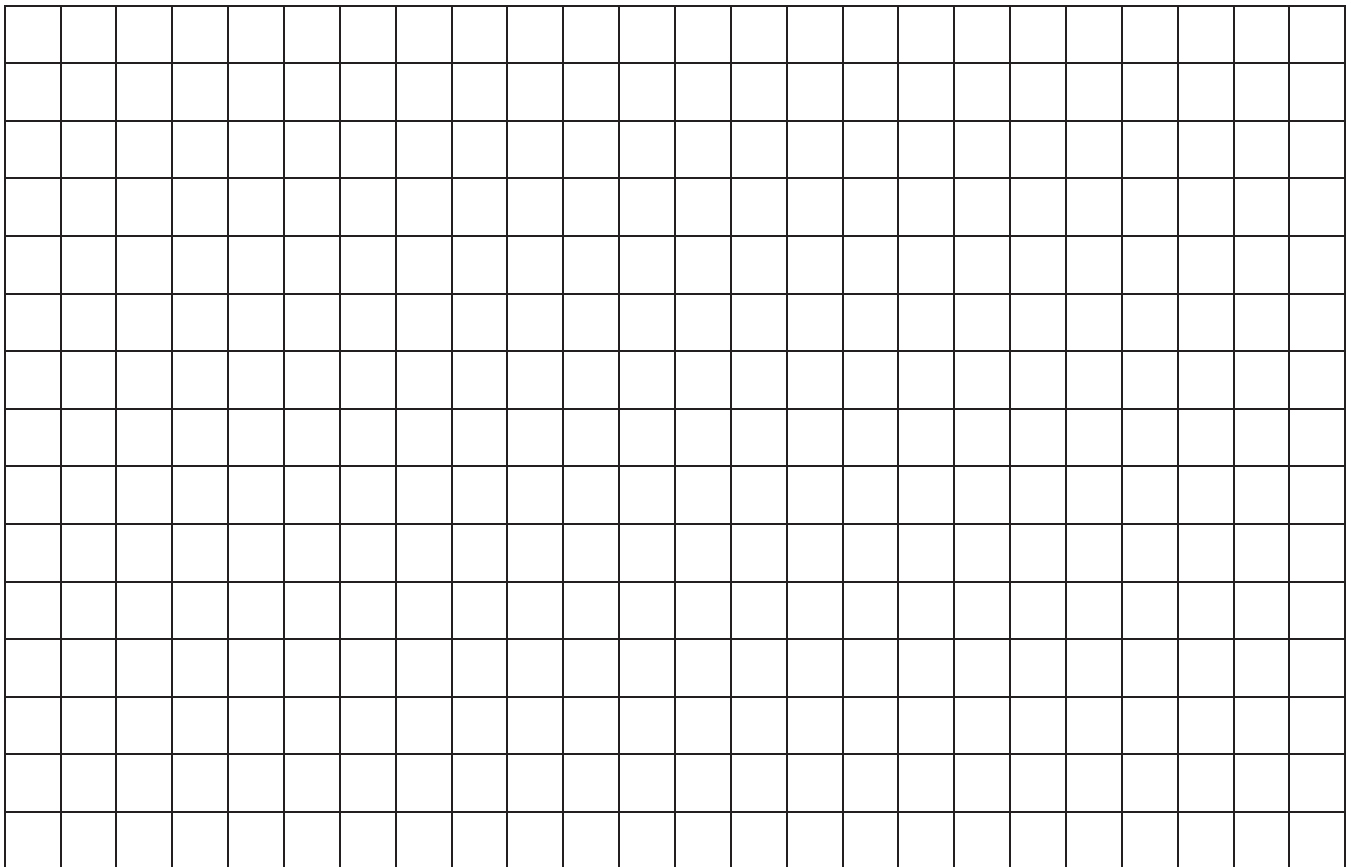
2. Color tetrominoes on the grid below to:

- 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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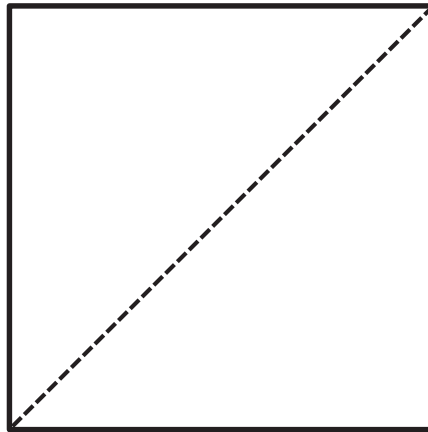
1. Fold and cut the square on the diagonal. Draw and label your 2 new shapes below.

2. Fold and cut one of the triangles in half. Draw and label your 2 new shapes below.

3. Fold twice, and cut your large triangle. Draw and label your 2 new shapes below.

4. Fold and cut your trapezoid in half. Draw and label your 2 new shapes below.

5. Fold and cut one of your trapezoids. Draw and label your 2 new shapes below.
6. Fold and cut your second trapezoid. Draw and label your 2 new shapes below.
7. Reconstruct the original square using the seven shapes.
- a. Draw lines inside the square below to show how the shapes go together to form the square. The first one has been done for you.



- b. Describe the process of forming the square. What was easy, and what was challenging?

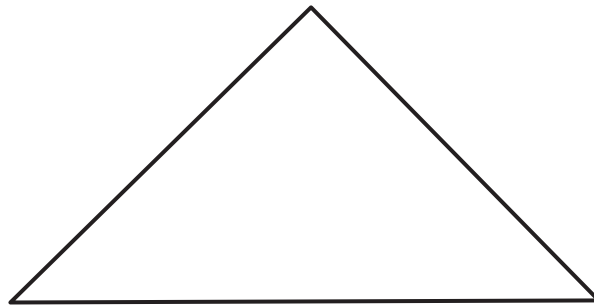
Name _____

Date _____

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



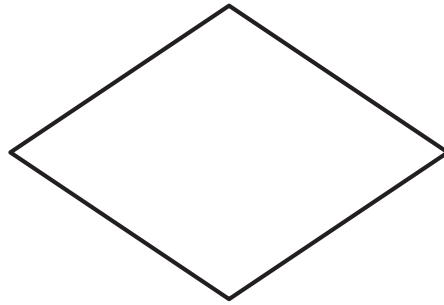
2. Draw a line to divide the triangle below into 2 equal, smaller triangles.



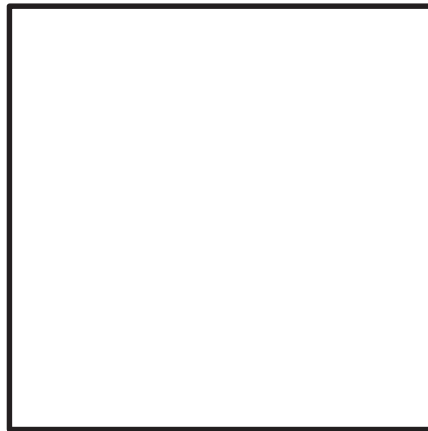
3. Draw a line to divide the trapezoid below into 2 equal trapezoids.



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.

Name _____

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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.

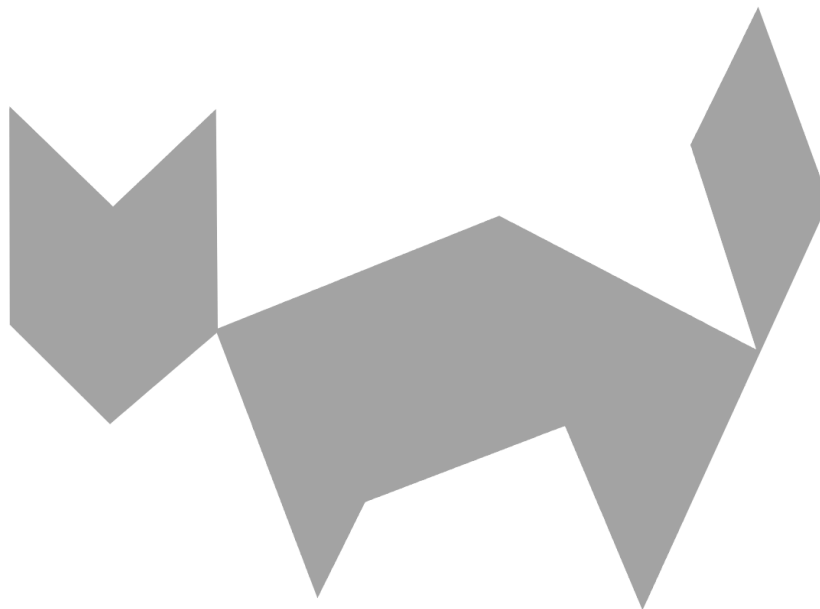
a. A triangle.

b. A square.

c. A parallelogram.

d. A trapezoid.

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.

Name _____

Date _____

1. Use a 2-inch square to answer the questions below.

a. Trace the square in the space below with a red crayon.

b. Trace the new shape you made with the square in the space below with a red crayon.

c. Which shape has a greater perimeter? How do you know?

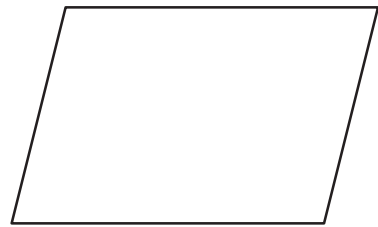
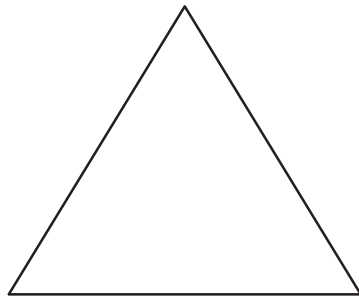
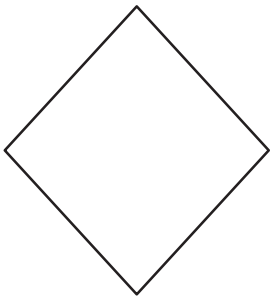
d. Color the inside of the shapes in Problem 1 (a) and (b) with a blue crayon.

e. Which color represents the perimeters of the shapes? How do you know?

f. What does the other color represent? How do you know?

g. Which shape has a greater area? How do you know?

2. a. Outline the perimeter of the shapes below with a red crayon.



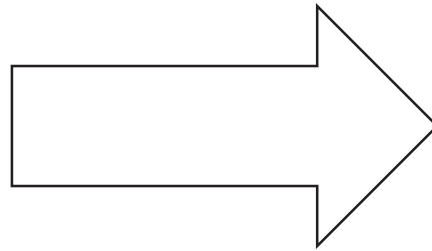
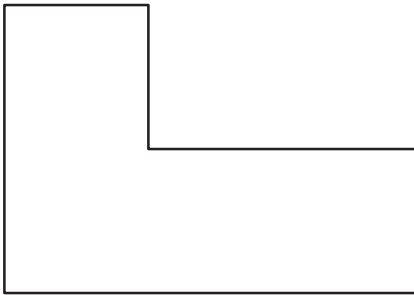
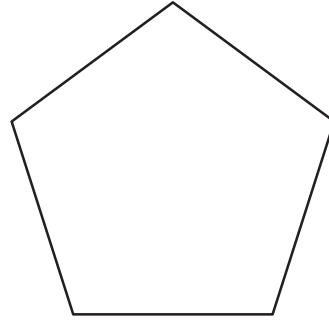
b. Explain how you know you outlined the perimeters of the shapes above.

3. Outline the perimeter of this piece of paper with a highlighter.

Name _____

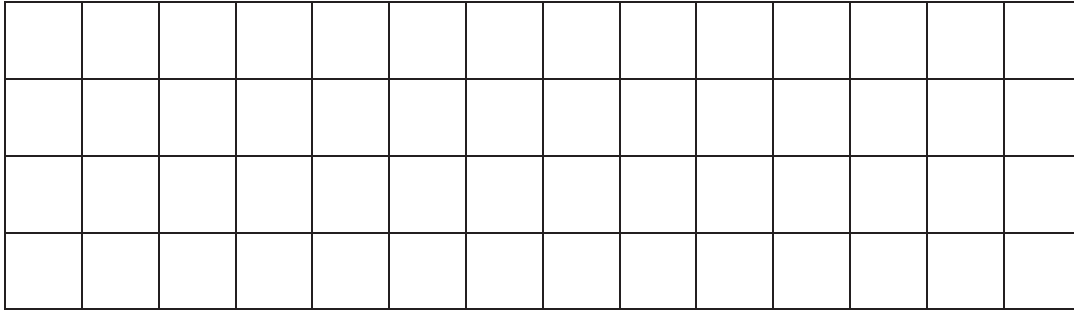
Date _____

1. Trace the perimeter of the shapes below.



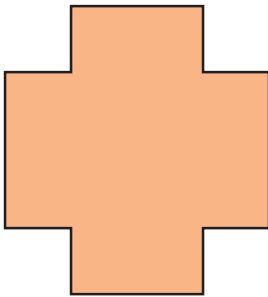
- a. Explain how you know you traced the perimeters of the shapes above.
-
-
-
-
-
-
-
-
-
-
- b. Explain how you could use a string to figure out which shape above has the greatest perimeter.

2. Draw a rectangle on the grid below.



- Trace the perimeter of the rectangle.
- Shade the area of the rectangle.
- How is the perimeter of the rectangle different from the area of the rectangle?

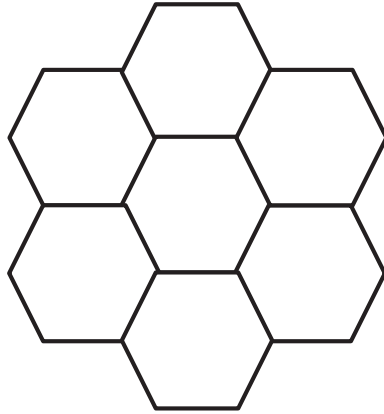
3. Maya draws the shape shown below. Noah colors the inside of Maya's shape as shown. Noah says he colored the perimeter of Maya's shape. Maya says Noah colored the area of her shape. Who is right? Explain your answer.



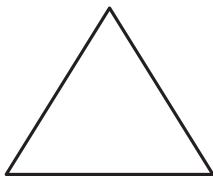
Name _____

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



- Outline the perimeter of Samson's new shape with a highlighter.
 - Explain how Samson could use a string to measure the perimeter of his new shape.
 - How many sides does his new shape have?
 - 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.



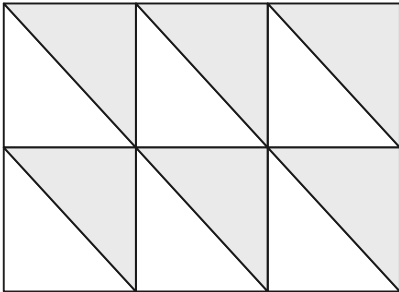
3. The marks on the strings below show the perimeters of Shyla's and Frank's shapes. Whose shape has a greater perimeter? How do you know?

Shyla's String: 

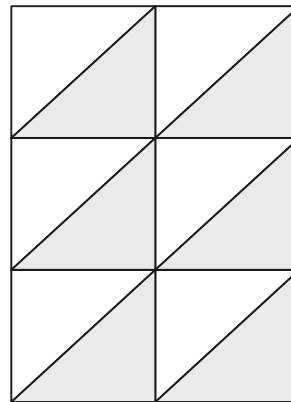
Frank's String: 

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

India's Tessellation



Theo's Tessellation



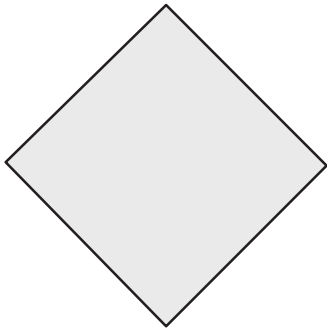
- a. Estimate to draw the shape India and Theo used to make their tessellations.
- b. Theo says both tessellations have the same perimeter. Do you think Theo is right? Why or why not?

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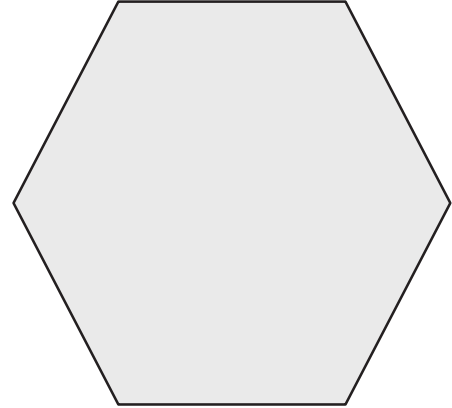
1. Measure and label the side lengths of the shapes below in centimeters. Then, find the perimeter of each shape.

a.



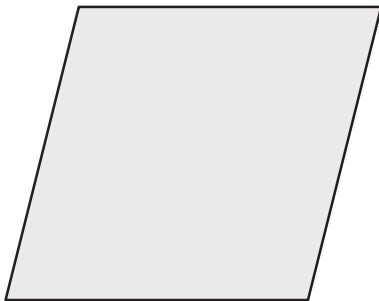
$$\begin{aligned} \text{Perimeter} &= \underline{\quad} \text{ cm} + \underline{\quad} \text{ cm} + \underline{\quad} \text{ cm} + \underline{\quad} \text{ cm} \\ &= \underline{\quad} \text{ cm} \end{aligned}$$

b.



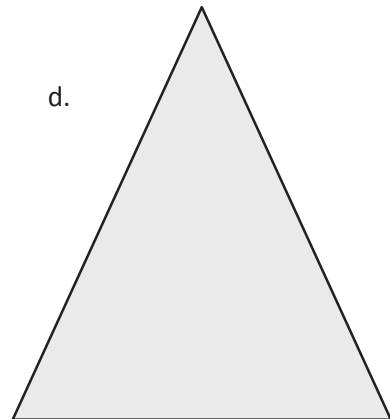
$$\begin{aligned} \text{Perimeter} &= \underline{\hspace{2cm}} \\ &= \underline{\quad} \text{ cm} \end{aligned}$$

c.



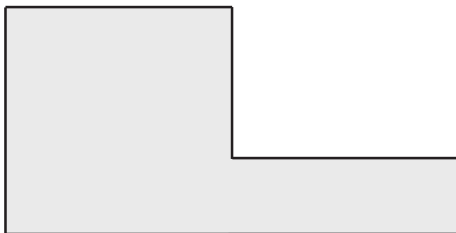
$$\begin{aligned} \text{Perimeter} &= \underline{\hspace{2cm}} \\ &= \underline{\quad} \text{ cm} \end{aligned}$$

d.



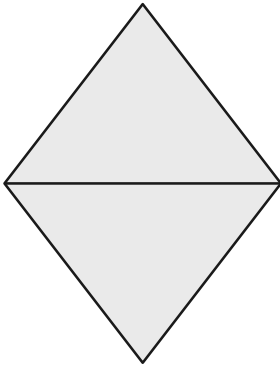
$$\begin{aligned} \text{Perimeter} &= \underline{\hspace{2cm}} \\ &= \underline{\quad} \text{ cm} \end{aligned}$$

e.



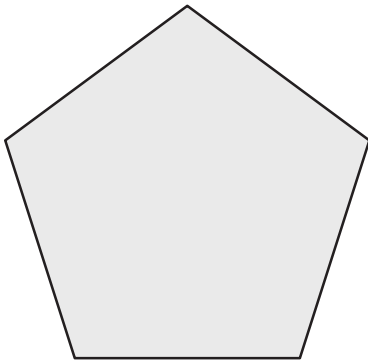
$$\begin{aligned} \text{Perimeter} &= \underline{\hspace{2cm}} \\ &= \underline{\quad} \text{ cm} \end{aligned}$$

2. Carson draws two triangles to create the new shape shown below. Use a ruler to find the side lengths of Carson's shape in centimeters. Then, find the perimeter.

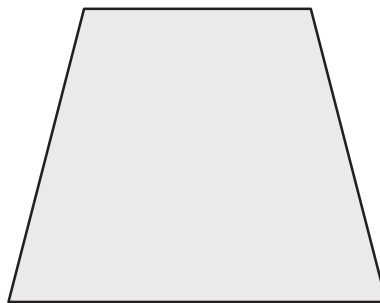


3. Hugh and Daisy draw the shapes shown below. Measure and label the side lengths in centimeters. Whose shape has a greater perimeter? How do you know?

Hugh's Shape



Daisy's Shape



4. Andrea measures one side length of the square below and says she can find the perimeter with that measurement. Explain Andrea's thinking. Then, find the perimeter in centimeters.

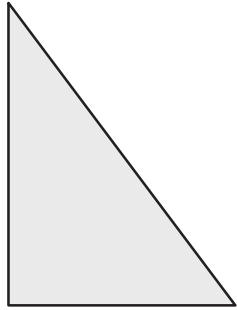


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1. Measure and label the side lengths of the shapes below in centimeters. Then, find the perimeter of each shape.

a.



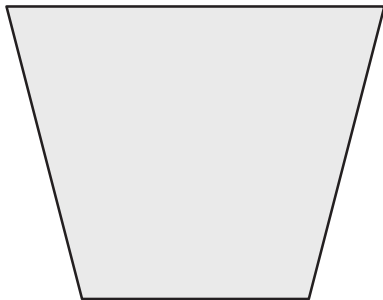
$$\begin{aligned} \text{Perimeter} &= \text{___ cm} + \text{___ cm} + \text{___ cm} \\ &= \text{___ cm} \end{aligned}$$

b.



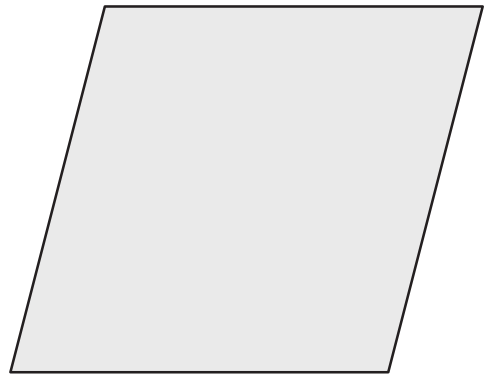
$$\begin{aligned} \text{Perimeter} &= \text{_____} \\ &= \text{___ cm} \end{aligned}$$

c.



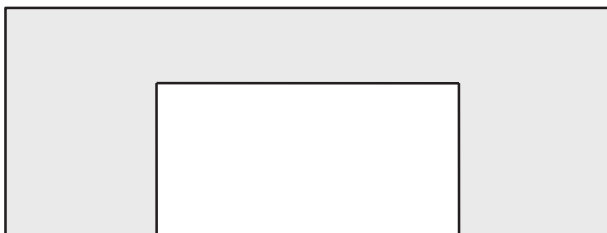
$$\begin{aligned} \text{Perimeter} &= \text{_____} \\ &= \text{___ cm} \end{aligned}$$

d.



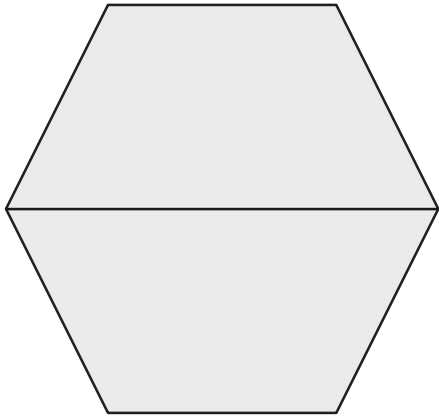
$$\begin{aligned} \text{Perimeter} &= \text{_____} \\ &= \text{___ cm} \end{aligned}$$

e.



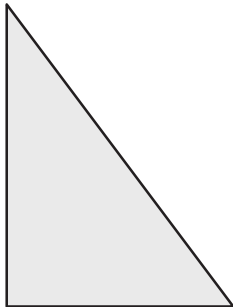
$$\begin{aligned} \text{Perimeter} &= \text{_____} \\ &= \text{___ cm} \end{aligned}$$

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.

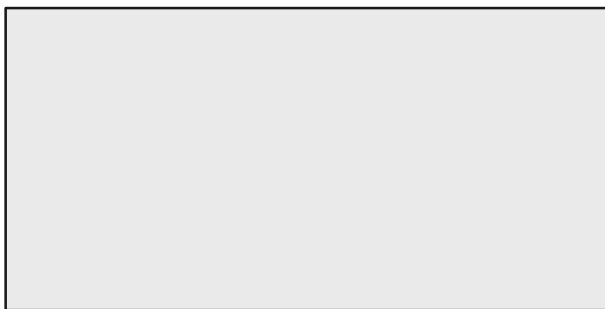
Victoria's Shape

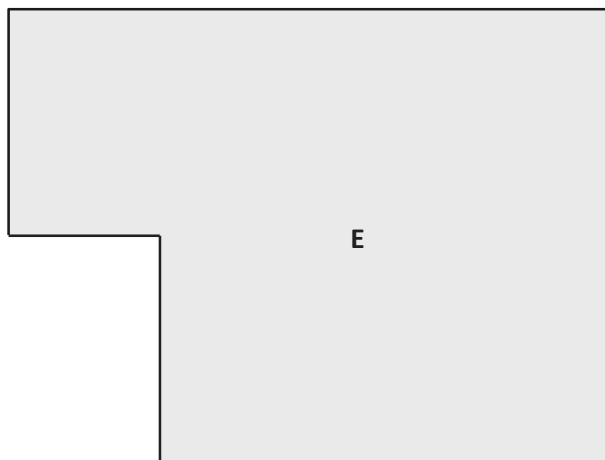
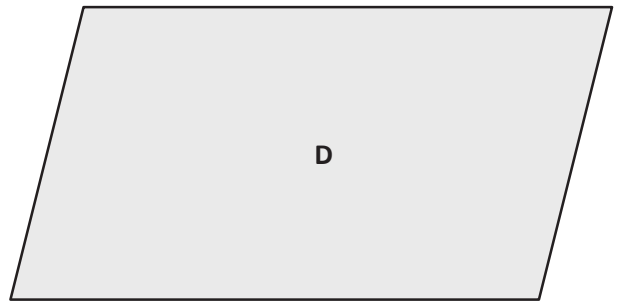
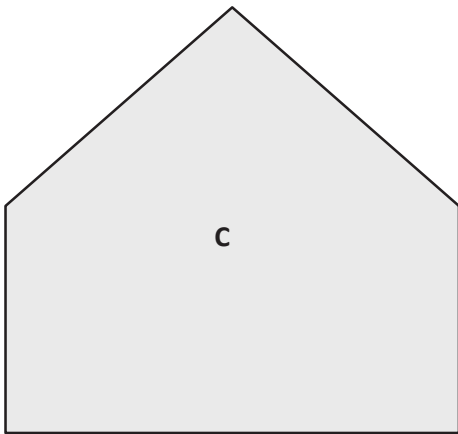
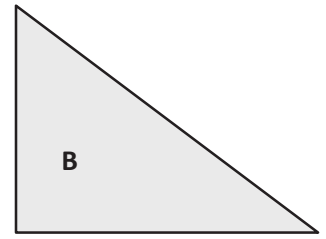
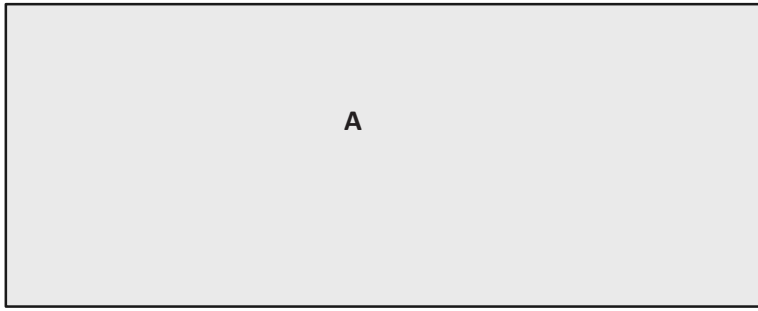


Eric's Shape



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?



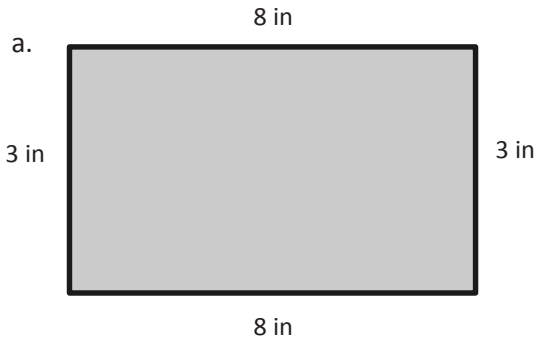


shapes

Name _____

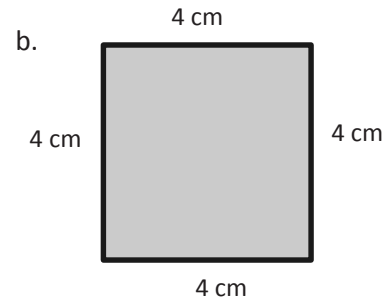
Date _____

1. Find the perimeter of the following shapes.



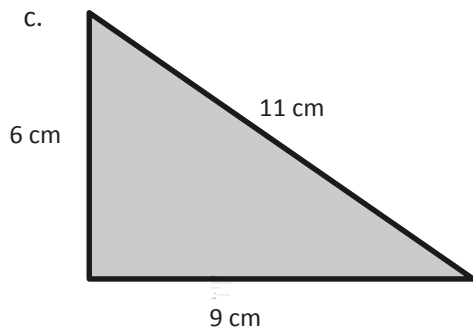
$$P = 3 \text{ in} + 8 \text{ in} + 3 \text{ in} + 8 \text{ in}$$

$$= \underline{\hspace{2cm}} \text{ in}$$



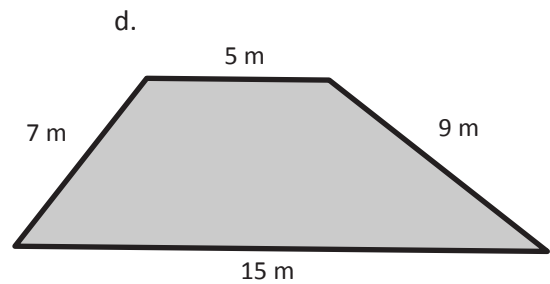
$$P = \underline{\hspace{1cm}} \text{ cm} + \underline{\hspace{1cm}} \text{ cm} + \underline{\hspace{1cm}} \text{ cm} + \underline{\hspace{1cm}} \text{ cm}$$

$$= \underline{\hspace{2cm}} \text{ cm}$$



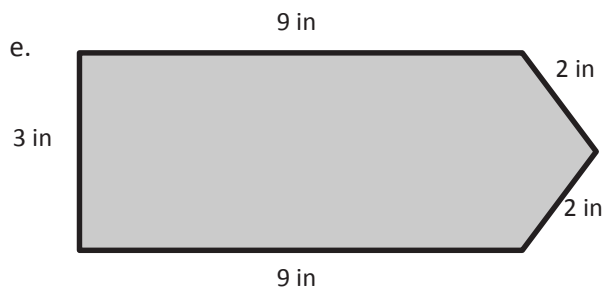
$$P = \underline{\hspace{1cm}} \text{ cm} + \underline{\hspace{1cm}} \text{ cm} + \underline{\hspace{1cm}} \text{ cm}$$

$$= \underline{\hspace{2cm}} \text{ cm}$$



$$P = \underline{\hspace{1cm}} \text{ m} + \underline{\hspace{1cm}} \text{ m} + \underline{\hspace{1cm}} \text{ m} + \underline{\hspace{1cm}} \text{ m}$$

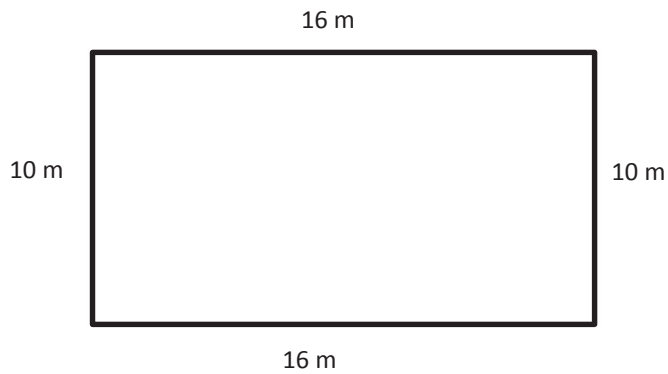
$$= \underline{\hspace{2cm}} \text{ m}$$



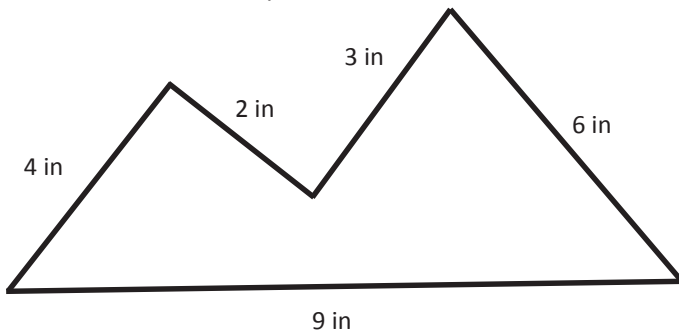
$$P = \underline{\hspace{1cm}} \text{ in} + \underline{\hspace{1cm}} \text{ in} + \underline{\hspace{1cm}} \text{ in} + \underline{\hspace{1cm}} \text{ in} + \underline{\hspace{1cm}} \text{ in}$$

$$= \underline{\hspace{2cm}} \text{ in}$$

2. Alan's rectangular swimming pool is 10 meters long and 16 meters wide. What is the perimeter?



3. Lila measures each side of the shape below.

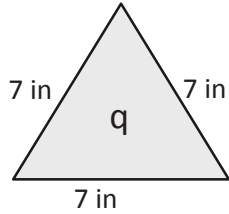


- a. What is the perimeter of the shape?
- b. Lila says the shape is a pentagon. Is she correct? Explain why or why not.

Name _____

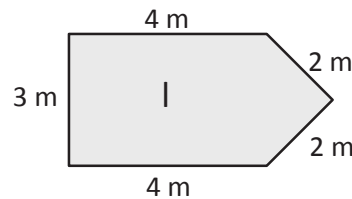
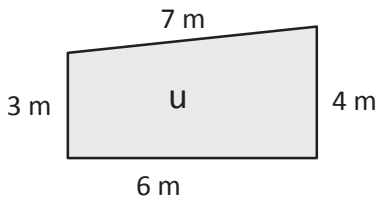
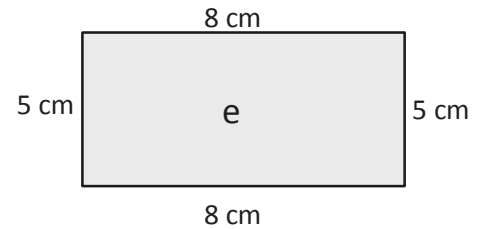
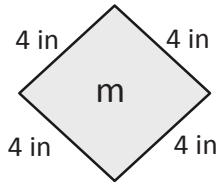
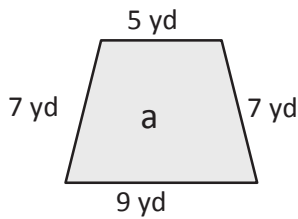
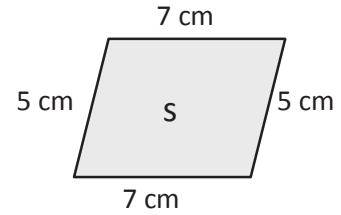
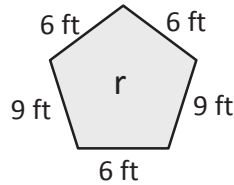
Date _____

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.



$$P = 7 \text{ in} + 7 \text{ in} + 7 \text{ in}$$

$$P = 21 \text{ in}$$

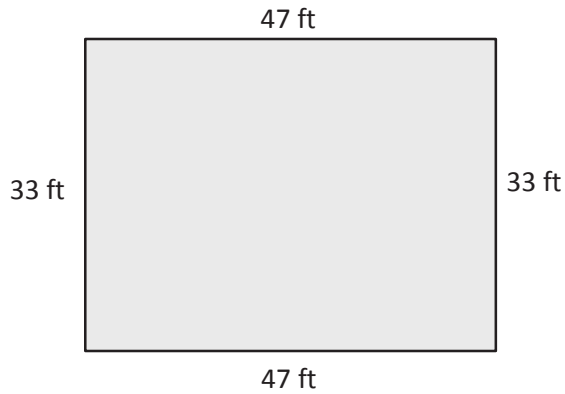


What kind of meals do math teachers eat?

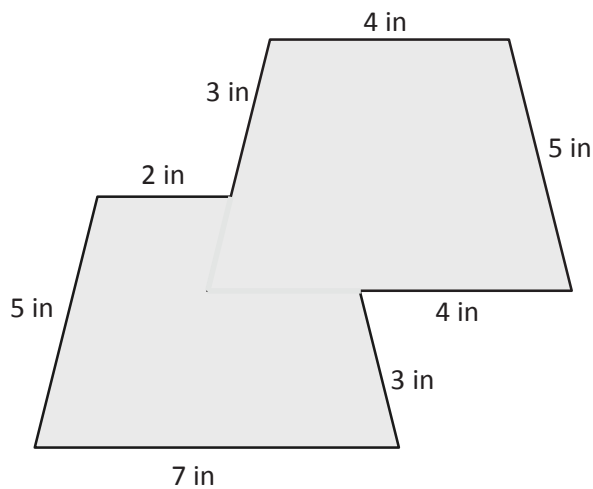
_____ !
 24 21 20 28 36 26 16 26 28 15 24



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.



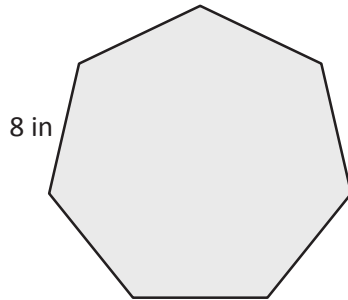
- a. Find the perimeter of Jaques's shape.
- b. Jaques says his shape is an octagon. Is he right? Why or why not?

Name _____

Date _____

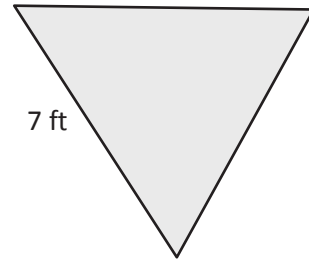
1. Label the unknown side lengths of the regular shapes below. Then, find the perimeter of each shape.

a.



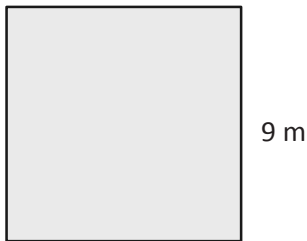
Perimeter = _____ in

b.



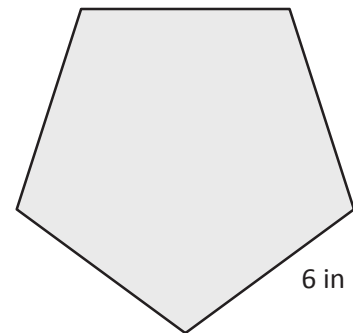
Perimeter = _____ ft

c.



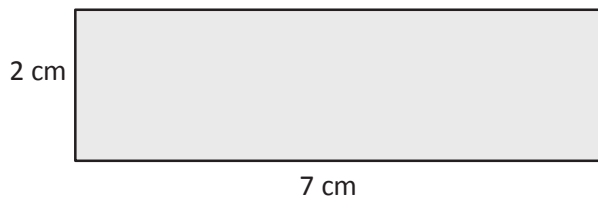
Perimeter = _____ m

d.



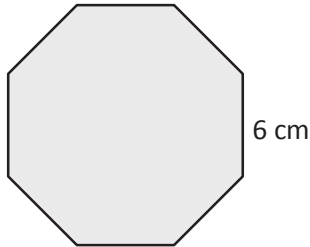
Perimeter = _____ in

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



Perimeter = _____ cm

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



4. Paige paints an 8-inch by 9-inch picture for her mom's birthday. What is the total length of wood that Paige needs to make a frame for the picture?

5. Mr. Spooner draws a regular hexagon on the board. One of the sides measures 4 centimeters. Giles and Xander find the perimeter. Their work is shown below. Whose work is correct? Explain your answer.

Giles's Work

$$\text{Perimeter} = 4 \text{ cm} + 4 \text{ cm} + 4 \text{ cm} + 4 \text{ cm} + 4 \text{ cm} + 4 \text{ cm}$$

$$\text{Perimeter} = 24 \text{ cm}$$

Xander's Work

$$\text{Perimeter} = 6 \times 4 \text{ cm}$$

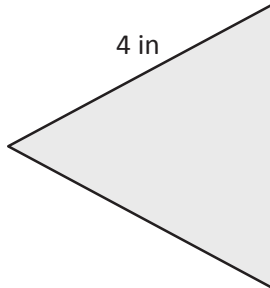
$$\text{Perimeter} = 24 \text{ cm}$$

Name _____

Date _____

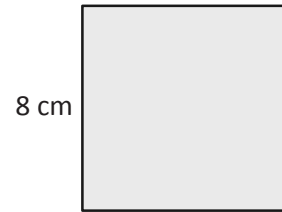
1. Label the unknown side lengths of the regular shapes below. Then, find the perimeter of each shape.

a.



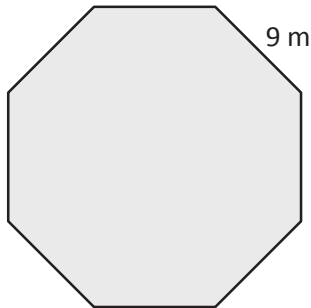
Perimeter = _____ in

b.



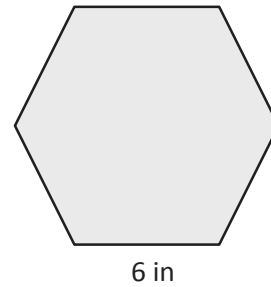
Perimeter = _____ cm

c.



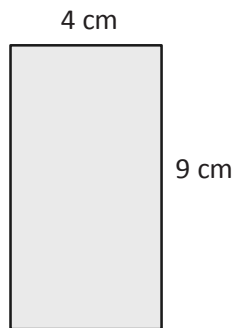
Perimeter = _____ m

d.



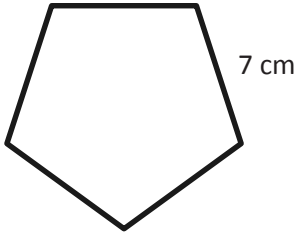
Perimeter = _____ in

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



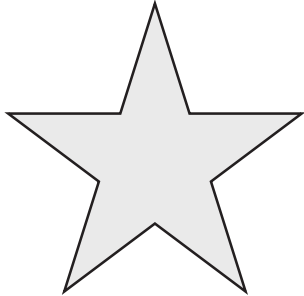
Perimeter = _____ cm

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



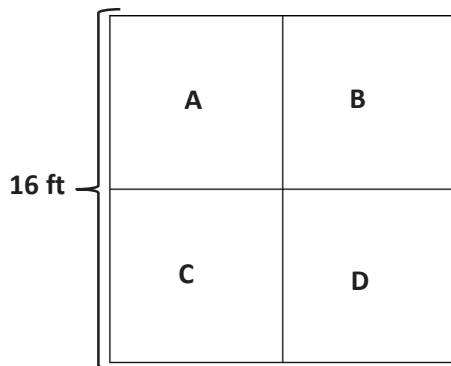
4. Each side of a square field measures 24 meters. What is the perimeter of the field?
5. What is the perimeter of a rectangular sheet of paper that measures 8 inches by 11 inches?

4. Marion paints a 5-pointed star on her bedroom wall. Each side of the star is 18 inches long. What is the perimeter of the star?



5. The soccer team jogs around the outside of the soccer field twice to warm up. The rectangular field measures 60 yards by 100 yards. What is the total number of yards the team jogs?
6. Troop 516 makes 3 triangular flags to carry at a parade. They sew ribbon around the outside edges of the flags. The flags' side lengths each measure 24 inches. How many inches of ribbon does the troop use?

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?



Name _____

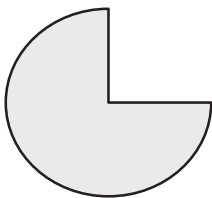
Date _____

1. Find the perimeter of 10 circular objects to the nearest quarter inch using string. Record the name and perimeter of each object in the chart below.

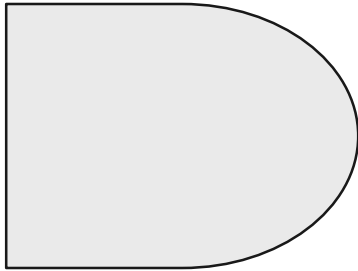
| Object | Perimeter (to the nearest quarter inch) |
|--------|--|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

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

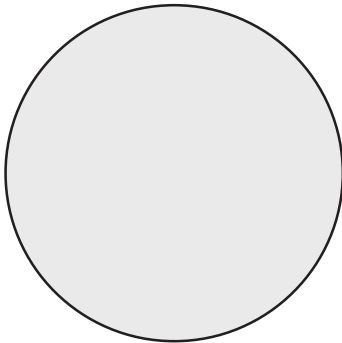
- b. Could the same process be used to find the perimeter of the shape below? Why or why not?



2. Can you find the perimeter of the shape below using just your ruler? Explain your answer.



3. Molly says the perimeter of the shape below is $6\frac{1}{4}$ inches. Use your string to check her work. Do you agree with her? Why or why not?



4. Is the process you used to find the perimeter of a circular object an efficient method to find the perimeter of a rectangle? Why or why not?

Name _____

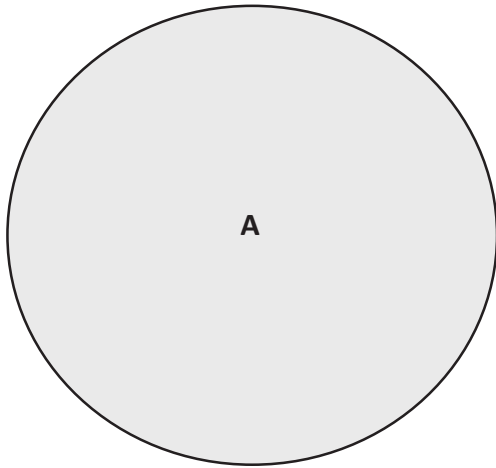
Date _____

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.

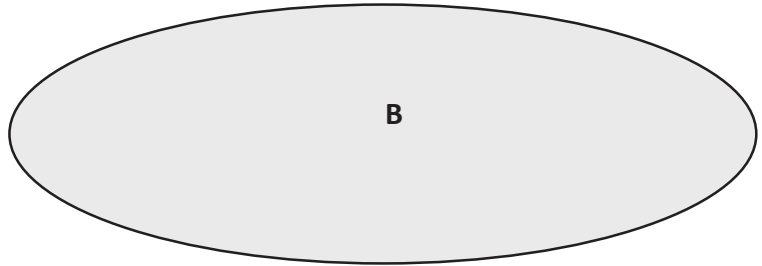
| Object | Perimeter (to the nearest quarter inch) |
|--------------------------------|--|
| Example: Peanut Butter Jar Cap | $9\frac{1}{2}$ inches |
| | |
| | |
| | |
| | |
| | |

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

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



Perimeter = _____



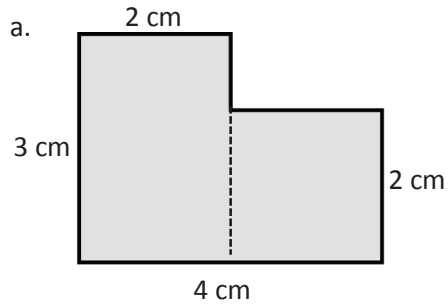
Perimeter = _____

- 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.

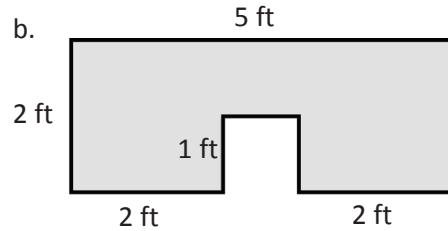
Name _____

Date _____

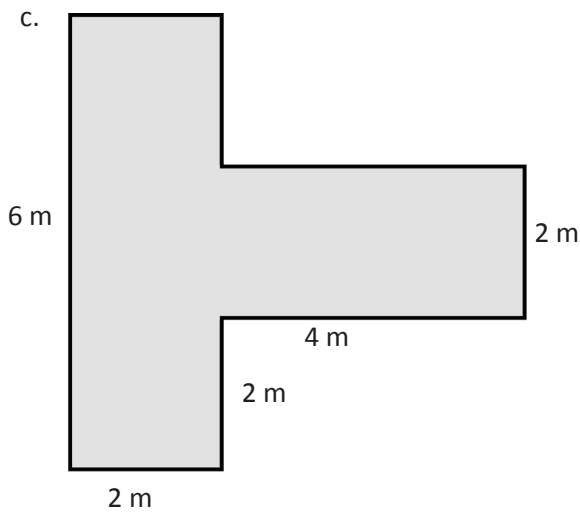
1. The shapes below are made up of rectangles. Label the unknown side lengths. Then, write and solve an equation to find the perimeter of each shape.



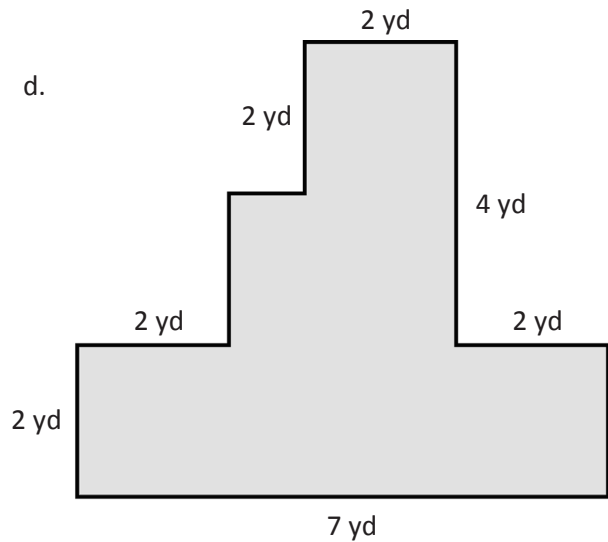
P =



P =

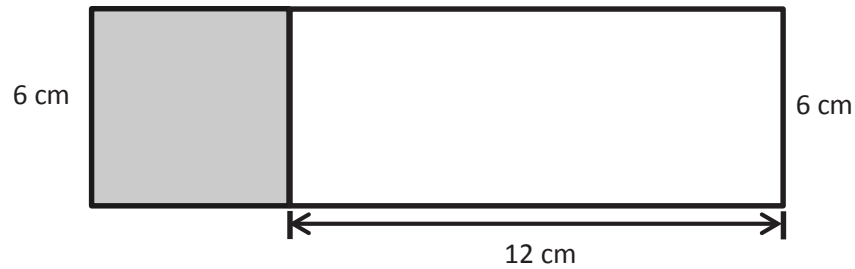


P =

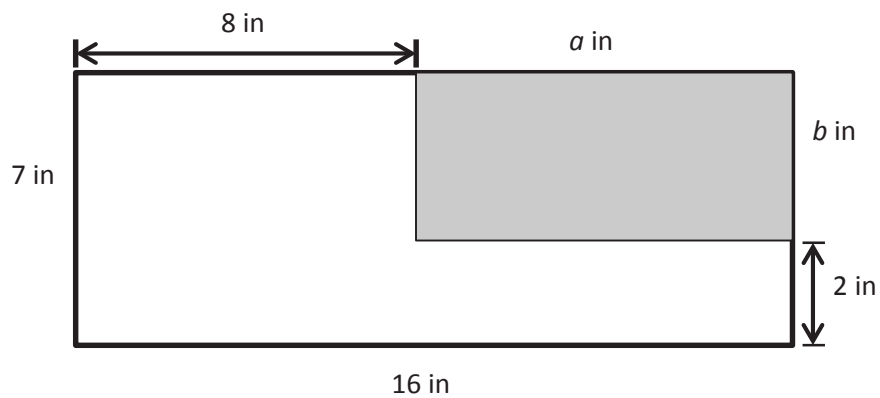


P =

2. Nathan draws and labels the square and rectangle below. Find the perimeter of the new shape.



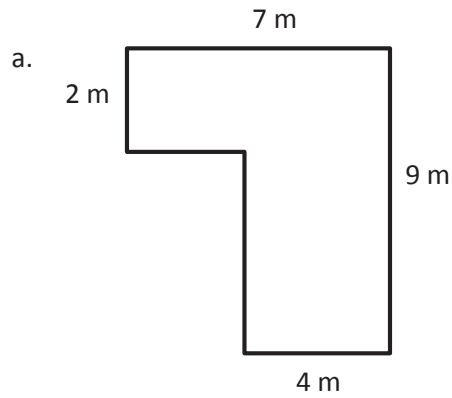
3. Label the unknown side lengths. Then, find the perimeter of the shaded rectangle.



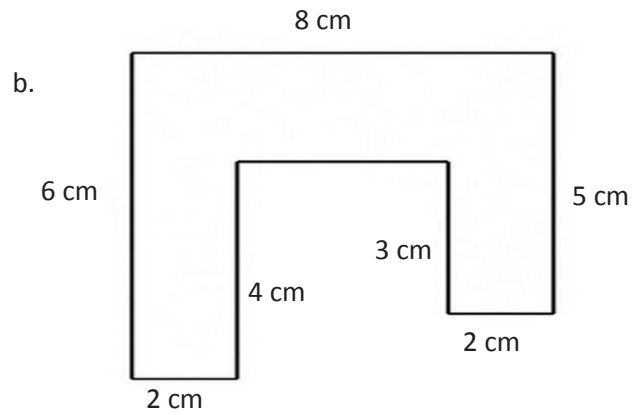
Name _____

Date _____

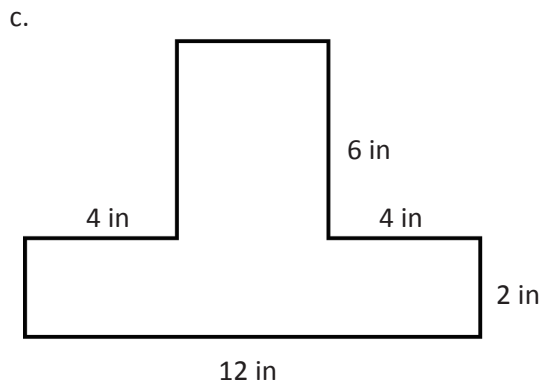
1. The shapes below are made up of rectangles. Label the unknown side lengths. Then, write and solve an equation to find the perimeter of each shape.



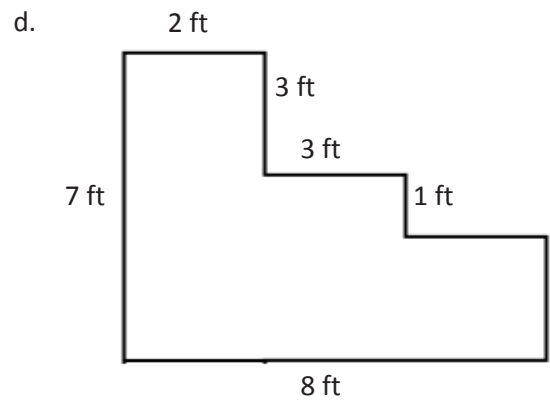
P =



P =

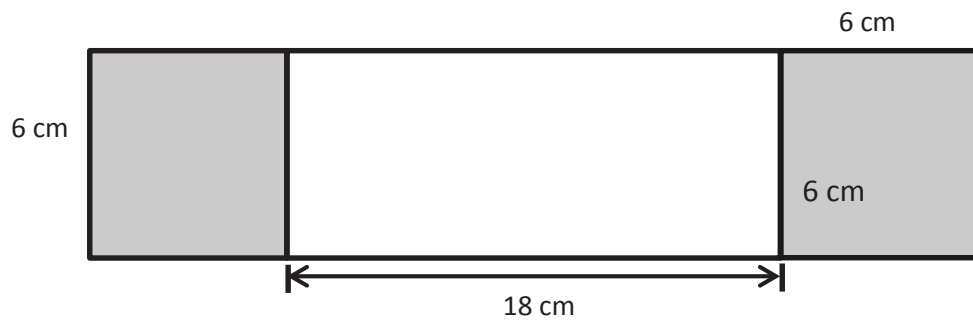


P =

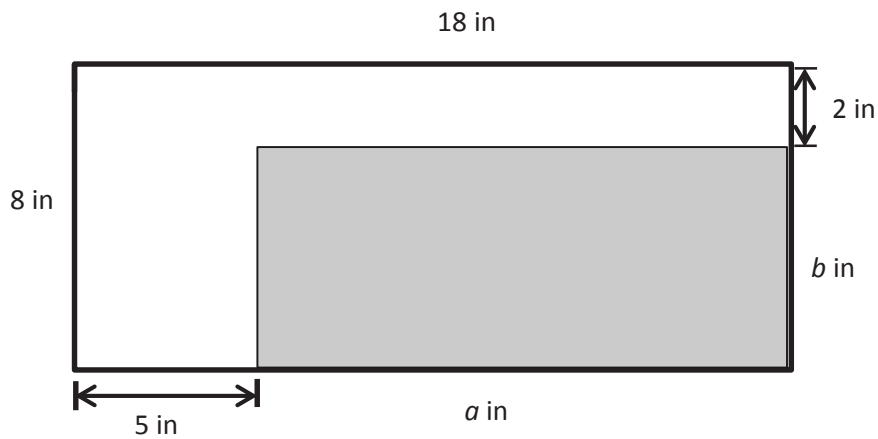


P =

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



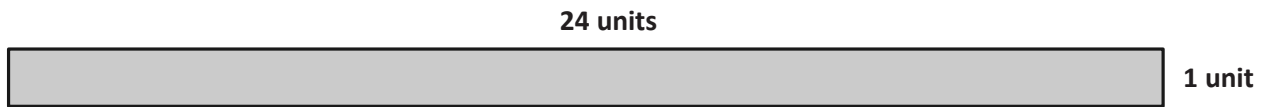
3. Label the unknown side lengths. Then, find the perimeter of the shaded rectangle.



Name _____

Date _____

1. Use unit squares to build as many rectangles as you can with an area of 24 square units. Shade in squares on your grid paper to represent each rectangle that you made with an area of 24 square units.
 - a. Estimate to draw and label the side lengths of each rectangle you built in Problem 1. Then, find the perimeter of each rectangle. One rectangle is done for you.



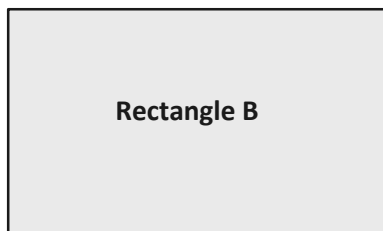
$$P = 24 \text{ units} + 1 \text{ unit} + 24 \text{ units} + 1 \text{ unit} = \underline{50 \text{ units}}$$

- b. The areas of the rectangles in part (a) above are all the same. What do you notice about the perimeters?

2. Use unit square tiles to build as many rectangles as you can with an area of 16 square units. Estimate to draw each rectangle below. Label the side lengths.

- a. Find the perimeters of the rectangles you built.
- b. What is the perimeter of the square? Explain how you found your answer.

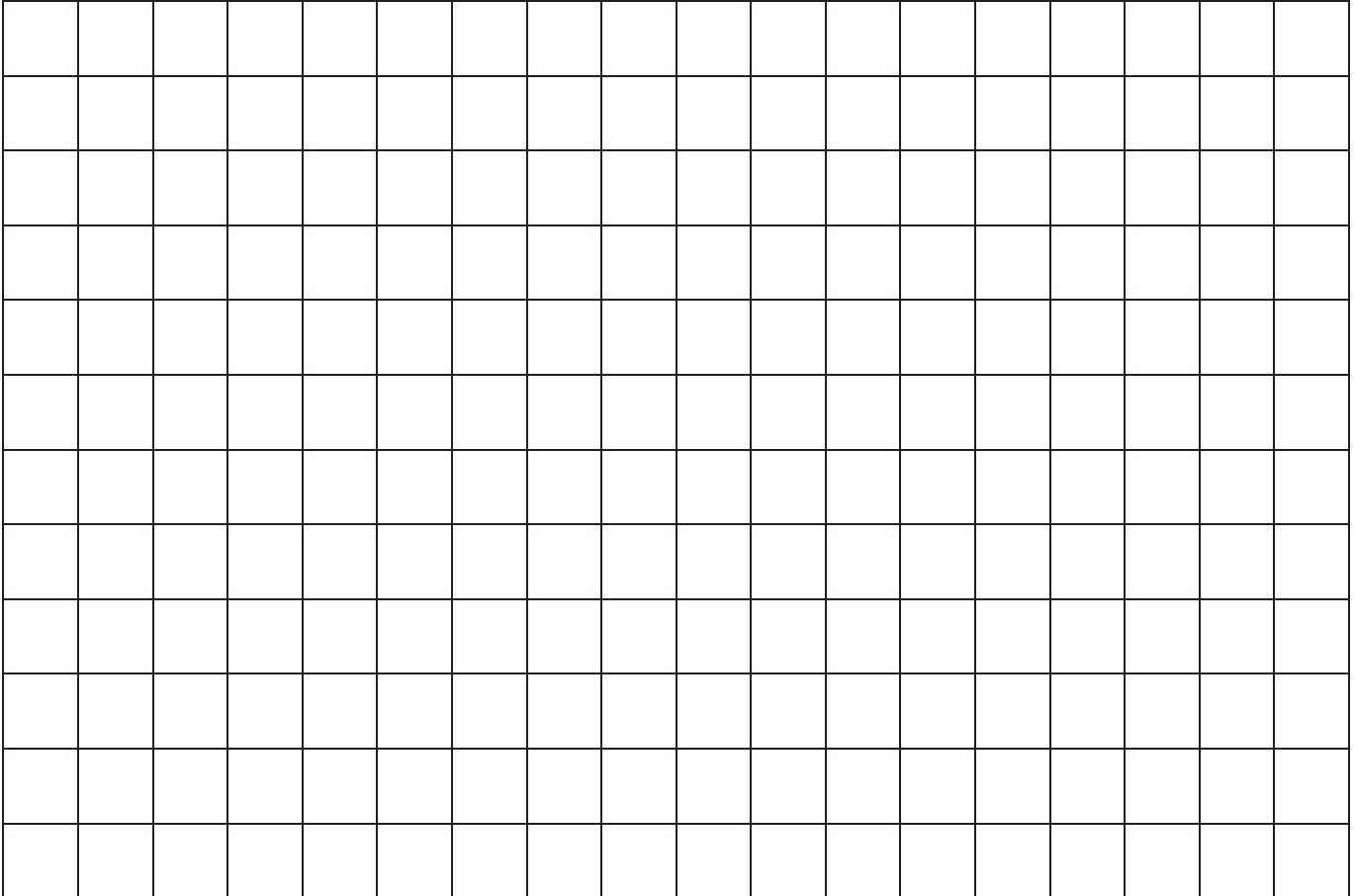
3. Doug uses square unit tiles to build rectangles with an area of 15 square units. He draws the rectangles as shown below but forgets to label the side lengths. Doug says that Rectangle A has a greater perimeter than Rectangle B. Do you agree? Why or why not?



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.

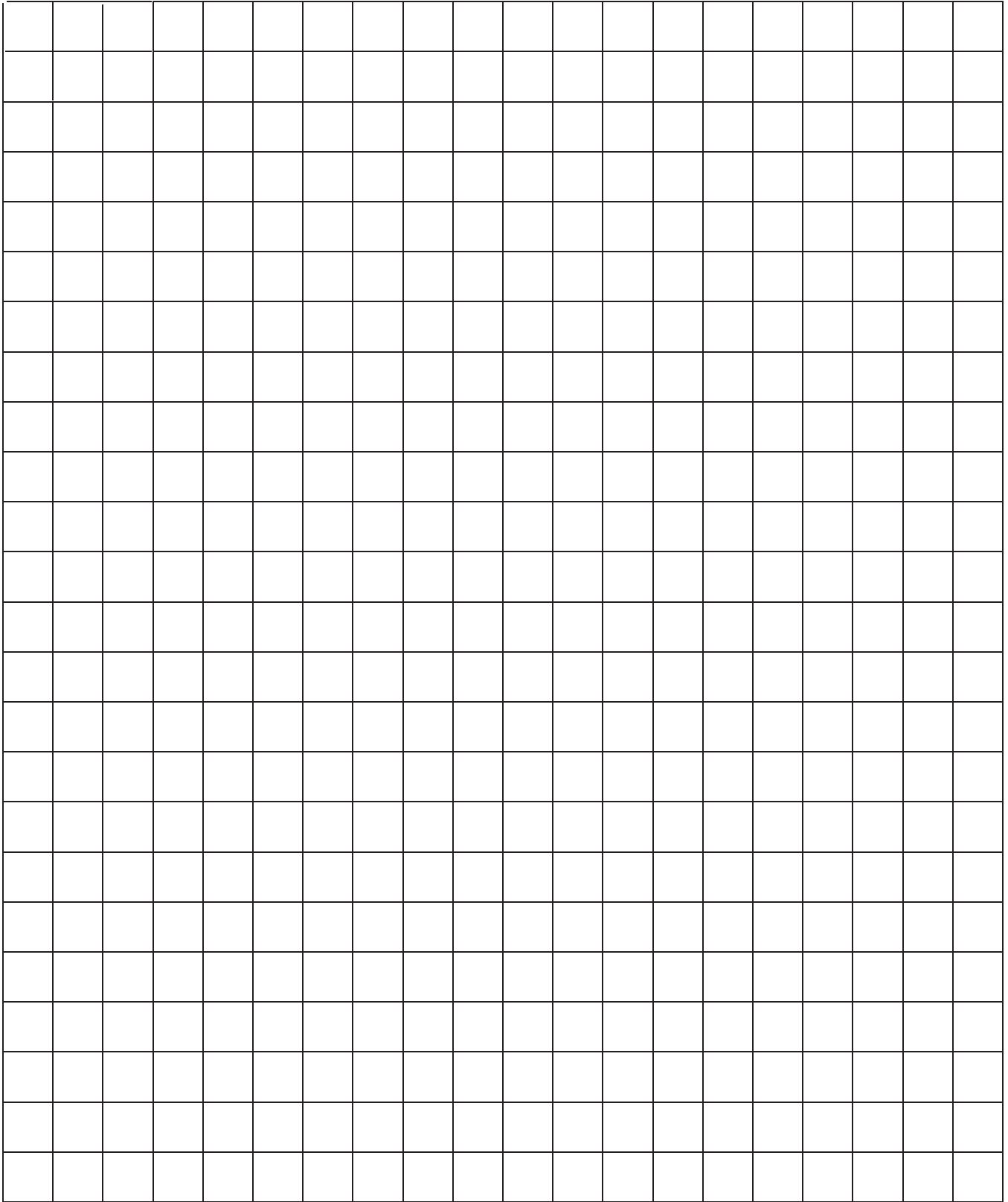


2. Find the perimeter of each rectangle in Problem 1 above.

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?



grid paper

Name _____

Date _____

1. Use unit square tiles 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. The first one is done for you. You might not use all the spaces in each chart.

| Number of unit squares = 12 | |
|---------------------------------------|--------|
| Number of rectangles I made: <u>3</u> | |
| Width | Length |
| 1 | 12 |
| 2 | 6 |
| 3 | 4 |

| Number of unit squares = 13 | |
|------------------------------------|--------|
| Number of rectangles I made: ____ | |
| Width | Length |
| | |
| | |
| | |

| Number of unit squares = 14 | |
|------------------------------------|--------|
| Number of rectangles I made: ____ | |
| Width | Length |
| | |
| | |
| | |

| Number of unit squares = 15 | |
|------------------------------------|--------|
| Number of rectangles I made: ____ | |
| Width | Length |
| | |
| | |
| | |

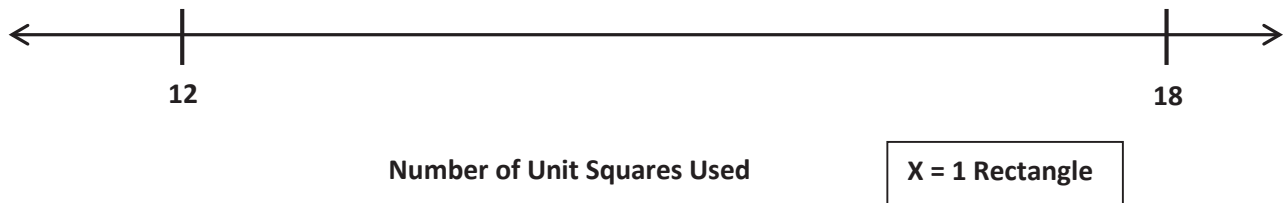
| Number of unit squares = 16 | |
|------------------------------------|--------|
| Number of rectangles I made: ____ | |
| Width | Length |
| | |
| | |
| | |

| Number of unit squares = 17 | |
|------------------------------------|--------|
| Number of rectangles I made: ____ | |
| Width | Length |
| | |
| | |
| | |

| Number of unit squares = 18 | |
|------------------------------------|--------|
| Number of rectangles I made: ____ | |
| Width | Length |
| | |
| | |
| | |

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

Number of Rectangles Made with Unit Squares



3. Which numbers of unit squares produce three rectangles?
4. Why do some numbers of unit squares, such as 13, only produce one rectangle?

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**

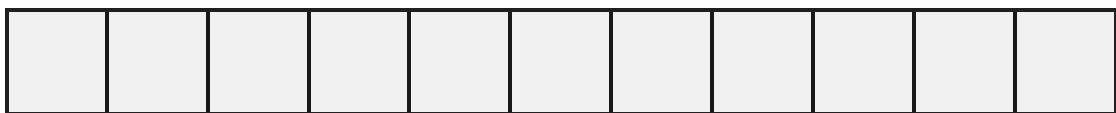
Number of rectangles
I made: ____

| Width | Length |
|-------|--------|
| | |
| | |
| | |

Number of unit squares = **11**

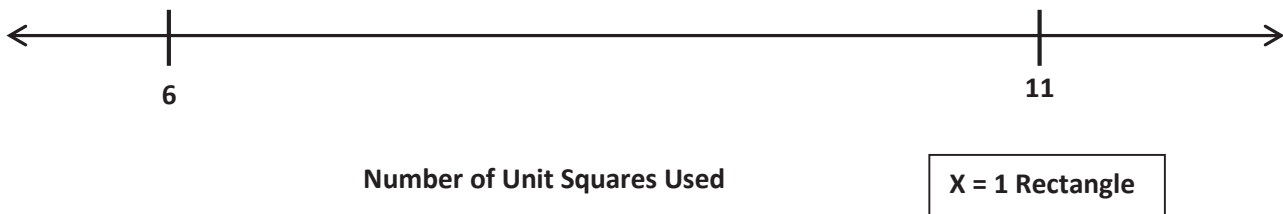
Number of rectangles
I made: ____

| Width | Length |
|-------|--------|
| | |
| | |
| | |



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

Number of Rectangles Made with Unit Squares



- 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.

Name _____

Date _____

1. Use your square unit tiles to build as many rectangles as you can with a perimeter of 12 units.

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

b. Explain your strategy for finding rectangles with a perimeter of 12 units.

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

d. The perimeters of all the rectangles are the same. What do you notice about their areas?

Name _____

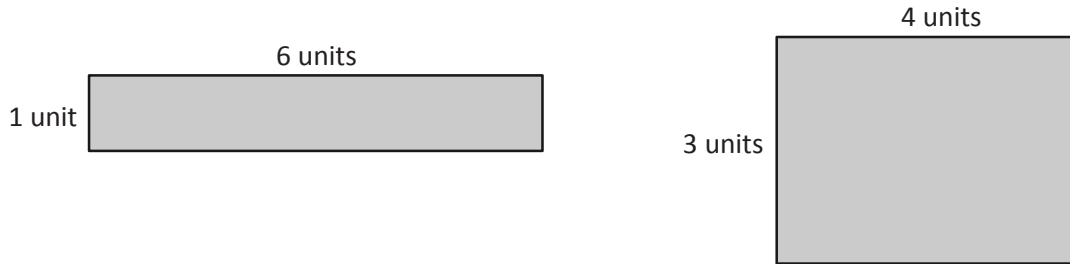
Date _____

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.



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.
- Estimate to draw Katie's square below. Label the length and width of the square.
 - Find the area of Katie's square.
 - Estimate to draw a different rectangle that has the same perimeter as Katie's square.
 - Which shape has a greater area, Katie's square or your rectangle?

Name _____

Date _____

Use the data you gathered from Problem Sets 20 and 21 to complete the charts to show how many rectangles you can create with a given perimeter. You might not use all the spaces in the charts.

| Perimeter = 10 units | | |
|--------------------------------------|---------|----------------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| 1 unit | 4 units | 4 square units |
| | | |
| | | |
| | | |

| Perimeter = 12 units | | |
|--------------------------------------|--------|------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| | | |
| | | |
| | | |
| | | |

| Perimeter = 14 units | | |
|--------------------------------------|--------|------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| | | |
| | | |
| | | |
| | | |

| Perimeter = 16 units | | |
|--------------------------------------|--------|------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| | | |
| | | |
| | | |
| | | |

| Perimeter = 18 units | | |
|--------------------------------------|--------|------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| | | |
| | | |
| | | |
| | | |
| | | |

| Perimeter = 20 units | | |
|--------------------------------------|--------|------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| | | |
| | | |
| | | |
| | | |
| | | |

3. Use centimeter grid paper to shade in as many rectangles as you can with the given perimeters.
- a. Use the charts below to show how many rectangles you shaded for each given perimeter. You might not use all the spaces in the charts.

| Perimeter = 10 cm | | |
|-----------------------------------|--------|-------------|
| Number of rectangles I made: ____ | | |
| Width | Length | Area |
| 1 cm | 4 cm | 4 square cm |
| | | |
| | | |
| | | |
| | | |

| Perimeter = 20 cm | | |
|-----------------------------------|--------|-------------|
| Number of rectangles I made: ____ | | |
| Width | Length | Area |
| 1 cm | 9 cm | 9 square cm |
| | | |
| | | |
| | | |
| | | |

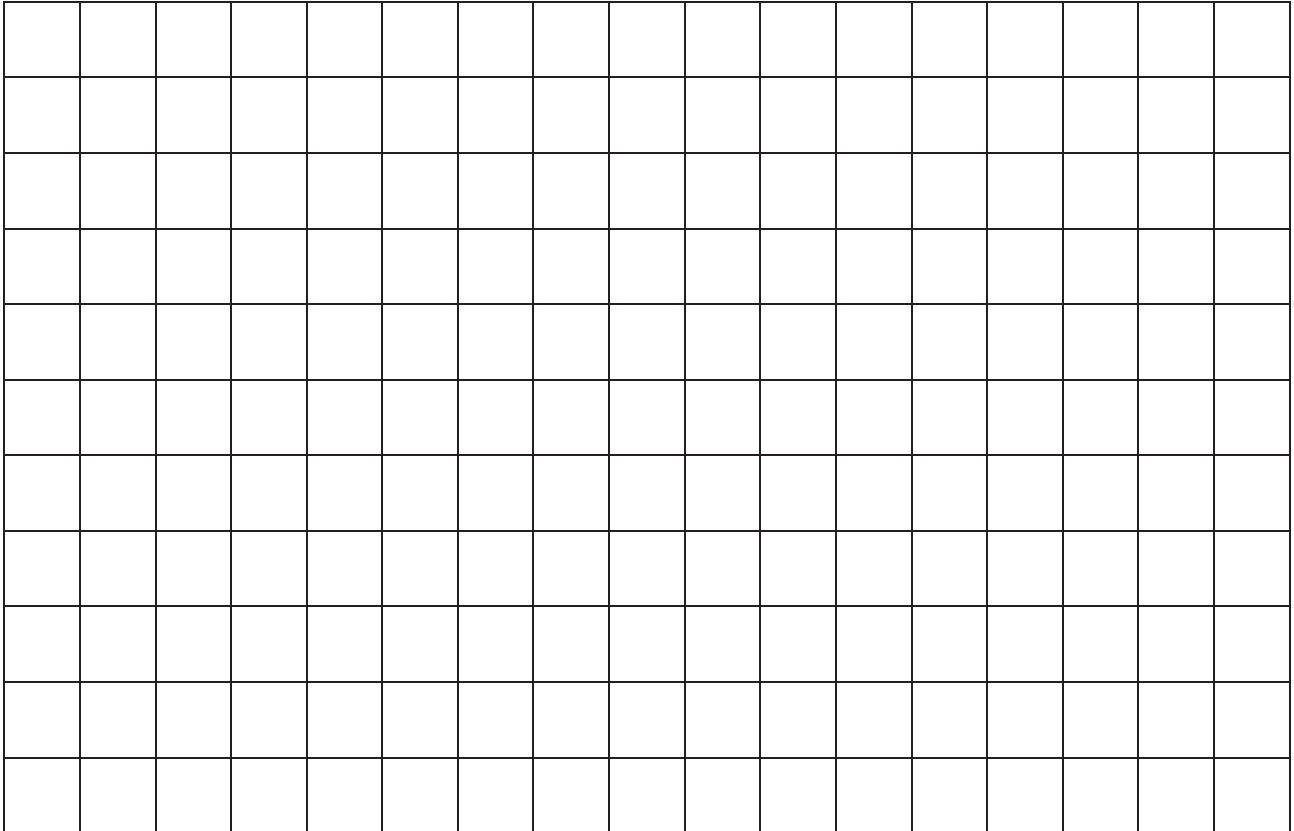
- b. Did you make a square with either of the given perimeters? How do you know?

4. Macy and Gavin both draw rectangles with perimeters of 16 centimeters. Use words and pictures to explain how it is possible for Macy's and Gavin's rectangles to have the same perimeters but different areas.

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.

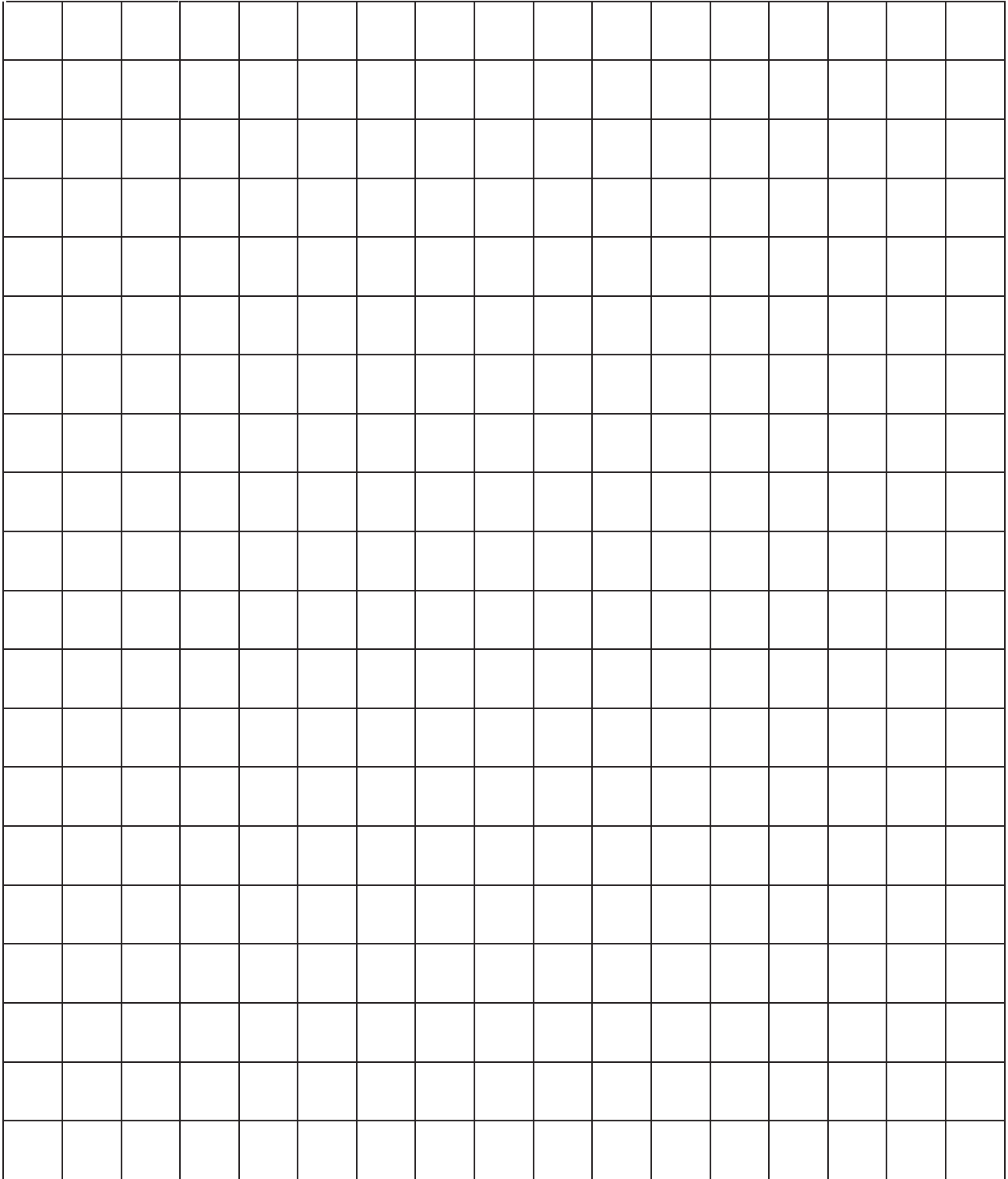


- b. Find the areas of the rectangles in part (a) above.
- c. The perimeters of the rectangles are the same. What do you notice about the areas?

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.



centimeter grid paper

Name _____

Date _____

Use the data you gathered from Problem Sets 20 and 21 to complete the charts to show how many rectangles you can create with a given perimeter. You might not use all the spaces in the charts.

| Perimeter = 10 units | | |
|--------------------------------------|---------|----------------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| 1 unit | 4 units | 4 square units |
| | | |
| | | |
| | | |

| Perimeter = 12 units | | |
|--------------------------------------|--------|------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| | | |
| | | |
| | | |
| | | |

| Perimeter = 14 units | | |
|--------------------------------------|--------|------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| | | |
| | | |
| | | |
| | | |

| Perimeter = 16 units | | |
|--------------------------------------|--------|------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| | | |
| | | |
| | | |
| | | |

| Perimeter = 18 units | | |
|--------------------------------------|--------|------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| | | |
| | | |
| | | |
| | | |
| | | |

| Perimeter = 20 units | | |
|--------------------------------------|--------|------|
| Number of rectangles you made: _____ | | |
| Width | Length | Area |
| | | |
| | | |
| | | |
| | | |
| | | |

Name _____

Date _____

1. Use the data you gathered from your Problem Sets to create a line plot for the number of rectangles you created with each given perimeter.

Number of Rectangles Made with a Given Perimeter

Perimeter Measurements in Units

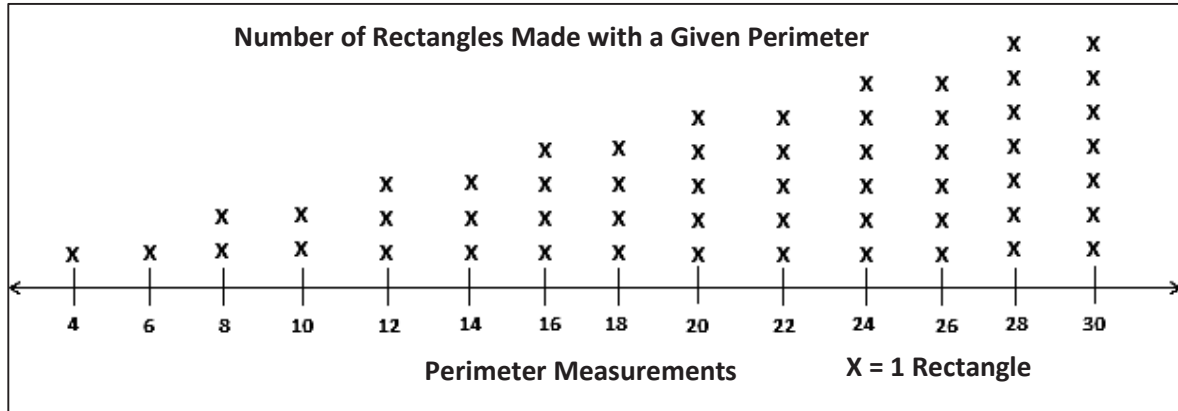
| |
|-----------------|
| X = 1 Rectangle |
|-----------------|

2. Why are all of the perimeter measurements even? Do all rectangles have an even perimeter?

Name _____

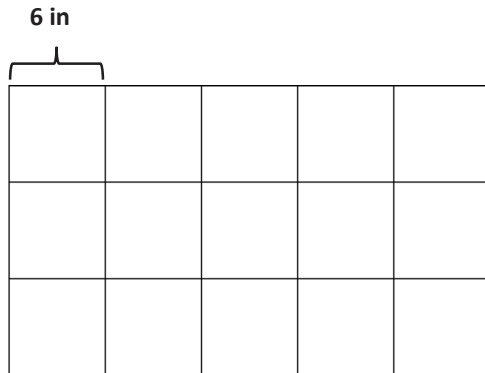
Date _____

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.

4. Raj uses 6-inch square tiles to make a rectangle, as shown below. What is the perimeter of the rectangle in inches?



5. Mischa makes a 4-foot by 6-foot rectangular banner. She puts ribbon around the outside edges. The ribbon costs \$2 per foot. What is the total cost of the ribbon?
6. Colton buys a roll of wire fencing that is 120 yards long. He uses it to fence in his 18-yard by 24-yard rectangular garden. Will Colton have enough wire fencing left over to fence in a 6-yard by 8-yard rectangular play space for his pet rabbit?

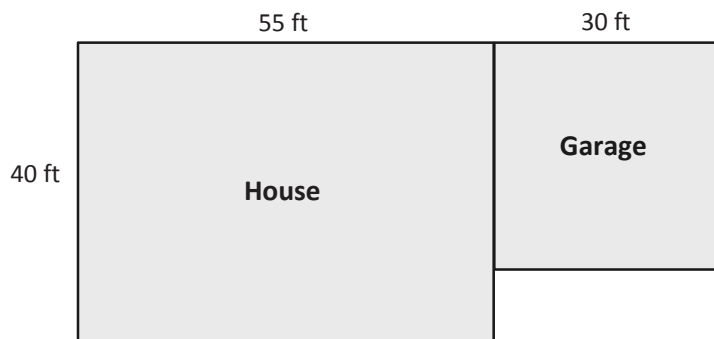
Name _____

Date _____

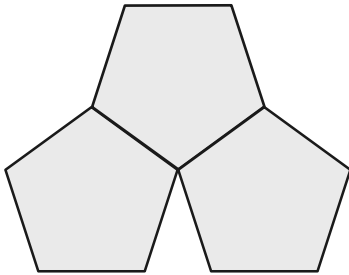
1. Rosie draws a square with a perimeter of 36 inches. What are the side lengths of the square?

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

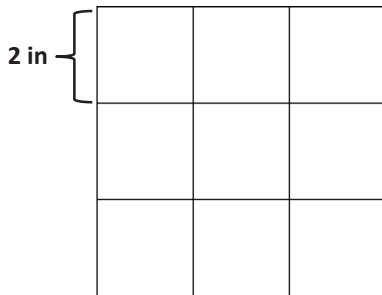
3. An architect draws a square and a rectangle, as shown below, to represent a house that has a garage. What is the total perimeter of the house with its attached garage?



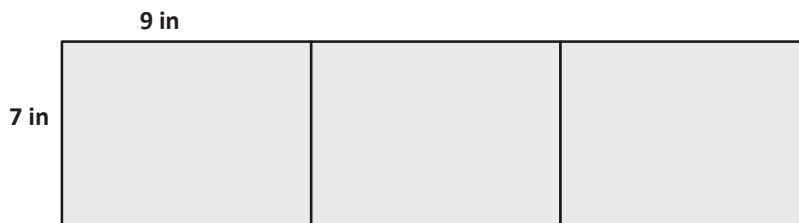
4. Manny draws 3 regular pentagons to create the shape shown below. The perimeter of 1 of the pentagons is 45 inches. What is the perimeter of Manny's new shape?



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?



Name _____

Date _____

Use the given perimeters in the chart below to choose the widths and lengths of your robot's rectangular body parts. Write the widths and lengths in the chart below. Use the blank rows if you want to add extra rectangular body parts to your robot.

| Letter | Body Part | Perimeter | Width and Length |
|---|-----------|--|----------------------|
| A | arm | 14 cm | _____ cm by _____ cm |
| B | arm | 14 cm | _____ cm by _____ cm |
| C | leg | 18 cm | _____ cm by _____ cm |
| D | leg | 18 cm | _____ cm by _____ cm |
| E | body | Double the perimeter of one arm = _____ cm | _____ cm by _____ cm |
| F | head | 16 cm | _____ cm by _____ cm |
| G | neck | Half the perimeter of the head = _____ cm | _____ cm by _____ cm |
| H | | | _____ cm by _____ cm |
| I | | | _____ cm by _____ cm |
| My robot has 7 to 9 rectangular body parts. Number of body parts: _____ | | | |

Use the information in the chart below to plan an environment for your robot. Write the width and length for each rectangular item. Use the blank rows if you want to add extra circular or rectangular items to your robot's environment.

| Letter | Item | Shape | Perimeter | Width and Length |
|---|------------|-----------|-------------|----------------------|
| J | sun | circle | about 25 cm | |
| K | house | rectangle | 82 cm | _____ cm by _____ cm |
| L | tree top | circle | about 30 cm | |
| M | tree trunk | rectangle | 30 cm | _____ cm by _____ cm |
| N | tree top | circle | about 20 cm | |
| O | tree trunk | rectangle | 20 cm | _____ cm by _____ cm |
| P | | | | |
| Q | | | | |
| My robot's environment has 6 to 8 items. Number of items: _____ | | | | |

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 |

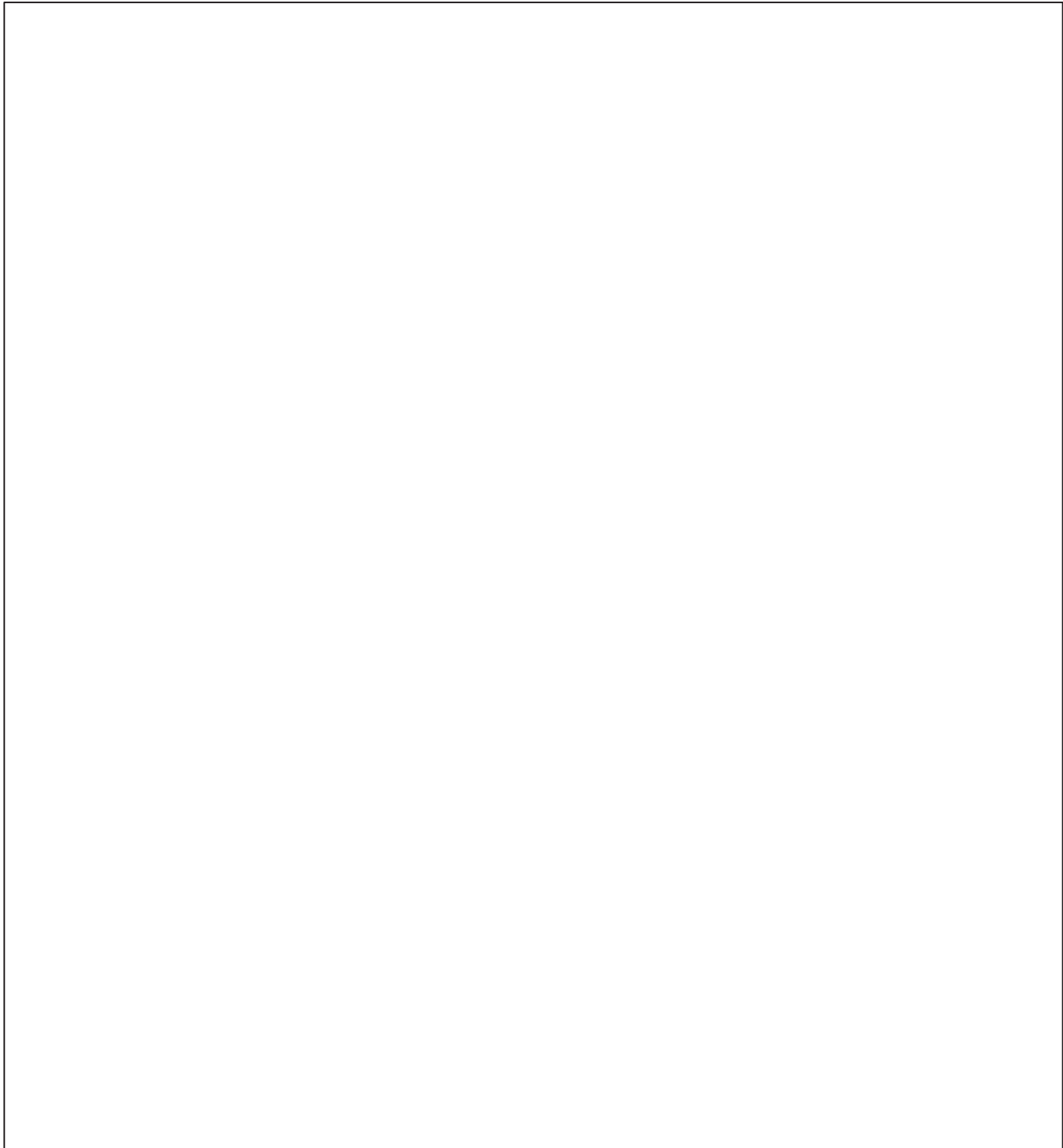
- b. Double the perimeters of the rectangles in part (a). Then, find possible widths and lengths.

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

Name _____

Date _____

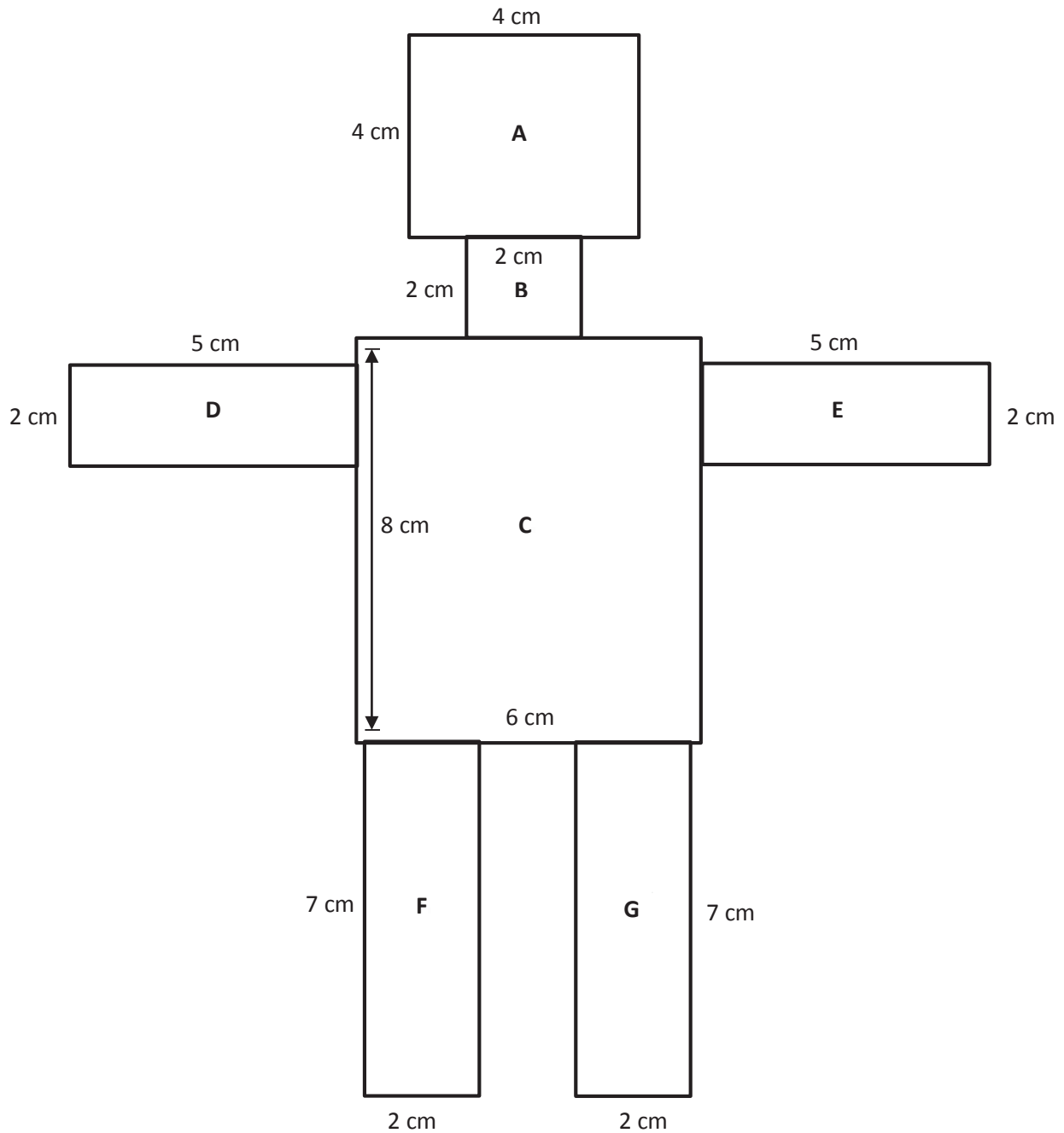
Draw a picture of your robot in its environment in the space below. Label the widths, lengths, and perimeters of all rectangles. Label the perimeters of all circular shapes.



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.



| Rectangle | Perimeter |
|-----------|--|
| A | $P = 4 \times 4 \text{ cm}$ $P = 16 \text{ cm}$ |
| B | |
| C | |
| D | |
| E | |
| F | |
| G | |

Name _____

Date _____

1. Collect the area measurements of your classmates' **robot bodies**. Make a line plot using everyone's area measurements.

Areas of Robot Bodies

Area Measurements of the Robot's Body in
Square Centimeters

| |
|-------------------------|
| X = 1 Robot Body |
|-------------------------|

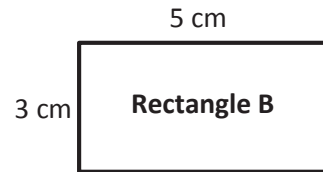
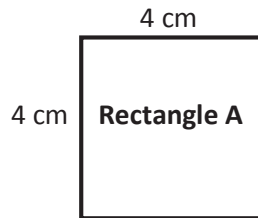
- a. How many different measurements are on the line plot? Why are the measurements different?

- b. What does this tell you about the relationship between area and perimeter?

Name _____

Date _____

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



- What is the perimeter of Rectangle A?
- What is the perimeter of Rectangle B?
- What is the area of Rectangle A?
- What is the area of Rectangle B?
- Use your answers to parts (a–d) to help you explain the relationship between area and perimeter.

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?

Name _____

Date _____

Part A: I reviewed _____'s robot.

1. Use the chart below to evaluate your friend's robot. Measure the width and length of each rectangle. Then, calculate the perimeter. Record that information in the chart below. If your measurements differ from those listed on the project, put a star by the letter of the rectangle.

| Rectangle | Width and Length | Student's Perimeter | Required Perimeter |
|-----------|----------------------|---------------------|--------------------|
| A | _____ cm by _____ cm | | 14 cm |
| B | _____ cm by _____ cm | | 14 cm |
| C | _____ cm by _____ cm | | 18 cm |
| D | _____ cm by _____ cm | | 18 cm |
| E | _____ cm by _____ cm | | 28 cm |
| F | _____ cm by _____ cm | | 16 cm |
| G | _____ cm by _____ cm | | 8 cm |
| H | _____ cm by _____ cm | | |
| I | _____ cm by _____ cm | | |

Part B: I reviewed _____'s robot environment.

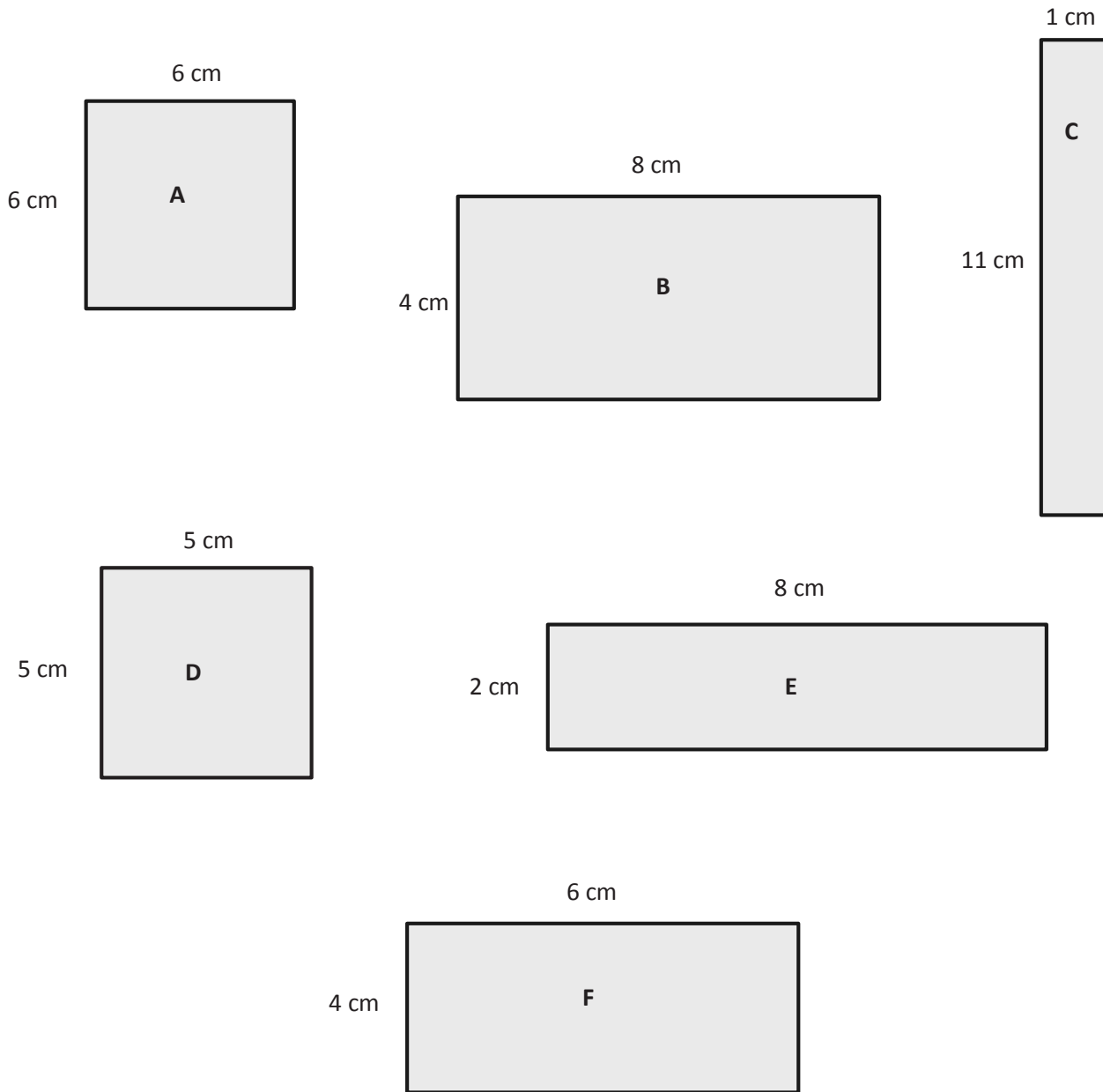
4. Use the chart below to evaluate your friend's robot environment. Measure the width and length of each rectangle. Then, calculate the perimeter. Use your string to measure the perimeters of nonrectangular items. Record that information in the chart below. If your measurements differ from those listed on the project, put a star by the letter of the shape.

| Item | Width and Length | Student's Perimeter | Required Perimeter |
|------|----------------------|---------------------|--------------------|
| J | | | About 25 cm |
| K | _____ cm by _____ cm | | 82 cm |
| L | | | About 30 cm |
| M | _____ cm by _____ cm | | 30 cm |
| N | | | About 20 cm |
| O | _____ cm by _____ cm | | 20 cm |
| P | | | |
| Q | | | |

Name _____

Date _____

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



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?

Name Sample Date _____

Part A: I reviewed Student A's robot.

Use the chart below to evaluate your friend's robot. Measure the lengths and widths of each rectangle. Then calculate the perimeter. Record that information in the table below. If your measurements differ from those listed on the project, put a star by the letter of the rectangle.

| Rectangle | Width and Length | Student's Perimeter | Required Perimeter |
|-----------|----------------------------|---|--------------------|
| A | <u>2</u> cm by <u>5</u> cm | $2\text{cm} + 2\text{cm} + 5\text{cm} + 5\text{cm} = 14\text{cm}$ | 14 cm |
| B | <u>2</u> cm by <u>5</u> cm | | 14 cm |
| C | <u>2</u> cm by <u>7</u> cm | | 18 cm |
| D | <u>2</u> cm by <u>7</u> cm | | 18 cm |
| E | <u>6</u> cm by <u>8</u> cm | | 28 cm |
| F | <u>4</u> cm by <u>4</u> cm | | 16 cm |
| G | <u>2</u> cm by <u>2</u> cm | | 8 cm |
| H | _____ cm by _____ cm | | |
| I | _____ cm by _____ cm | | |

sample Problem Set

Name _____

Date _____

1. Gia measures her rectangular garden and finds the width is 9 yards and the length is 7 yards.
 - a. Estimate to draw Gia's garden, and label the side lengths.

 - b. What is the area of Gia's garden?

 - c. What is the perimeter of Gia's garden?

2. Elijah draws a square that has side lengths of 8 centimeters.
 - a. Estimate to draw Elijah's square, and label the side lengths.

 - b. What is the area of Elijah's square?

 - c. What is the perimeter of Elijah's square?

- d. Elijah connects three of these squares to make one long rectangle. What is the perimeter of this rectangle?
3. The area of Mason's rectangular painting is 72 square inches. The width of the painting is 8 inches.
- a. Estimate to draw Mason's painting, and label the side lengths.
- b. What is the length of the painting?
- c. What is the perimeter of Mason's painting?
- d. Mason's mom hangs the painting on a wall that already has two of Mason's other paintings. The areas of the other paintings are 64 square inches and 81 square inches. What is the total area of the wall that is covered with Mason's paintings?

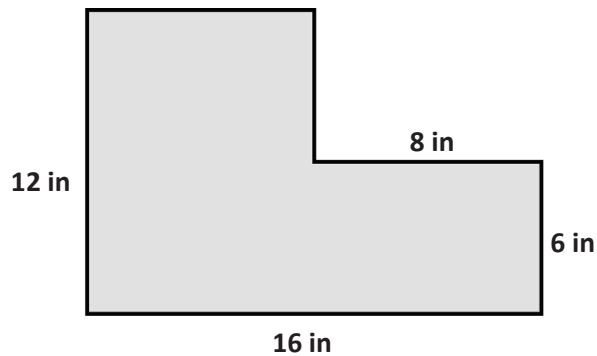
4. The perimeter of Jillian's rectangular bedroom is 34 feet. The length of her bedroom is 9 feet.
- Estimate to draw Jillian's bedroom, and label the side lengths.
 - What is the width of Jillian's bedroom?
 - What is the area of Jillian's bedroom?
 - Jillian has a 4-foot by 6-foot rug in her room. What is the area of the floor that is not covered by the rug?

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.
- Estimate to draw the table, and label the side lengths.
 - What is the length of the table?
 - What is the area of the table?
 - Mr. Briggs puts three of these tables together side by side to make 1 long table. What is the area of the long table?

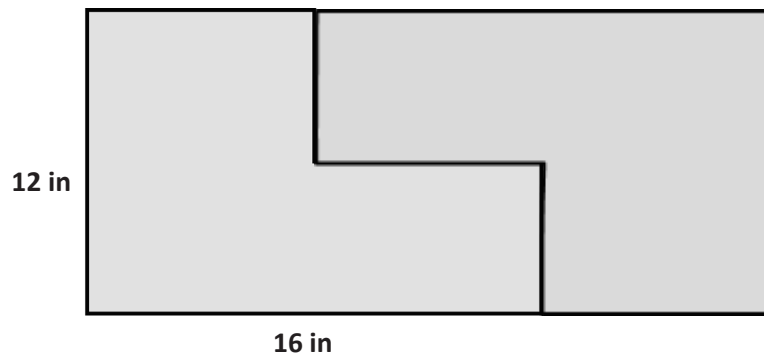
Name _____

Date _____

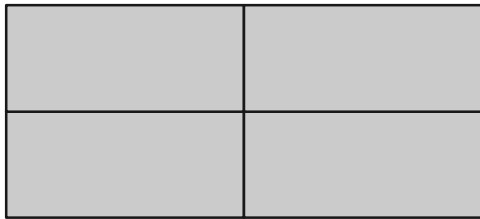
1. Kyle puts two rectangles together to make the L-shaped figure below. He measures some of the side lengths and records them as shown.



- a. Find the perimeter of Kyle's shape.
- b. Find the area of Kyle's shape.
- c. Kyle makes two copies of the L-shaped figure to create the rectangle shown below. Find the perimeter of the rectangle.



2. Jeremiah and Hayley use a piece of rope to mark a square space for their booth at the science fair. The area of their space is 49 square feet. What is the length of the rope that Jeremiah and Hayley use if they leave a 3-foot opening so they can get in and out of the space?
3. Vivienne draws four identical rectangles as shown below to make a new, larger rectangle. The perimeter of one of the small rectangles is 18 centimeters, and the width is 6 centimeters. What is the perimeter of the new, larger rectangle?



4. A jogging path around the outside edges of a rectangular playground measures 48 yards by 52 yards. Maya runs $3\frac{1}{2}$ laps on the jogging path. What is the total number of yards Maya runs?

Name _____

Date _____

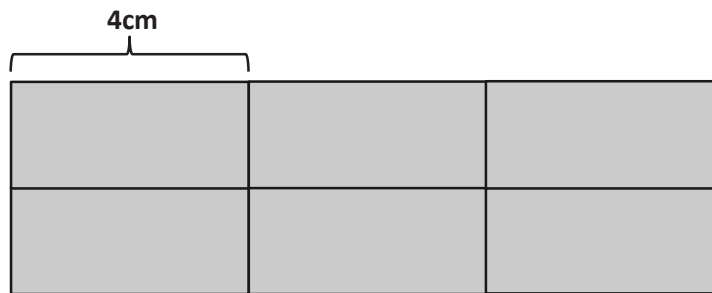
1. Katherine puts two squares together to make the rectangle below. The side lengths of the squares measure 8 inches.



- 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?



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?

Name _____

Date _____

Use this form to critique your classmate's problem-solving work.

| Classmate: | | Problem Number: | |
|--|--|-----------------|--|
| Strategies My Classmate Used: | | | |
| Things My Classmate Did Well: | | | |
| Suggestions for Improvement: | | | |
| Strategies I Would Like to Try Based on My Classmate's Work: | | | |

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: | | | |

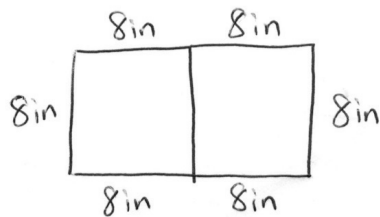
Name _____ **STUDENT A** _____

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?

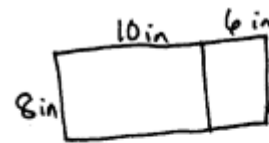


$$P = 6 \times 8 \text{ in}$$

$$P = 48 \text{ in}$$

The perimeter is
48 inches.

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



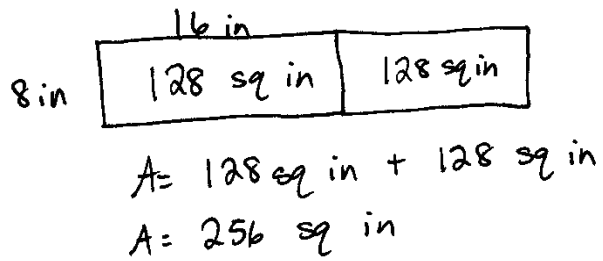
$$A = (8 \times 10) + (8 \times 6)$$

$$A = 80 + 48$$

$$A = 128$$

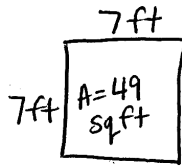
The area is 128 sq in.

- 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?



The area of the new rectangle is 256 sq in.

Student A

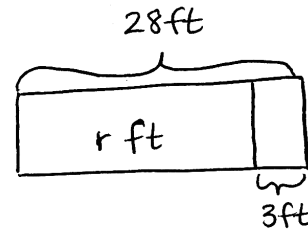


$$7 \times 7 = 49$$

$$P = 7 \text{ ft} + 7 \text{ ft} + 7 \text{ ft} + 7 \text{ ft}$$

$$P = 4 \times 7 \text{ ft}$$

$$P = 28 \text{ ft}$$

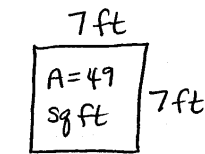


$$r = 28 - 3$$

$$r = 25$$

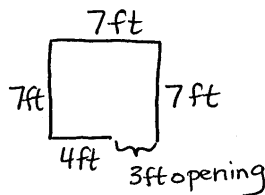
The total length of the rope is 25 feet.

Student B



$$_ \times _ = 49$$

$$7 \times 7 = 49$$



The length of the rope is 25 feet.

$$7 \text{ ft} + 7 \text{ ft} + 7 \text{ ft} + 4 \text{ ft}$$

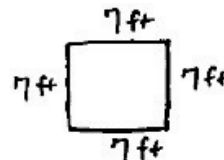
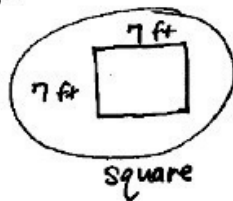
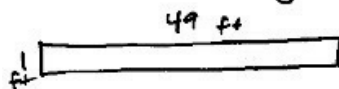
$$3 \times 7 \text{ ft} = 21 \text{ ft}$$

$$21 \text{ ft} + 4 \text{ ft}$$

$$25 \text{ ft}$$

Student C

Area = 49 sq ft
Possible rectangles:



$$P = 4 \times 7 \text{ ft}$$

$$P = 28 \text{ ft}$$

$$28 \text{ ft} - 3 \text{ ft} = 25 \text{ ft}$$

The length of the rope is 25 ft.

student work sample images

Name _____

Date _____

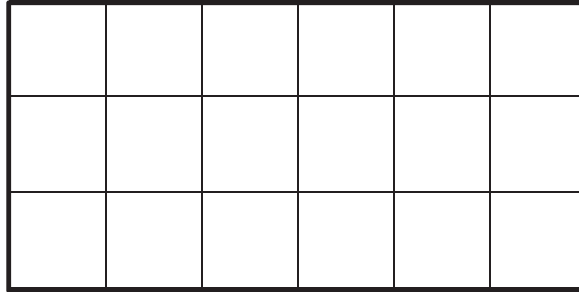
Use this form to analyze your classmate's representations of one-half shaded.

| Square (letter) | Does this square show one-half shaded? | Explain why or why not. | Describe changes to make so the square shows one-half shaded. |
|--------------------|--|-------------------------|--|
| | | | |
| | | | |
| | | | |
| | | | |

Name _____




Date _____

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

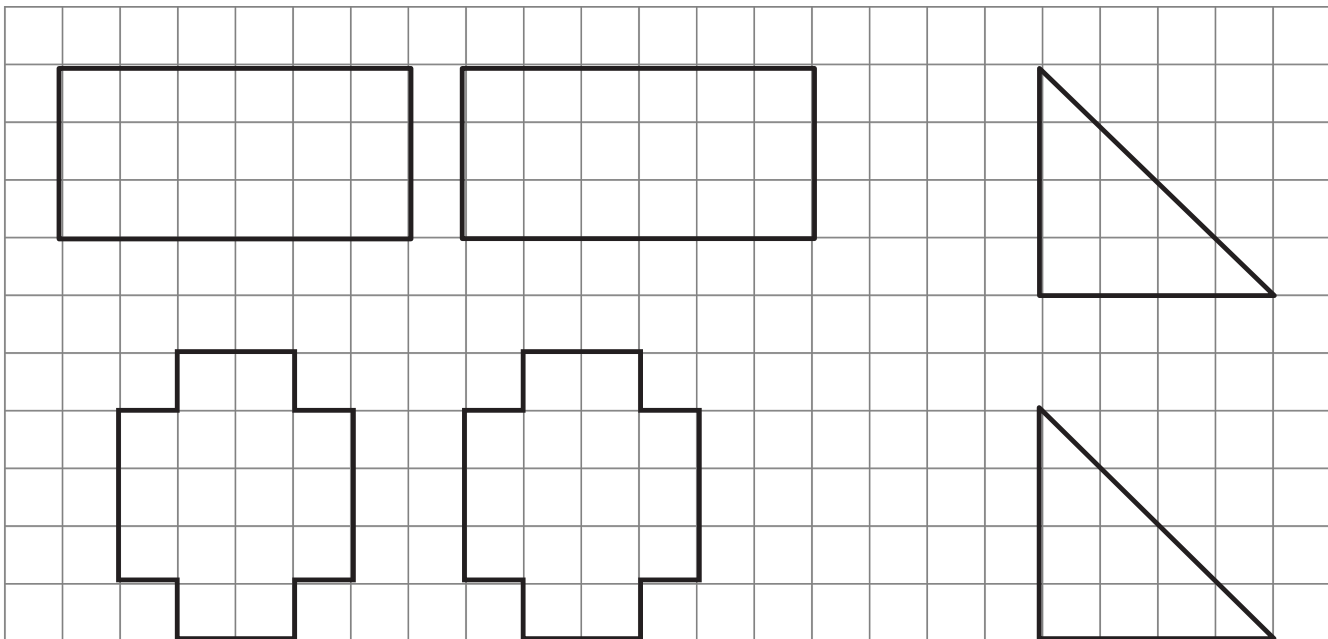


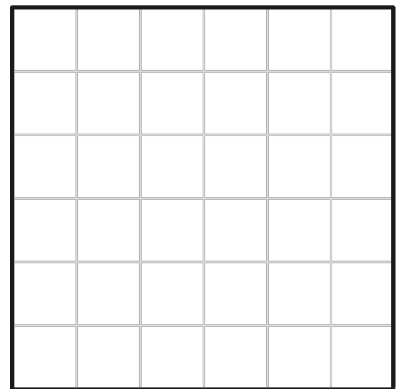
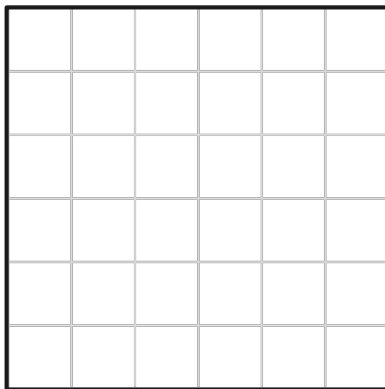
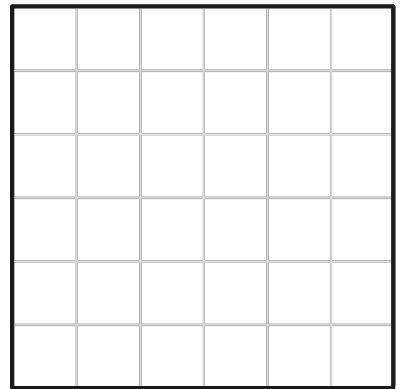
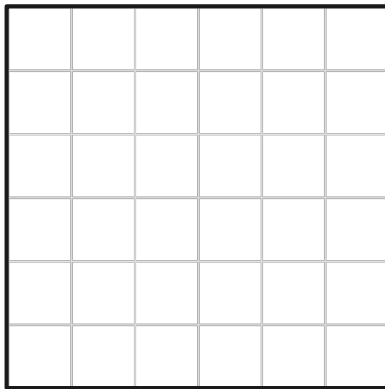
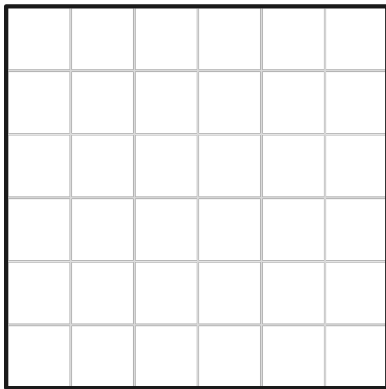
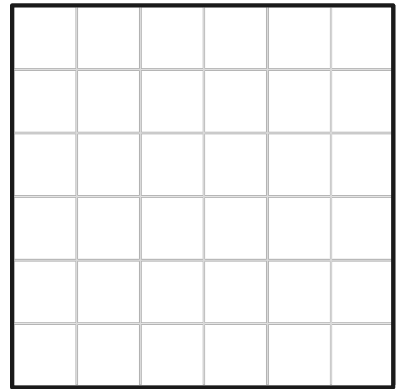
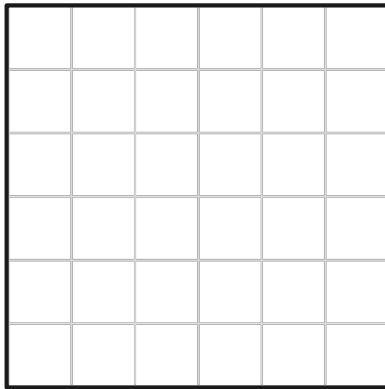
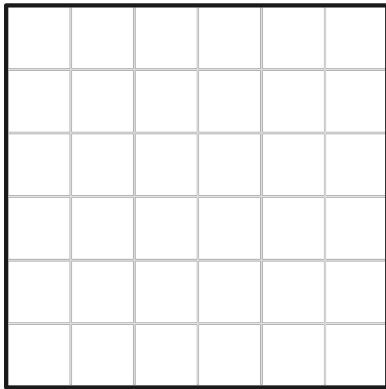
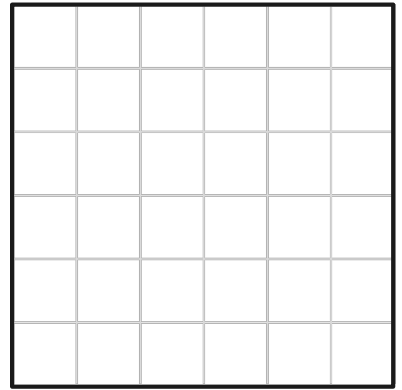
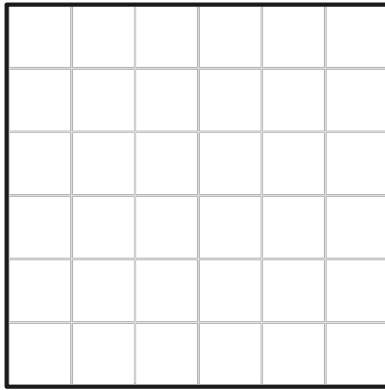
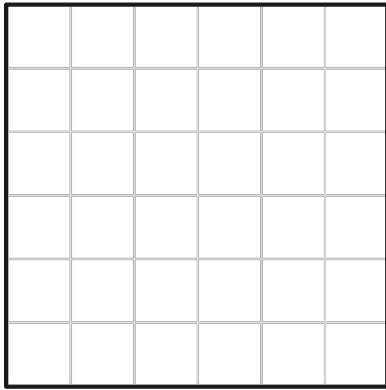
- a. What is the area of the rectangle in square units?
- b. What is the area of half of the rectangle in square units?
- c. Shade in half of the rectangle above. Be creative with your shading!
- d. Explain how you know you shaded in half of the rectangle.

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.





squares

Name _____

Date _____

1. Look at the circles you shaded today. Glue a circle that is about one-half shaded in the space below.

a. Explain the strategy you used to shade in one-half of your circle.

b. Is your circle exactly one-half shaded? Explain your answer.

2. Julian shades 4 circles as shown below.



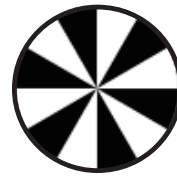
Circle A



Circle B



Circle C



Circle D

a. Write the letters of the circles that are about one-half shaded.

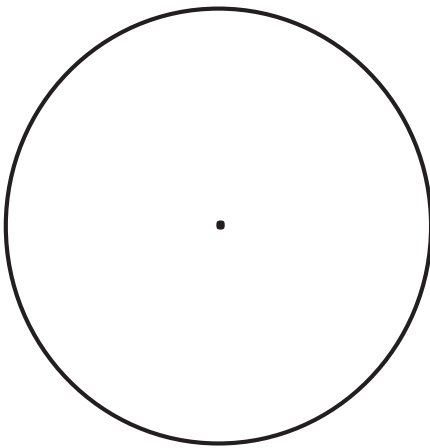
- b. Choose one circle from your answer to Part (a), and explain how you know it's about one-half shaded.

Circle _____

- c. Choose one circle that you did not list in Part (a), and explain how it could be changed so that it is about one-half shaded.

Circle _____

3. Read the clues to help you shade the circle below.



- Divide the circle into 4 equal parts.
- Shade in 2 parts.
- Erase a small circle from each shaded part.
- Estimate to draw and shade 2 circles in the unshaded parts that are the same size as the circles you erased in Part (c).

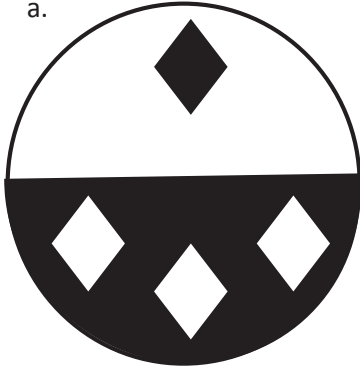
4. Did you shade in one-half of the circle in Problem 3? How do you know?

Name _____

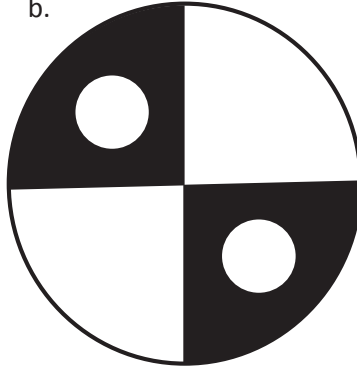
Date _____

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

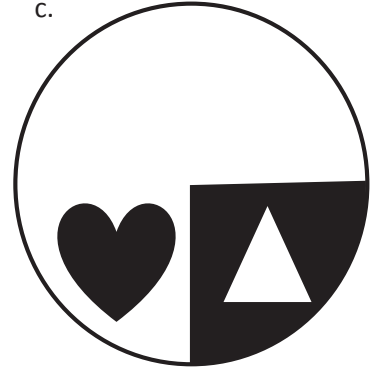
a.



b.



c.



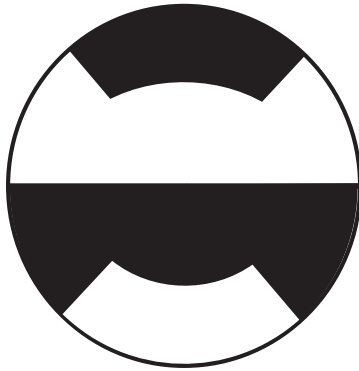
2. Choose one of the circles in Problem 1, and explain how you know it's about one-half shaded.

Circle _____

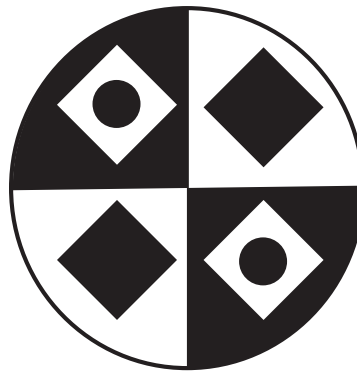
3. Can you say the circles in Problem 1 are exactly one-half shaded? Why or why not?

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

Marissa's Circle

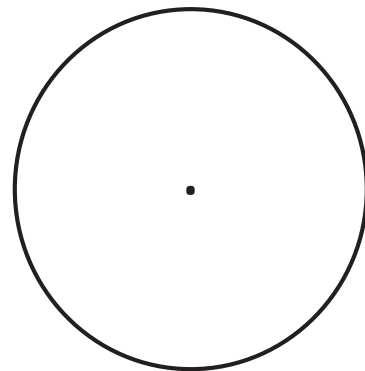
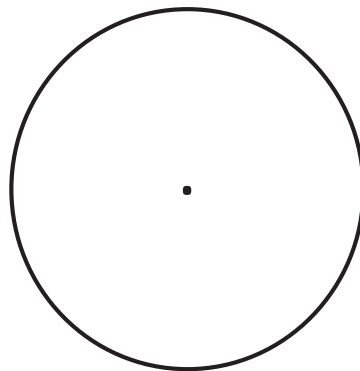
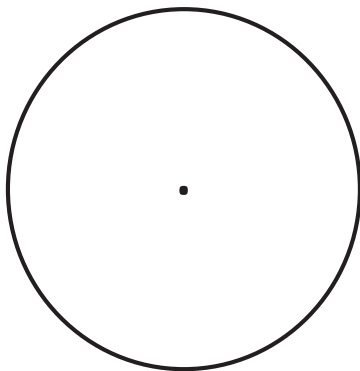


Jake's Circle



- 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.



Name _____

Date _____

List some games we played today in the chart below. Place a check mark in the box that shows how you felt about your level of fluency as you played each activity. Check off the last column if you would like to practice this activity over the summer.

| Activity | I still need some practice with my facts. | I am fluent. | I would like to put this in my summer activity book. |
|----------|---|--------------|--|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |

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? _____

Name _____

Date _____

Complete a math activity each day. To track your progress, color the box after you finish.

Summer Math Review: Weeks 1–5

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|---------------|--|--|--|---|---------------------------------------|
| Week 1 | Do jumping jacks as you count by twos from 2 to 20 and back. | Play a game from your Summer Practice booklet. | Use your tangram pieces to make a picture of your summer break. | Time how long it takes you to do a specific chore, like making the bed. See if you can do it faster the next day. | Complete a Sprint. |
| Week 2 | Do squats as you count by threes from 3 to 30 and back. | Play a game from your Summer Practice booklet. | Collect data about your family's or friends' favorite type of music. Show it on a bar graph. What did you discover from your graph? | Read a recipe. What fractions does the recipe use? | Complete a Multiply by Pattern Sheet. |
| Week 3 | Hop on one foot as you count by fours from 4 to 40 and back. | Create a multiplication and/or division math game. Then, play the game with a partner. | Measure the widths of different leaves from the same tree to the nearest quarter inch. Then, draw a line plot of your data. Do you notice a pattern? | Read the weight in grams of different food items in your kitchen. Round the weights to the nearest 10 or 100 grams. | Complete a Sprint. |
| Week 4 | Bounce a ball as you count by 5 minutes to 1 hour and then to the half hour and quarter hours. | Find, draw, and/or create different objects to show one-fourth. | Go on a shape scavenger hunt. Find as many quadrilaterals in your neighborhood or house as you can. | Find the sum and difference of 453 mL and 379 mL. | Complete a Multiply by Pattern Sheet. |
| Week 5 | Do arm swings as you count by sixes from 6 to 60 and back. | Draw and label a floor plan of your house. | Measure the perimeter of the room where you sleep in inches. Then, calculate the area. | Use a stopwatch to measure how fast you can run 50 meters. Do it 3 times. What was your fastest time? | Complete a Sprint. |

Name _____

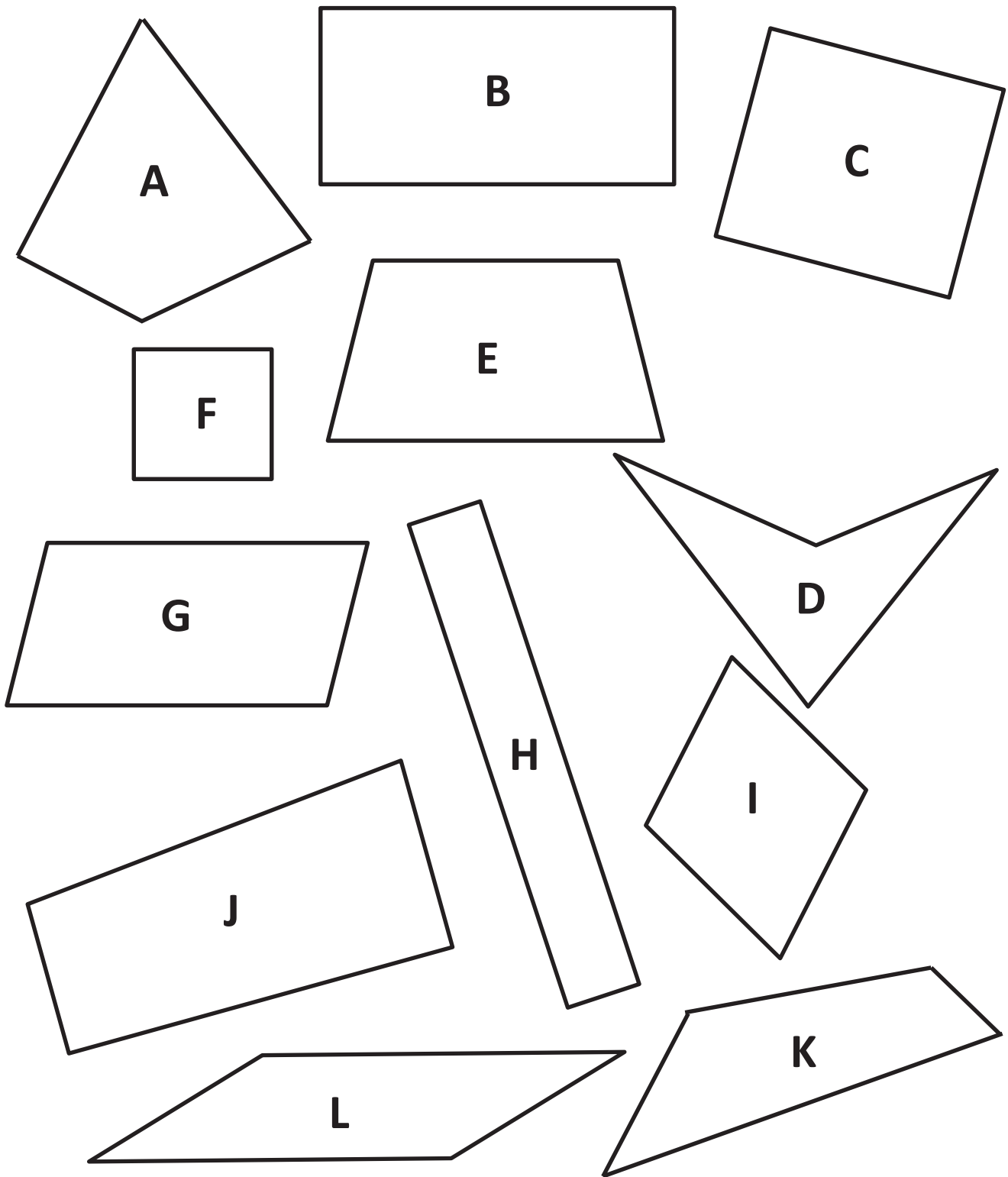
Date _____

Complete a math activity each day. To track your progress, color the box after you finish.

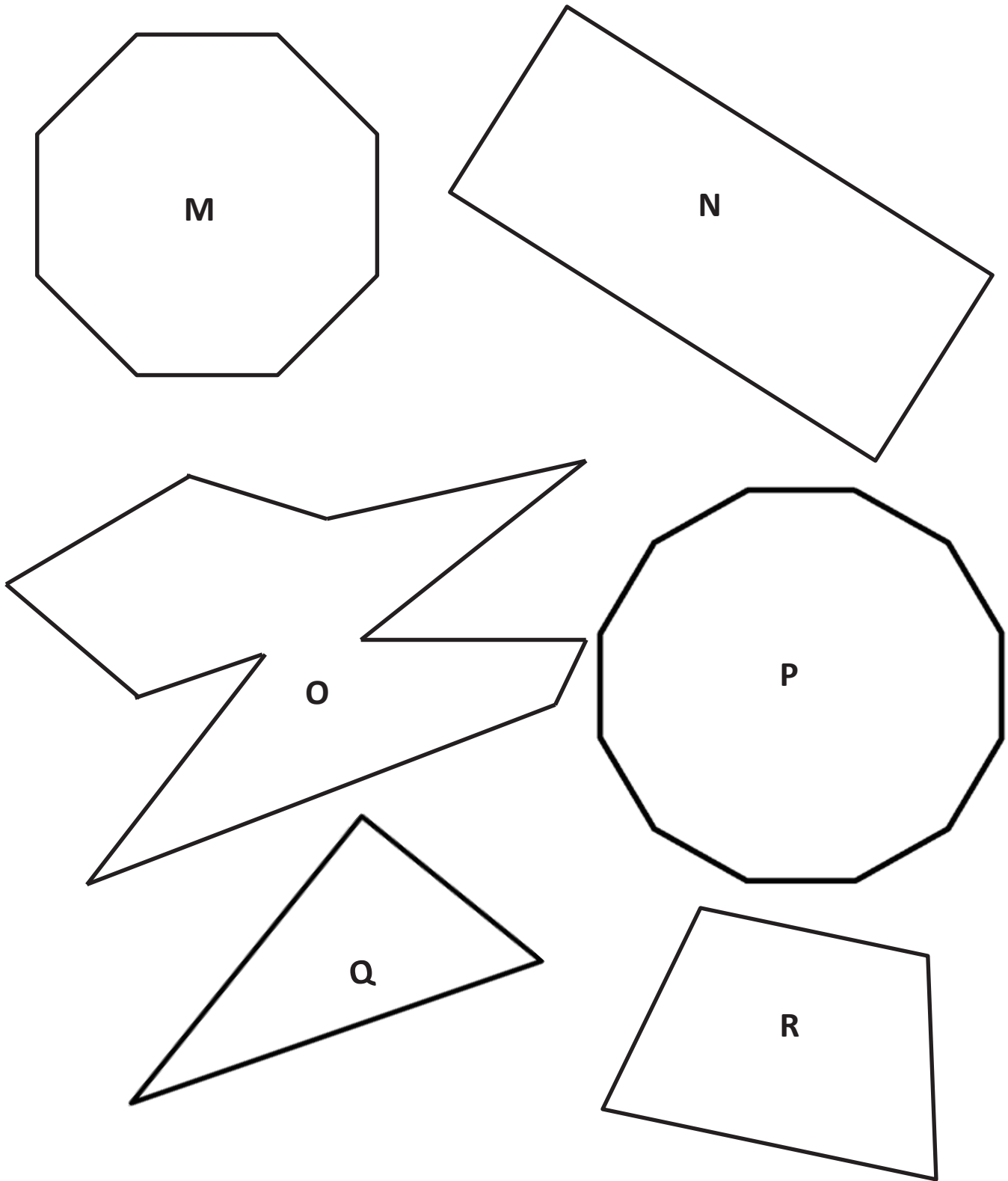
Summer Math Review: Weeks 6–10

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|---------|--|--|---|---|---------------------------------------|
| Week 6 | Alternate counting with a friend or family member by sevens from 7 to 70 and back. | Play a game from your Summer Practice booklet. | Write a story problem for 7×6 . | Solve 15×4 . Draw a model to show your thinking. | Complete a Multiply by Pattern Sheet. |
| Week 7 | Jump forward and back as you count by eights from 8 to 80 and back. | Play a game from your Summer Practice booklet. | Use string to measure the perimeter of circular items in your house to the nearest quarter inch. | Build a 4 by 6 array with objects from your house. Write 2 multiplication and 2 division sentences for your array. | Complete a Sprint. |
| Week 8 | Do arm crosses as you count by nines from 9 to 90 and back. Teach someone the nines finger trick. | Create a multiplication and/or division math game. Then, play the game with a partner. | Write a story problem for $72 \div 8$. | Measure or find the capacity in milliliters of different liquids in your kitchen. Round each to the nearest 10 or 100 milliliters. | Complete a Multiply by Pattern Sheet. |
| Week 9 | Jump rope as you count up by tens from 280 to 370 and back down. | Find, draw, and/or create different objects to show one-third. | Go on a shape scavenger hunt. Find as many triangles and hexagons in your neighborhood as you can. | Measure the weight of different produce at the grocery store. What unit did you measure in? What are the lightest and heaviest objects you weighed? | Complete a Sprint. |
| Week 10 | Count by sixes starting at 48. Count as high as you can in one minute. | Draw and label a floor plan of your dream tree house. | Find the perimeter of a different room in your house. How much smaller or larger is it compared to the perimeter of the room where you sleep? | Show someone your strategy to solve 8×16 . | Complete a Multiply by Pattern Sheet. |

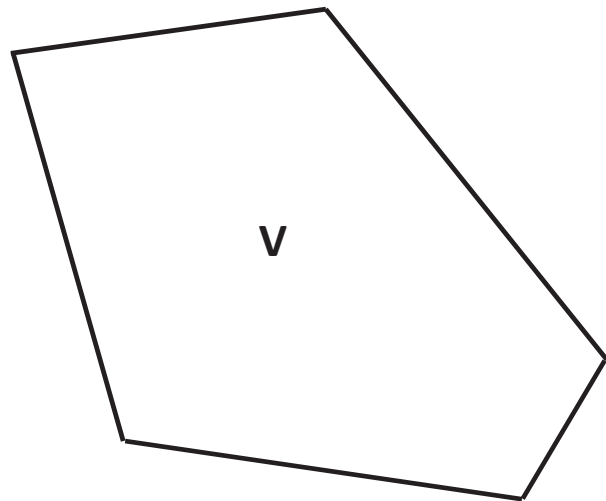
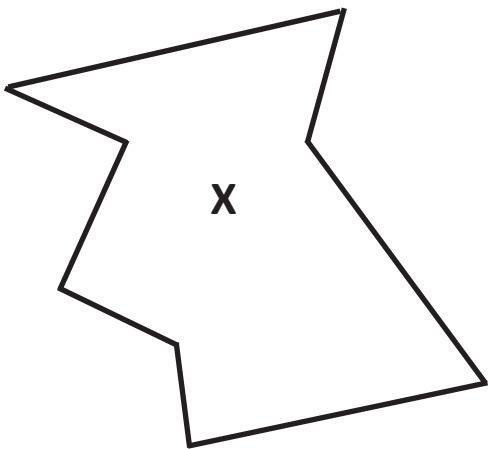
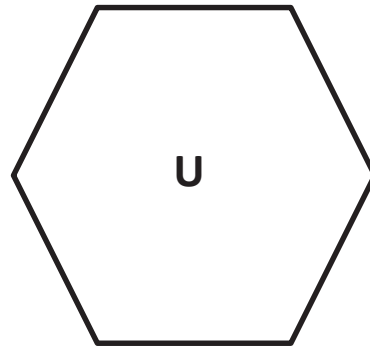
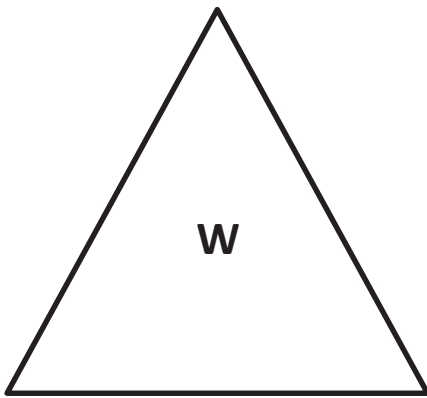
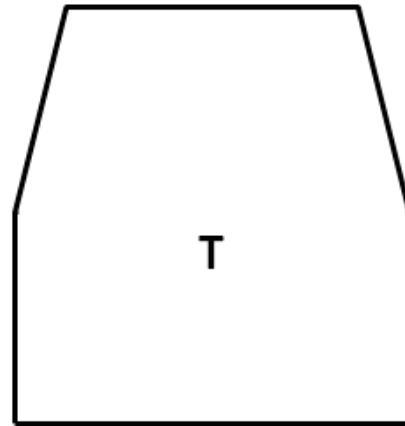
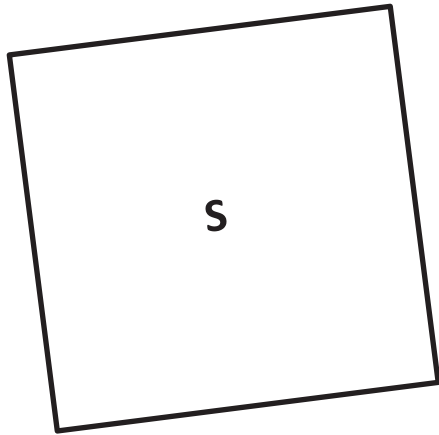
Cut Out Packet



polygons (A–L)

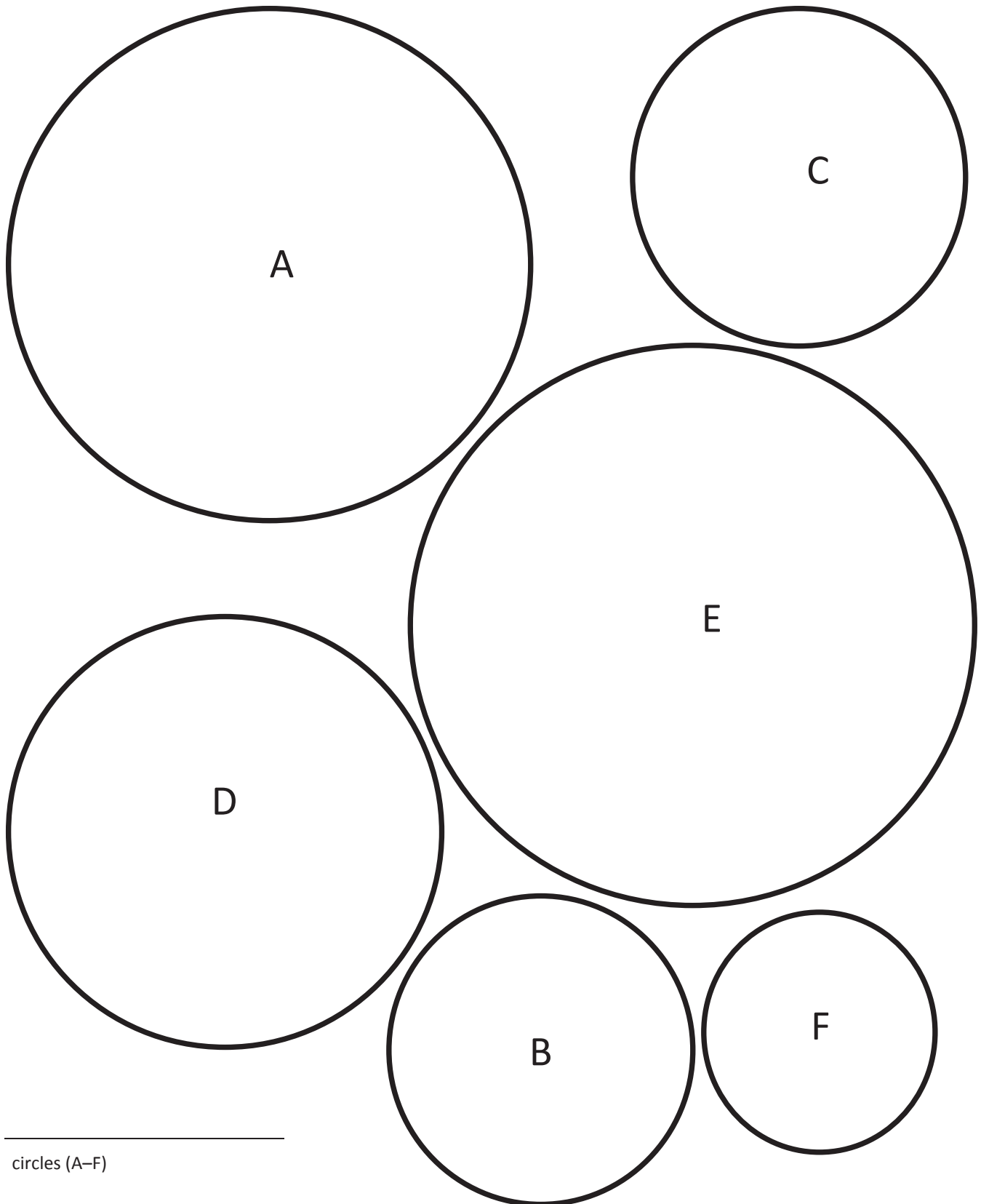


polygons (M–X)



polygons (M–X)

Note: Print on cardstock.



circles (A–F)

Name _____

Date _____

Evaluation Rubric

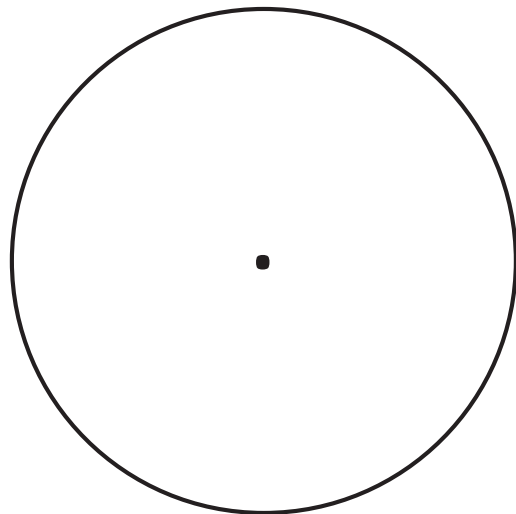
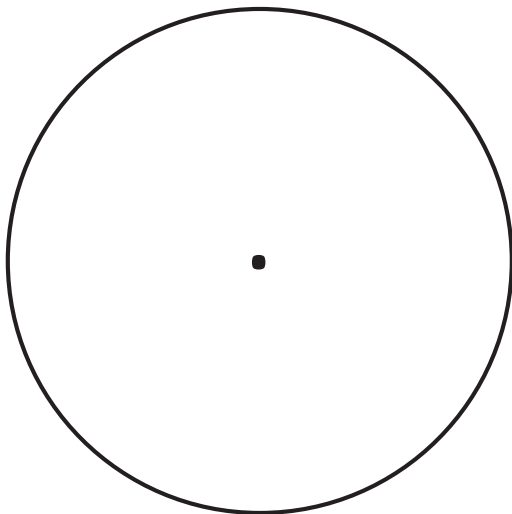
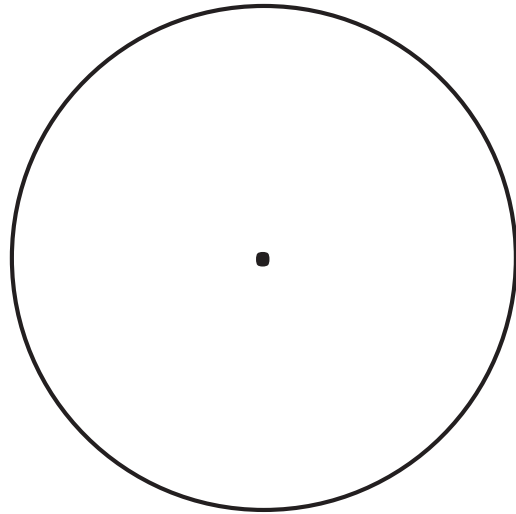
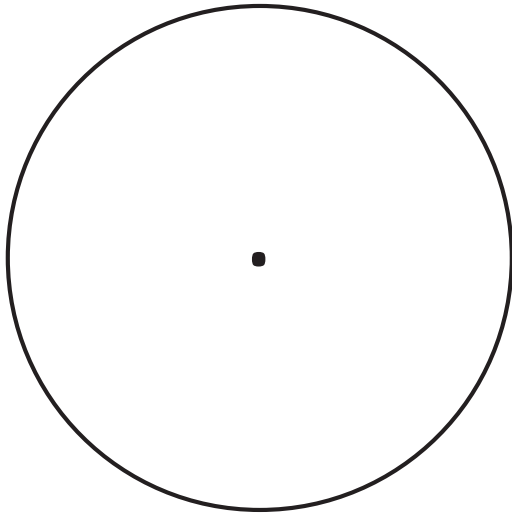
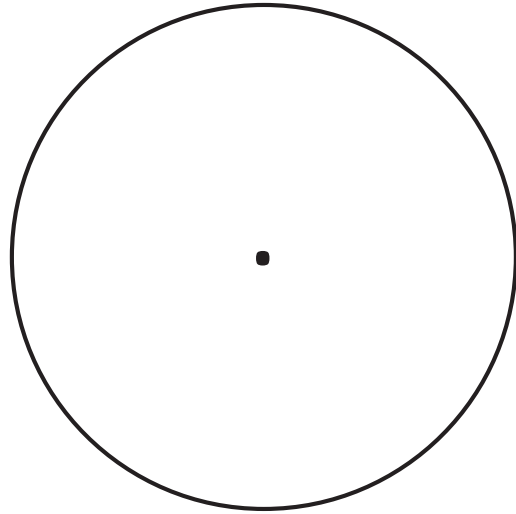
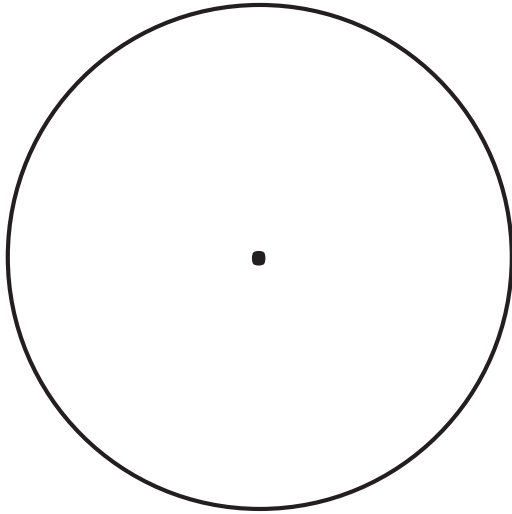
| 4 | 3 | 2 | 1 | Subtotal |
|---|--|--|---|----------|
| Perimeter calculations for all shapes are correct, and both evaluations of a classmate's project have been completed. | Perimeter calculations include 1 to 2 errors, and both evaluations of a classmate's project have been completed. | Perimeter calculations include 3 to 4 errors, and at least 1 evaluation of a classmate's project has been completed. | Perimeter calculations include 5 or more errors, and at least 1 evaluation of a classmate's project has been completed. | _____/4 |

Name _____

Date _____

Evaluation Rubric

| 4 | 3 | 2 | 1 | Subtotal |
|---|--|--|---|----------|
| Perimeter calculations for all shapes are correct, and both evaluations of a classmate's project have been completed. | Perimeter calculations include 1 to 2 errors, and both evaluations of a classmate's project have been completed. | Perimeter calculations include 3 to 4 errors, and at least 1 evaluation of a classmate's project has been completed. | Perimeter calculations include 5 or more errors, and at least 1 evaluation of a classmate's project has been completed. | _____/4 |



circles with dots

Multiplication

Materials: (S) Personal white board

- T: (Draw an array with 3 rows of 2.) Say the repeated addition sentence.
- S: $2 + 2 + 2 = 6$.
- T: (Write $3 \times \underline{\quad} = \underline{\quad}$.) On your personal white board, complete the multiplication sentence.
- S: (Write $3 \times 2 = 6$.)

Repeat using the following ideas: 4 rows of 10, 3 rows of 4, 7 rows of 3, and 8 rows of 2. Or you can think of your own.

Equal Groups

Materials: (S) Personal white board

- T: (Draw a picture with 2 groups of 4 circled.) Say the total as a repeated addition sentence.
- S: $4 + 4 = 8$.
- T: Write a division sentence that means the number of groups is unknown.
- S: (Write $8 \div 4 = 2$.)
- T: Below that division sentence, write a division sentence that means the number in each group is unknown.
- S: (Write $8 \div 2 = 4$.)

Repeat using the following ideas: 5 groups of 3, 3 groups of 4, and 6 groups of 2. Or you can think of your own.

Commutative Multiplying

Materials: (S) Personal white board

- T: (Draw an array with 3 rows of 2 dots.) How many rows of 2 do you see?
- S: 3 rows of 2.
- T: Write four different multiplication sentences for the picture.
- S: (Write $3 \times 2 = 6$, $2 \times 3 = 6$, $6 = 3 \times 2$, and $6 = 2 \times 3$.)

Repeat using the following ideas: 3 rows of 5 and 4 rows of 3. Or you can think of your own.

- T: (Write $4 \times 2 = 2 \times \underline{\quad}$.) On your personal white board, fill in the blank.
- S: (Write $4 \times 2 = 2 \times 4$.)

Repeat using the following ideas: $9 \times 5 = 5 \times \underline{\quad}$ and $3 \times 6 = 6 \times \underline{\quad}$. Or you can think of your own.

Tape Diagrams

Materials: (S) Personal white board

- T: (Draw a tape diagram with 5 equal units and 2 stars in the first unit.) What is the value of each unit?
- S: 2 stars.
- T: How many units are there?
- S: 5 units.
- T: Write a multiplication sentence for this tape diagram.
- S: (Write $5 \times 2 = 10$.)

Repeat using the following ideas: $4 \times 3 = 12$, $8 \div 4 = 2$, and $15 \div 3 = 5$. Or you can think of your own.

Tens

Materials: (S) Place value cards, personal white board

Note: Place value cards can be made with index cards for personal practice.

T: (Write 7 tens = ____.) Say the number.

S: 70.

Repeat using the following ideas: 10 tens, 12 tens, 20 tens, 28 tens, 30 tens, and 37 tens. Or you can think of your own.




Place value cards

Tens and Hundreds

Materials: (S) Personal white board

T: (Write $9 + \underline{\quad} = 10$.) Say the missing number.

S: 1.

T: (Write $90 + \underline{\quad} = 100$.) Say the missing number.

S: 10.

T: (Write $91 + \underline{\quad} = 100$.) Say the missing number.

S: 9.

T: (Write $291 + \underline{\quad} = 300$.) Say the missing number.

S: 9.

Repeat using the following ideas:

$1 + \underline{\quad} = 10$, $10 + \underline{\quad} = 100$, $11 + \underline{\quad} = 100$,
 $211 + \underline{\quad} = 300$, $8 + \underline{\quad} = 10$, $80 + \underline{\quad} = 100$,
 $85 + \underline{\quad} = 100$, and $385 + \underline{\quad} = 400$.

Or you can think of your own.

Make Twenty-Four Game

Materials: (S) Set of 6 cards per pair

Note: Students play in pairs. Each pair has a set of 6 cards, each with a number (2, 3, 4, 6, 8, and 12).

T: (Write $\underline{\quad} \times \underline{\quad} = 24$.) Spread the cards out in front of you.

T: Put your hands behind your back. I'll put a number in the first blank. When you know the number that belongs in the second blank, touch the card that shows the number. The first one of us to touch the card keeps it. Whoever has the most cards at the end wins. (Write 12 in the first blank.)

S: (Touch the 2 card. The first to touch it keeps the card.)

Repeat. This time, however, you might make 36 with the same cards plus 9 and 18.

Write in the Parentheses

Materials: (S) Personal white board

T: (Write $10 - 5 + 3 = 8$.) On your personal white board, copy the equation. Then, insert parentheses to make the statement true.

S: (Write $(10 - 5) + 3 = 8$.)

Repeat using the following ideas:

$10 - 5 + 3 = 2$, $10 = 20 - 7 + 3$, $16 = 20 - 7 + 3$,
 $8 + 2 \times 4 = 16$, $8 + 2 \times 4 = 40$, $12 = 12 \div 2 \times 2$, $3 = 12 \div 2 \times 2$, $10 = 35 - 5 \times 5$, and $20 - 10 \div 5 = 2$.

Or you can think of your own.

Round Three- and Four-Digit Numbers

Materials: (S) Personal white board

T: (Write $87 \approx \underline{\quad}$.) What is 87 rounded to the nearest ten?

S: 90.

Repeat using the following ideas: 97, 43, 643, 35, and 835. Or you can think of your own.

T: (Write $253 \approx \underline{\quad}$.) What is 253 rounded to the nearest hundred?

S: 300.

Repeat using the following ideas: 1,253, 735, 1,735, 850, 1,850, 952, 1,371, and 1,450. Or you can think of your own.

Partition Shapes

Materials: (S) Personal white board

T: Draw a square.

S: (Draw a square.)

T: (Write $\frac{1}{2}$.) Estimate to equally partition the square into halves.

S: (Partition.)

Repeat using the following ideas: line $\frac{1}{5}$, circle $\frac{1}{4}$, circle $\frac{1}{8}$, bar $\frac{1}{10}$, and bar $\frac{1}{6}$.

Or you can think of your own.

Write the Unit Fraction

Materials: (S) Personal white board

T: (Draw a shape with $\frac{1}{2}$ shaded.) Write the unit fraction.

S: (Write $\frac{1}{2}$.)

Repeat using the following ideas: $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{6}$, $\frac{1}{10}$, and $\frac{1}{5}$.

Or you can think of your own.

Greater or Less Than 1?

T: (Write $\frac{1}{2}$.) Greater or less than 1?

S: Less!

Repeat using the following ideas: $\frac{3}{2}$, $\frac{5}{4}$, $\frac{3}{4}$, $\frac{3}{7}$, $\frac{5}{3}$, and $\frac{5}{2}$.

Or you can think of your own.

Draw Fractions from Part to Whole

Materials: (S) Personal white board

T: Draw 1 unit on your personal white board.

S: (Draw 1 unit.)

T: Label the unit $\frac{1}{3}$. Now, draw the whole that goes with your unit of $\frac{1}{3}$.

Repeat using the following ideas: $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{4}$, and $\frac{1}{2}$.

Or you can think of your own.

Draw Number Bonds of One

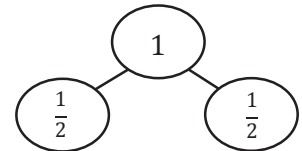
Materials: (S) Personal white board

T: Draw a number bond to partition one into halves.

S: (Draw.)

T: How many copies of 1 half did you draw to make one?

S: 2 copies.



Repeat using the following ideas: thirds, fourths, fifths, sixths, sevenths, etc. Or you can think of your own.