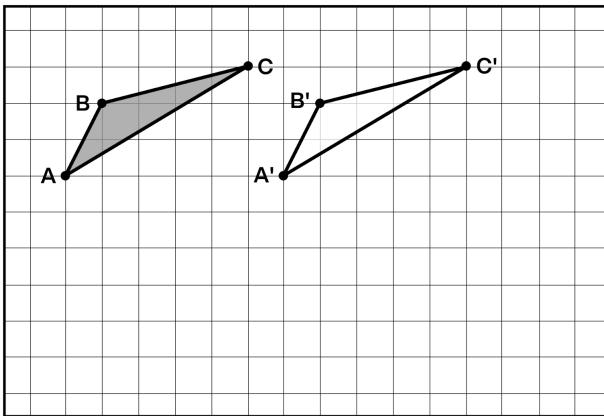


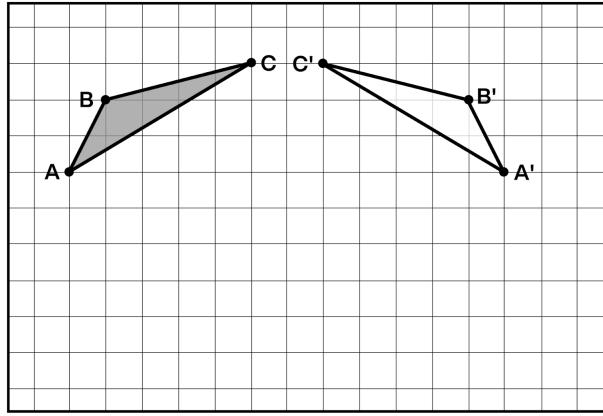
# desmos

## Unit 8.1, Lesson 4: Transformation Cards

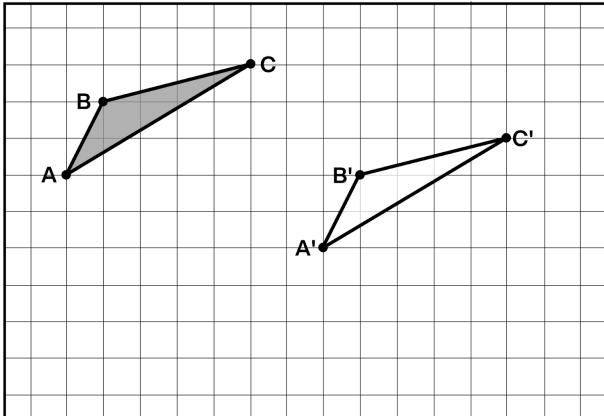
Card A



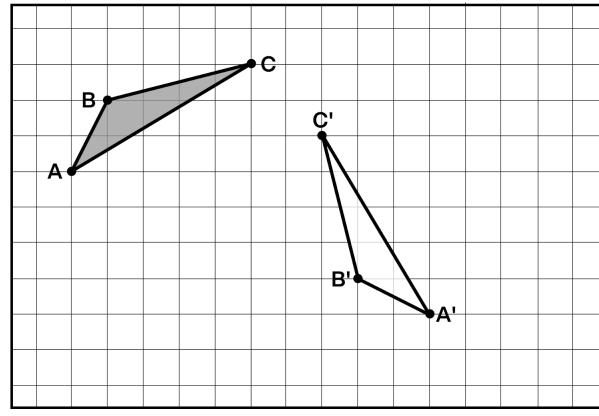
Card B



Card C



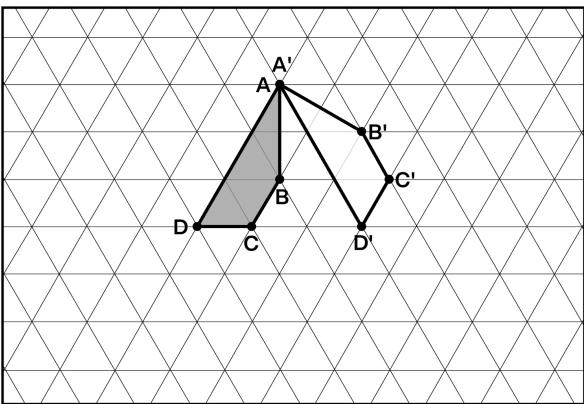
Card D



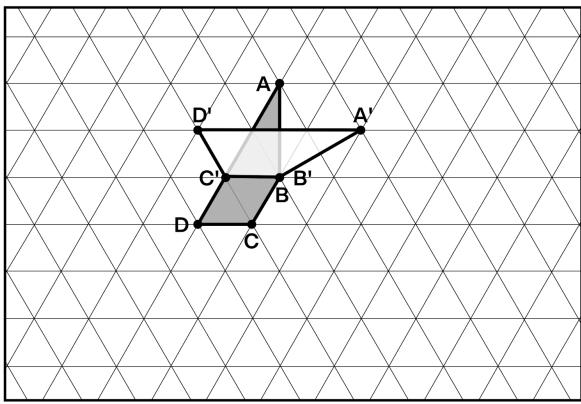
# desmos

## Unit 8.1, Lesson 4: Transformation Cards

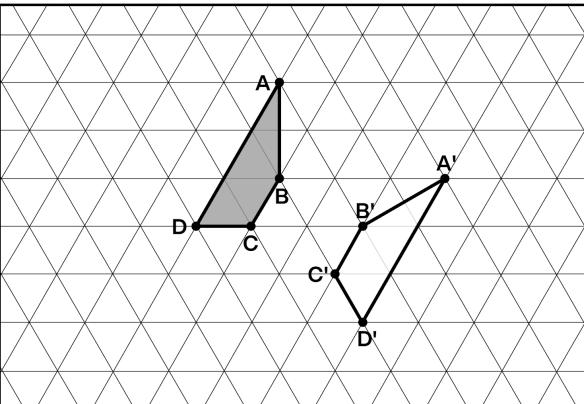
Card E



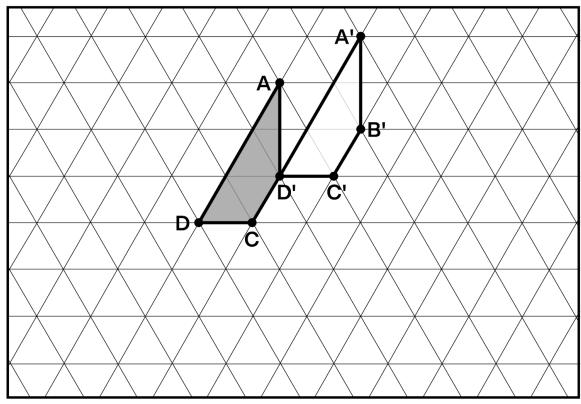
Card F



Card G



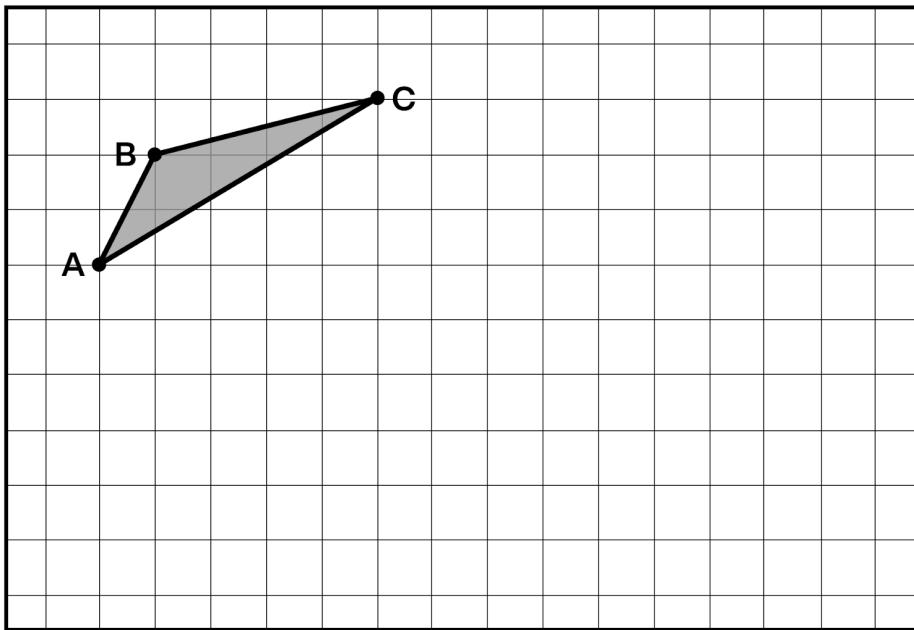
Card H



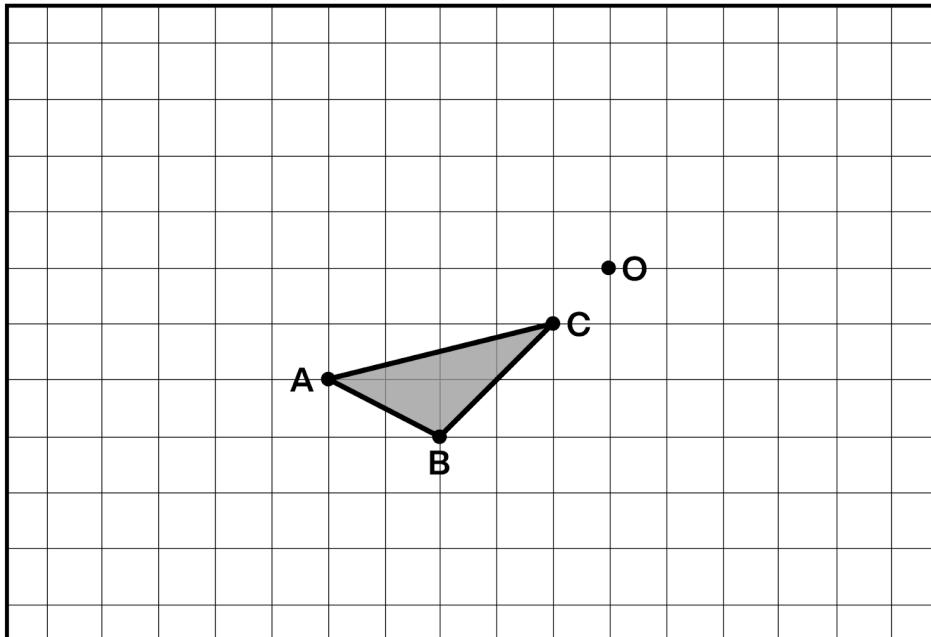
**Activity 1: Move It**

Use whatever tools you'd like to carry out the moves specified. Use  $A'$ ,  $B'$ , and  $C'$  to indicate vertices in the new figure that correspond to points  $A$ ,  $B$ , and  $C$  in the original figure.

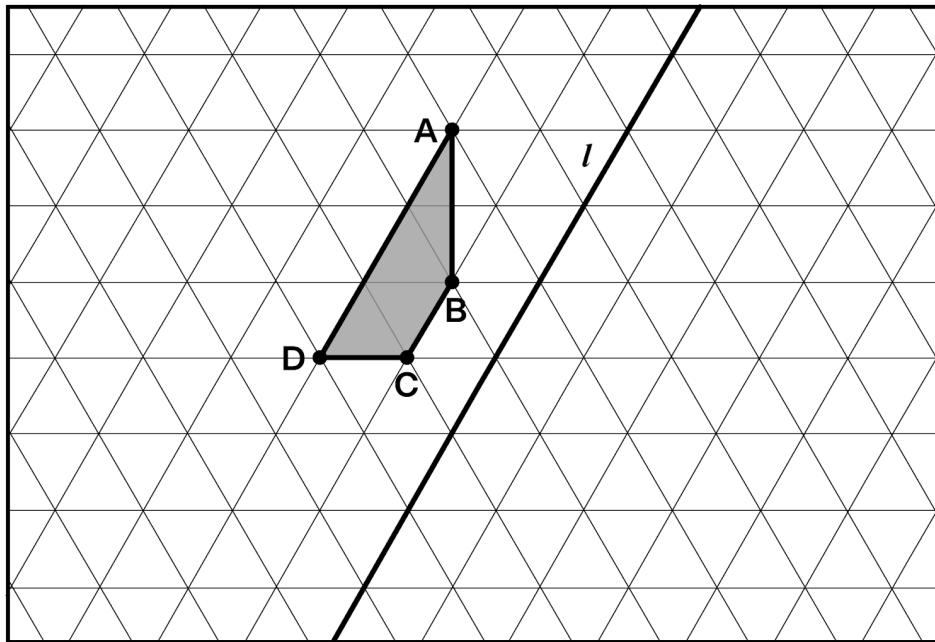
1. Translate triangle  $ABC$  3 units right and 1 unit down.



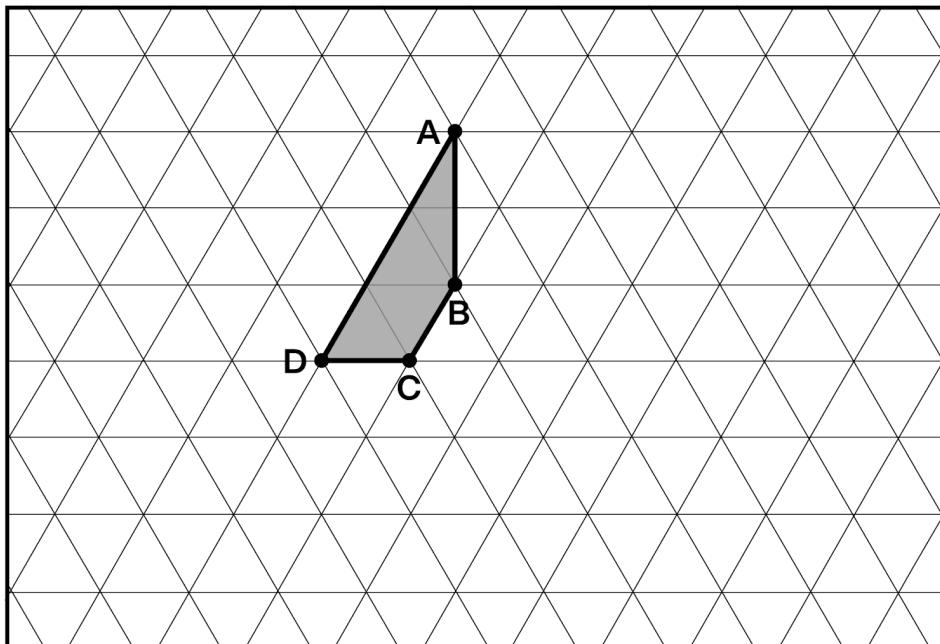
2. Rotate triangle  $ABC$   $180^\circ$  counterclockwise using center  $O$ .



3.  Reflect quadrilateral  $ABCD$  using line  $l$ .



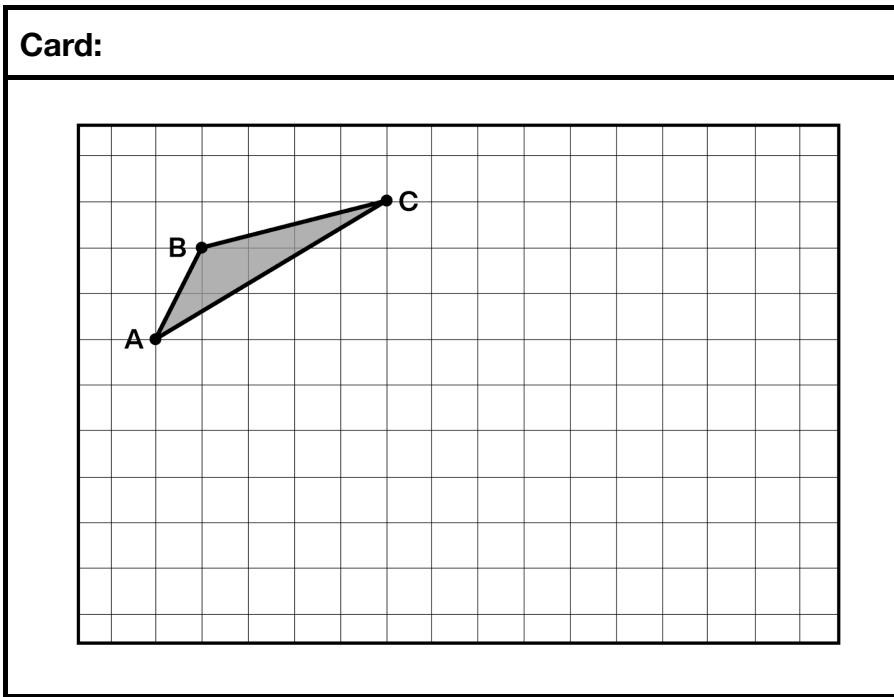
4.  Rotate quadrilateral  $ABCD$   $60^\circ$  clockwise using center  $C$ .



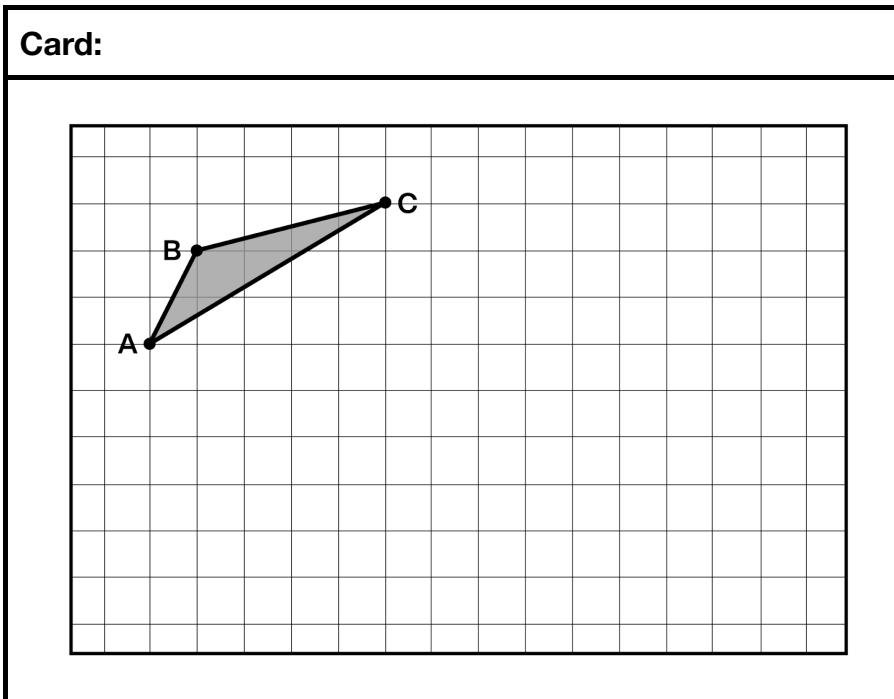
## Activity 2: Make My Transformation

Your partner will describe the image of this triangle after a certain transformation. Sketch it here.  
*You can only sketch (no speaking).*

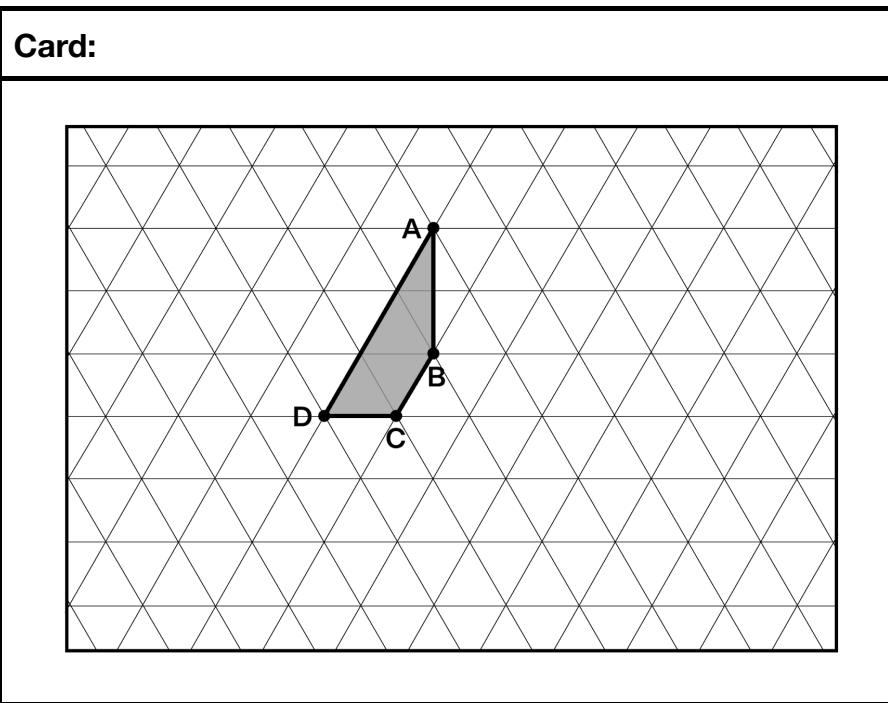
1.



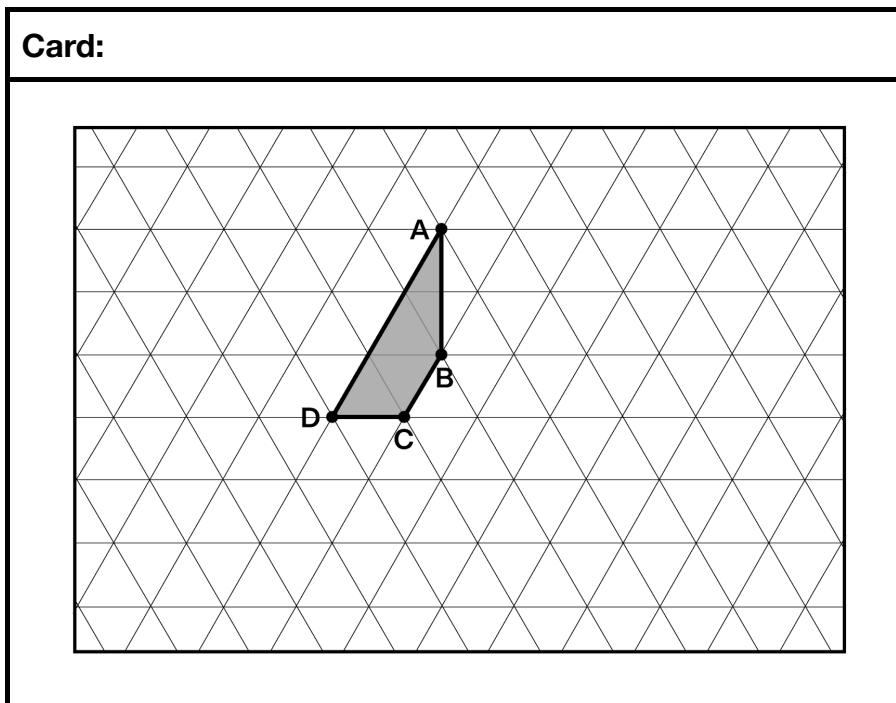
2.



3.



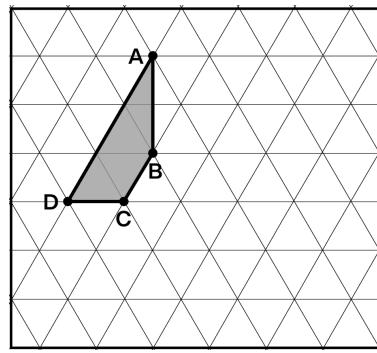
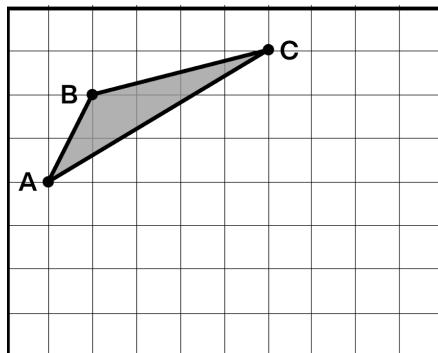
4.



## Lesson Synthesis

Discuss with your partner. Then record your responses.

How does a grid help you describe a ...



A. ... rotation?

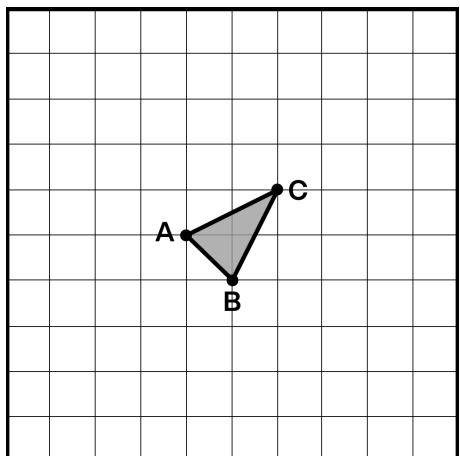
B. ... translation?

C. ... reflection?

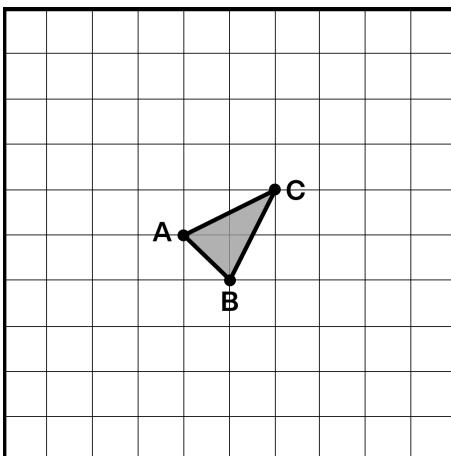
## Cool-Down

Triangle  $ABC$  is drawn on a grid. On each grid, draw and label:

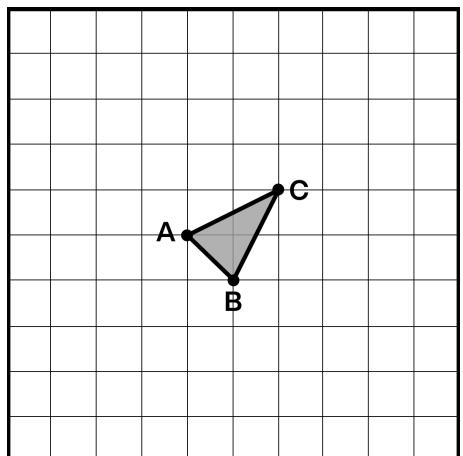
A. A reflection of triangle  $ABC$ .



B. A translation of triangle  $ABC$ .

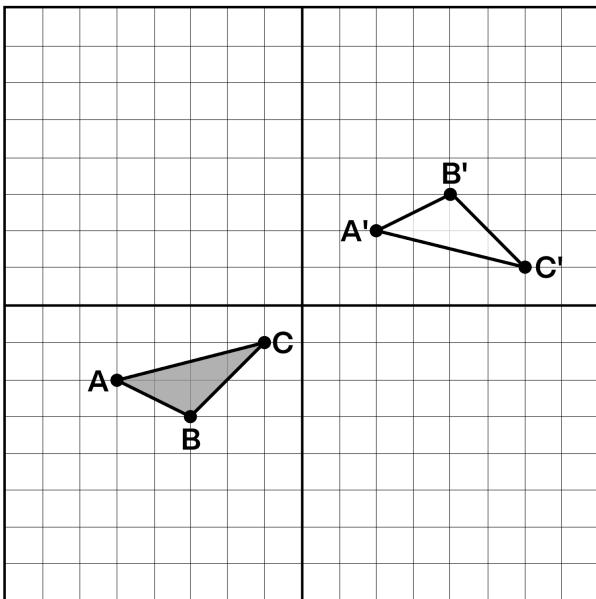


C. A rotation of triangle  $ABC$ .



## Activity 1: Transformation Information #1

Describe a sequence of transformations that takes triangle  $ABC$  to triangle  $A'B'C'$ .



**Pre-Write:**

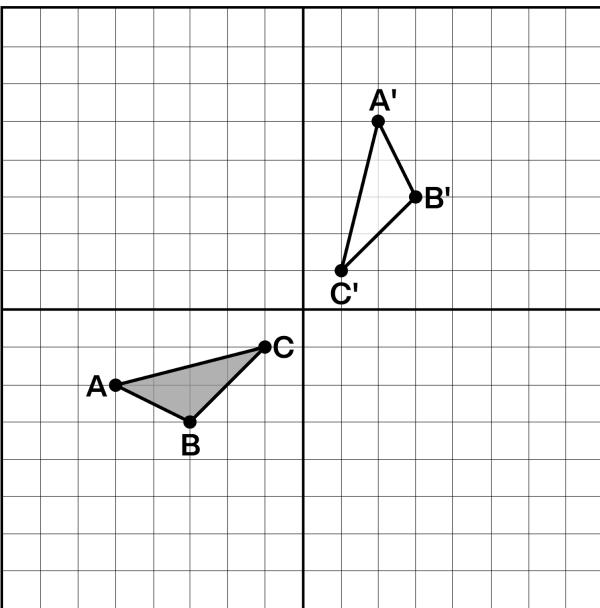
**Share #1 Notes:**

**Share #2 Notes:**

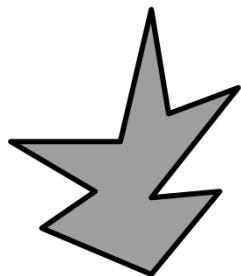
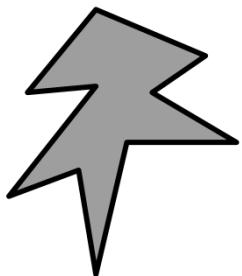
**Final Version:**

**Activity 1: Transformation Information #2**

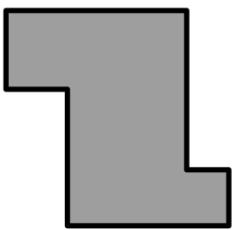
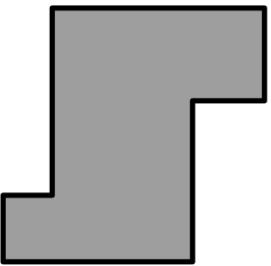
Describe a sequence of transformations that takes triangle  $ABC$  to triangle  $A'B'C'$ .

**Pre-Write:****Share #1 Notes:****Share #2 Notes:****Final Version:**

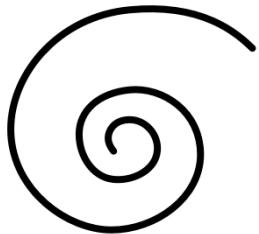
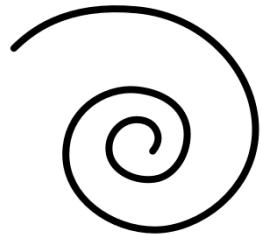
A



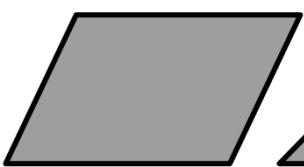
B



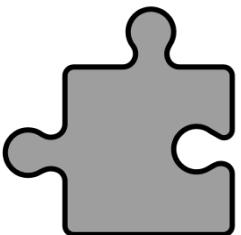
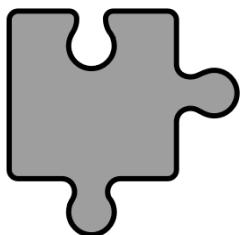
C



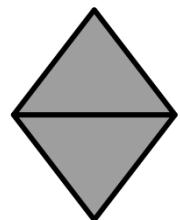
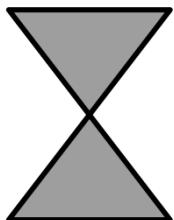
D

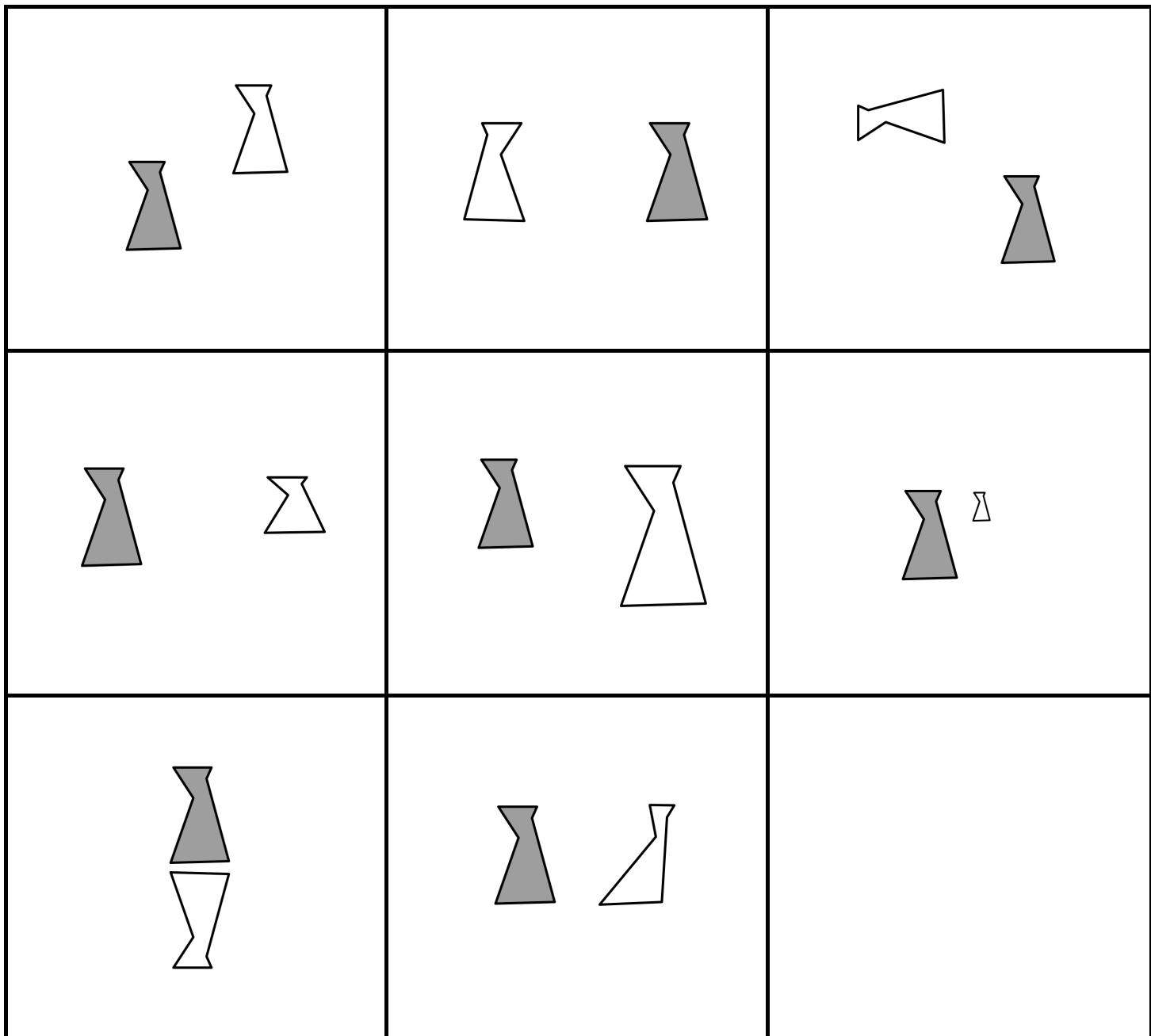


E



F

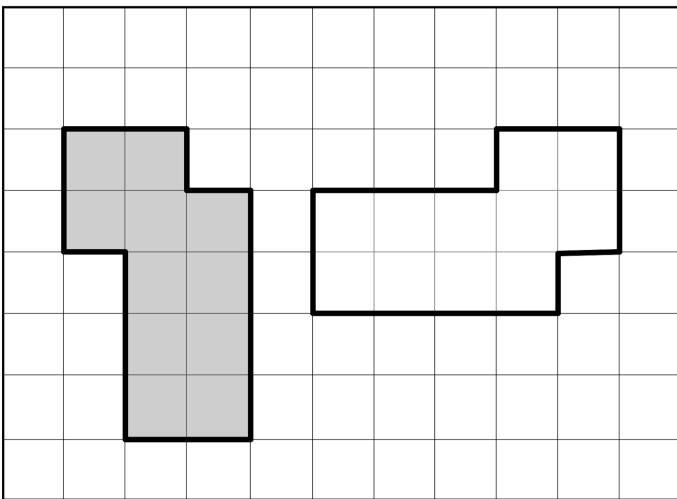


**Activity 1: Transformations Card Sort**

## Activity 2: Sides and Angles

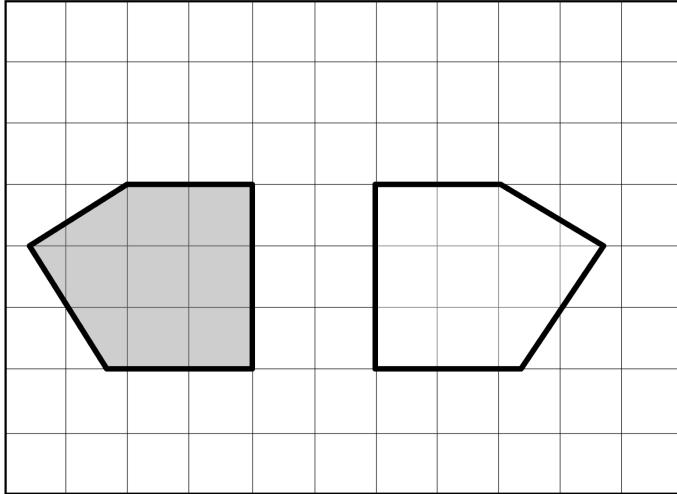
In each set, a polygon has been transformed. The pre-image is shown on the left and the image is on the right.

Pair A



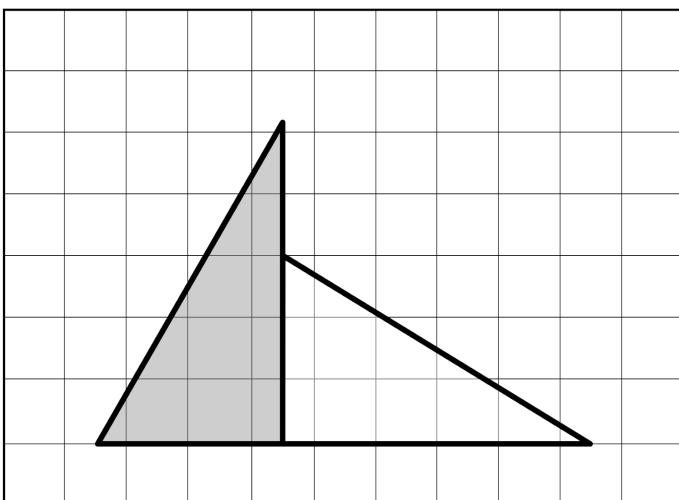
1. Write in the measure of each side length and interior angle. (You may need to make your own ruler with either tracing paper or a blank index card.)
2. What is the same in the pre-image and image?
3. What's different between the pre-image and image?

Pair B



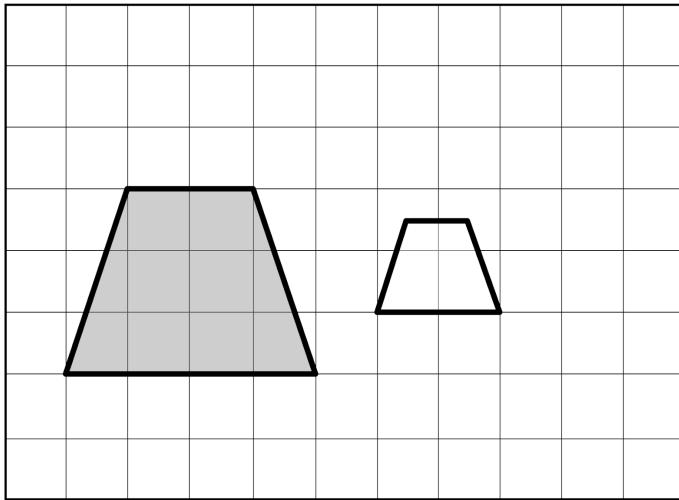
1. Write in the measure of each side length and interior angle.
2. What is the same in the pre-image and image?
3. What's different between the pre-image and image?

Pair C



1. Write in the measure of each side length and interior angle.
2. What is the same in the pre-image and image?
3. What's different between the pre-image and image?

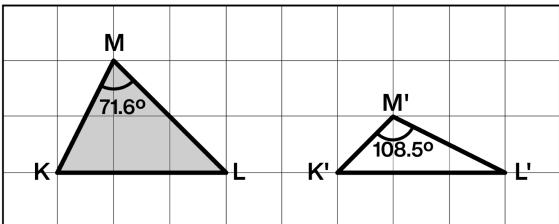
Pair D



1. Write in the measure of each side length and interior angle.
2. What is the same in the pre-image and image?
3. What's different between the pre-image and image?

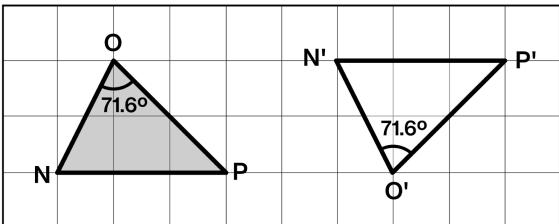
## Lesson Synthesis

Pair H



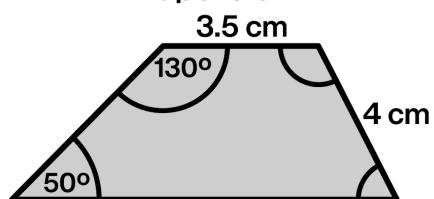
Which pair(s) show a rigid transformation from one figure to the other? Explain your thinking.

Pair J

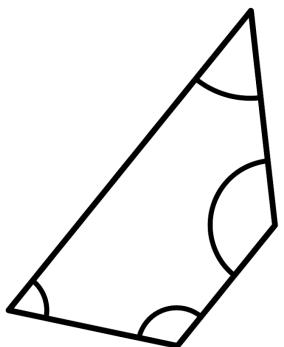


## Cool-Down

Trapezoid A



Trapezoid B



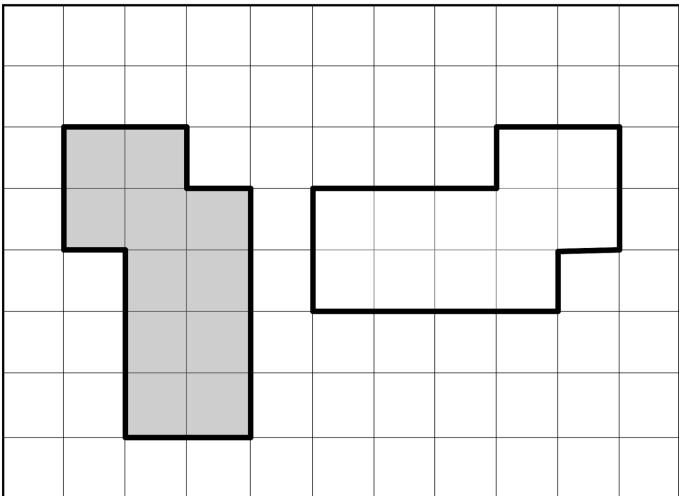
Trapezoid *B* is the image of trapezoid *A* under a series of rigid transformations.

Use the information in trapezoid *A* to label the measurements of the corresponding parts in trapezoid *B*.

## Activity 2: Sides and Angles

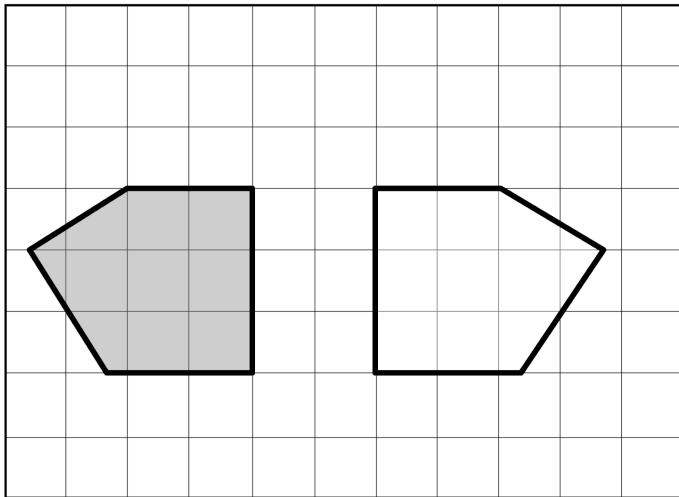
In each set, a polygon has been transformed. The pre-image is shown on the left and the image is on the right.

Pair A



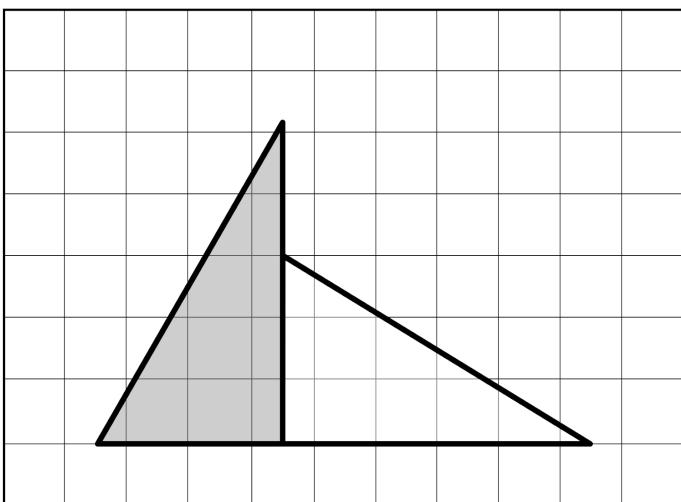
1. Write in the measure of each side length and interior angle. (You may need to make your own ruler with tracing paper or a blank index card.)
2. What is the same in the pre-image and image?
3. What's different between the pre-image and image?

Pair B



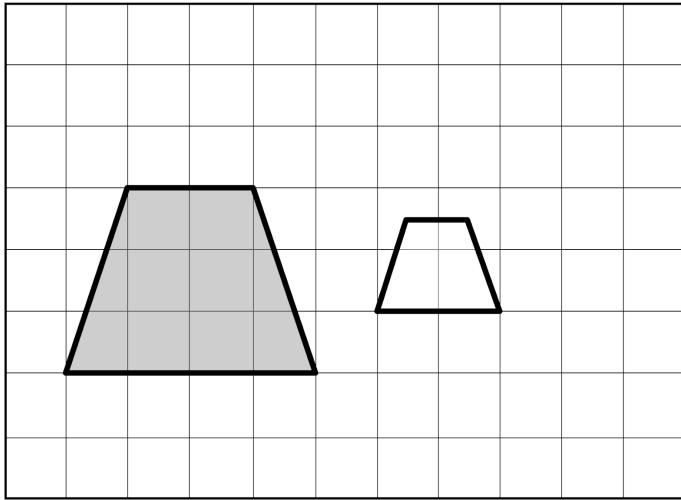
1. Write in the measure of each side length and interior angle.
2. What is the same in the pre-image and image?
3. What's different between the pre-image and image?

Pair C

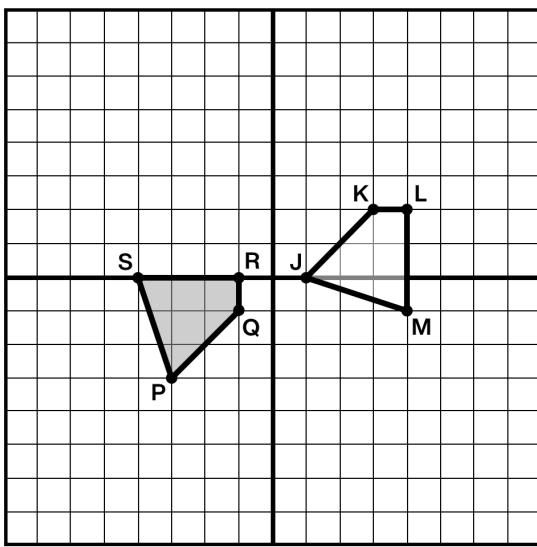


1. Write in the measure of each side length and interior angle.
2. What is the same in the pre-image and image?
3. What's different between the pre-image and image?

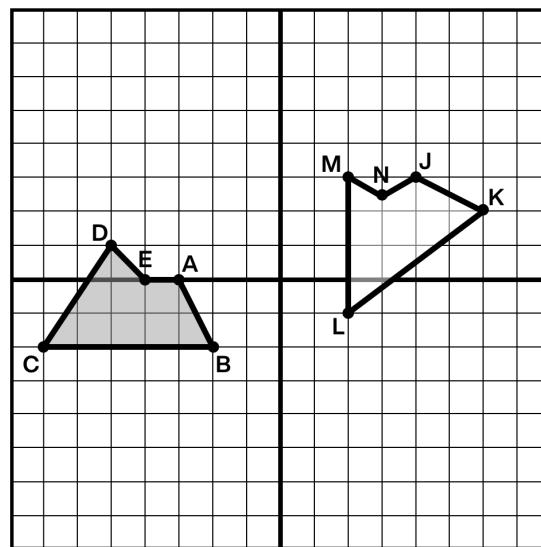
Pair D



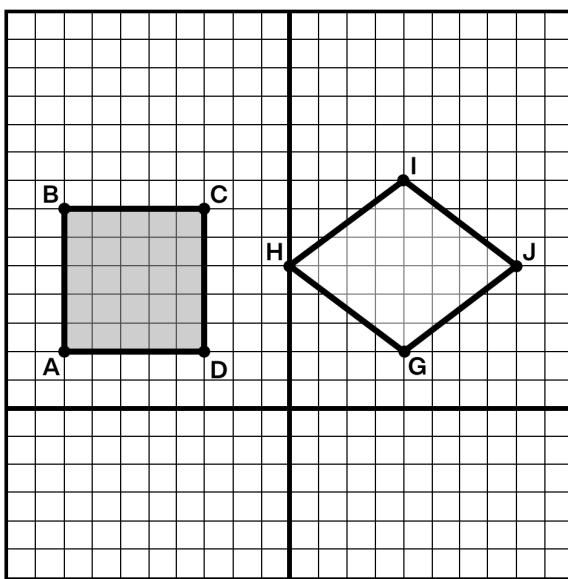
1. Write in the measure of each side length and interior angle.
2. What is the same in the pre-image and image?
3. What's different between the pre-image and image?

**Pair A**

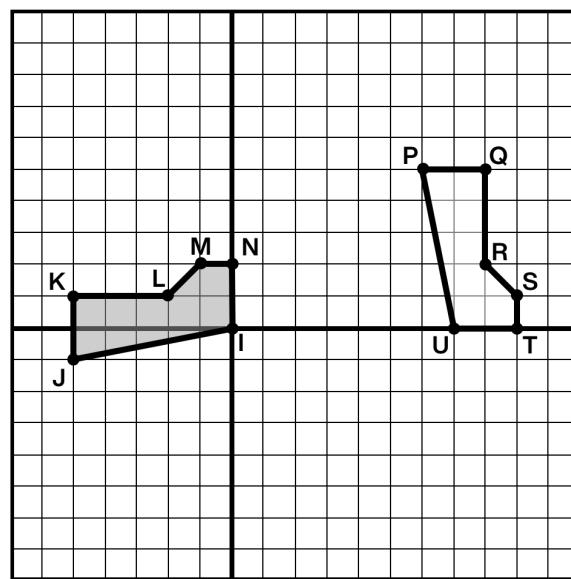
Notes:

**Pair B**

Notes:

**Pair C**

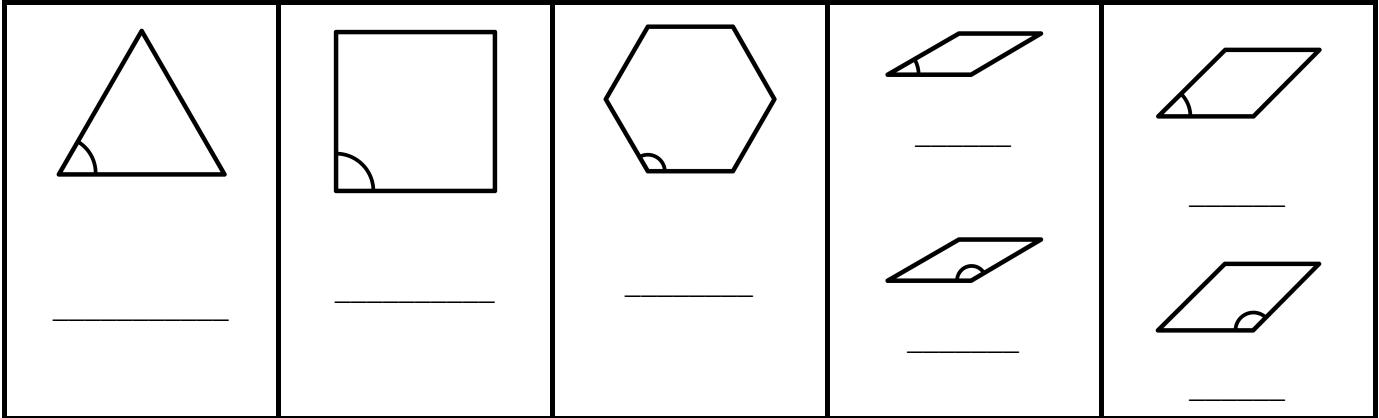
Notes:

**Pair D**

Notes:

## Activity 1: Mystery Measures

- Determine as many angle measures as you can by creating different designs in the Desmos activity. You can also use the workspace below. Then record each angle measure below.



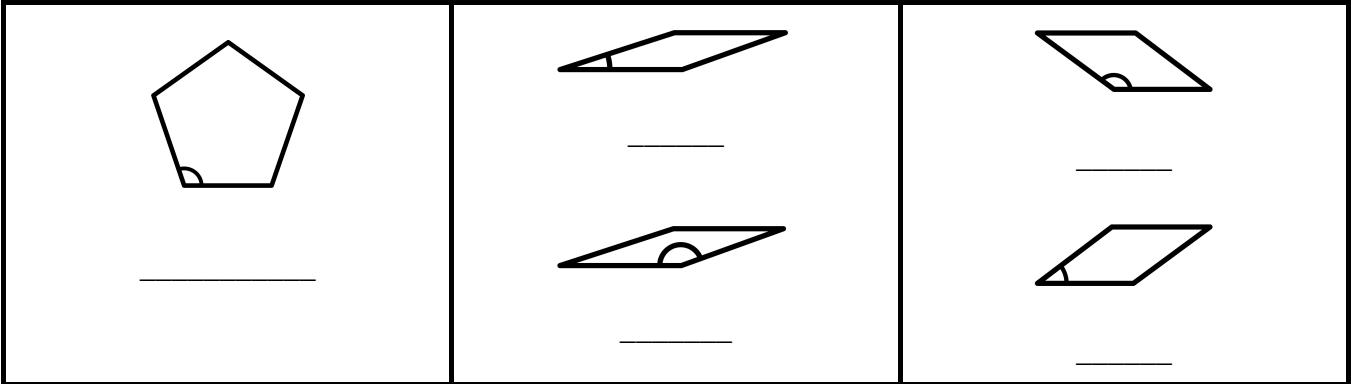
Workspace:

- Select two angles. Describe how you determined their measures.



## Are You Ready for More?

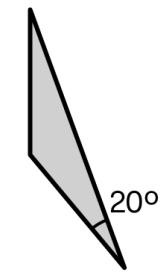
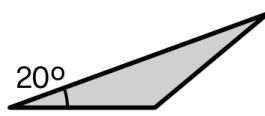
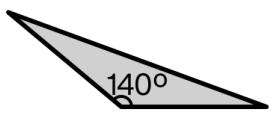
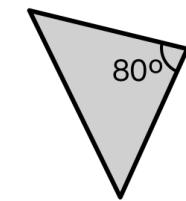
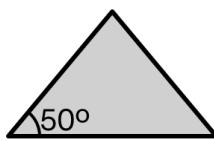
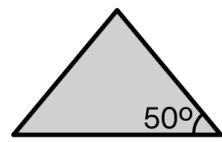
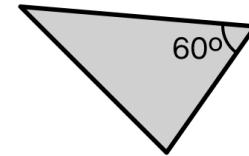
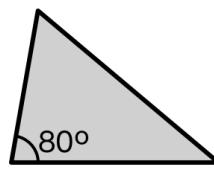
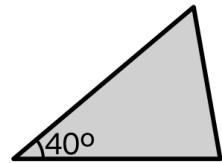
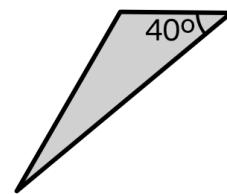
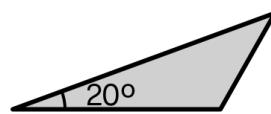
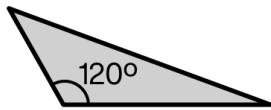
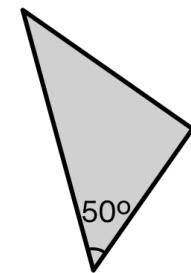
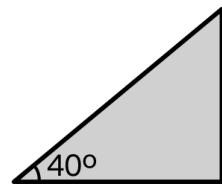
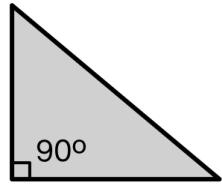
- Determine as many angle measures as you can by creating different designs in the Desmos activity. You can also use the workspace below. Then record each angle measure below.



Workspace:

- Select two angles. Describe how you determined their measures.



**Activity 1: Find All Three**

**Activity 1: Find All Three**

Your teacher will give you a card with a picture of a triangle.

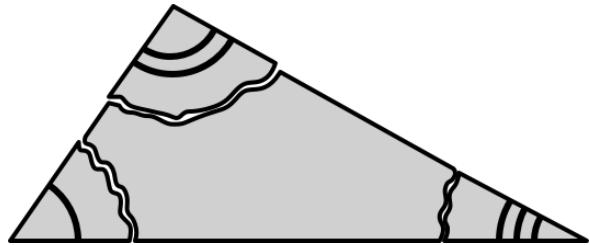
1. The measurement of one of the angles is labeled. Estimate the measures of the other two angles.
  
2. Find two other students with triangles congruent to yours but with a different angle labeled.
  
3. Confirm that:
  - All three triangles are congruent.
  - Each card has a different angle labeled.
  - The angle measures look like they could all be in the same triangle.
  
4. Enter the three angle measures for your triangle in the table.

Student Names	Angle 1	Angle 2	Angle 3	Angle Sum

5. How did you know that you found a correct partner?
  
  
  
  
  
  
6. Look at other groups' tables. What do you notice about the combination of the three angle measures?

**Activity 2: Tear It Up**

1. On a blank sheet of paper, use a straightedge to draw two very different triangles.
2. Mark the vertices of each triangle and cut the triangles out. Then rip the three vertices off of the triangle.



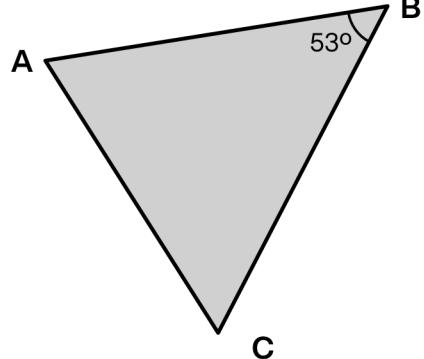
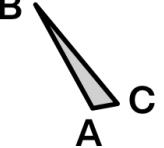
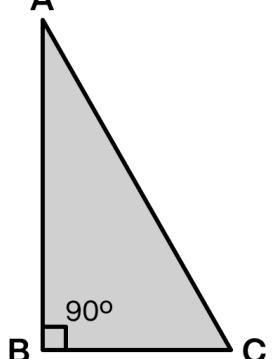
3. Arrange the vertices of each triangle so that the three vertices meet with no overlap.



4. Compare your results with your classmates' results. What do you notice about the sum of the angles in a triangle?

## Lesson Synthesis

In each triangle  $ABC$ , the measure of angle  $C$  is  $60^\circ$ . For each triangle, determine a possible value for the measure of angle  $A$ .

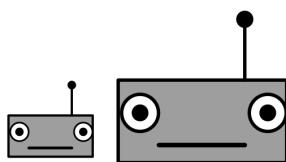
Triangle 1	Triangle 2	Triangle 3
 $A = \underline{\hspace{2cm}}^\circ$	 $A = \underline{\hspace{2cm}}^\circ$	 $A = \underline{\hspace{2cm}}^\circ$

---

## Cool-Down

Select three angle measures that could be angles in the same triangle. Explain how you know.

- A.  $42^\circ$
- B.  $180^\circ$
- C.  $35^\circ$
- D.  $90^\circ$
- E.  $18^\circ$
- F.  $120^\circ$

**Warm-Up**

Explain how you might know the large robot is a scaled copy of the small robot.

**Activity 1: Scaling a Robot**

1. This table represents the lengths of the original robot and its scaled copy from the warm-up.

Complete the missing lengths of the scaled copy.

The first row is done for you.

	Original	Scaled Copy
Height (in.)	2	4
Width (in.)	4	
Eye distance (in.)	3	
Antenna (in.)	1.5	

2. Scaled copies always have a **scale factor**. The scale factor from the original to the copy in Problem 1 is 2. Suppose that the scale factor had been 3 instead of 2.

Explain how you would determine the height of the copy.

**Activity 2: Analyzing Robots**

Imani built a robot and made a copy.

They recorded their thinking in the table on the right.

1. Do you think the copy robot will be a scaled copy?

- Scaled copy
- Not a scaled copy
- Not enough information

Explain your thinking.

	Original	Copy
Height (in.)	2	8
Width (in.)	6	12
Eye distance (in.)	4	10
Antenna (in.)	3	9

- 2.1 Create your own distances so that the copy robot **is** a scaled copy of the original.

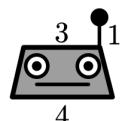
	Original	Imani's Copy
Height (in.)	2	8
Width (in.)	6	12
Eye Distance (in.)	4	10
Antenna (in.)	3	9

	Original	Scaled Copy
Height (in.)	2	
Width (in.)	6	
Eye Distance (in.)	4	
Antenna (in.)	3	

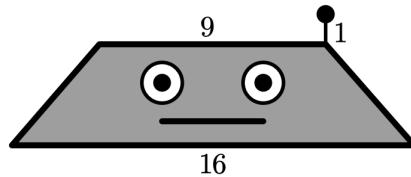
- 2.2 What is another way to create a scaled copy of Imani's robot?

Anushka built a robot and made a copy that is not a scaled copy.

- 3.1 Explain Anushka's strategy.



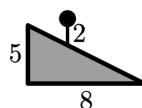
- 3.2 What advice would you give Anushka to help her make her new robot a scaled copy?



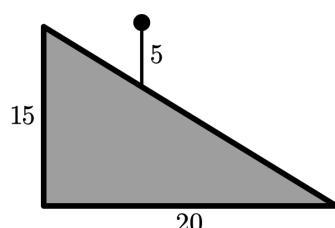
All measurements are in grid units.

Na'ilah drew outlines of a small and large robot. She asks you to help her make them scaled copies.

- 4.1 Describe how you would change the measurements on the larger robot to make them scaled copies.



- 4.2 What is the scale factor from the small robot to the large robot you described?

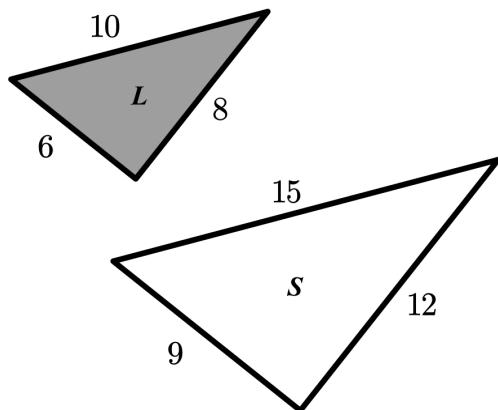


All measurements are in grid units.

**Lesson Synthesis**

How can you use lengths to tell whether or not a figure is a scaled copy of another figure?

Use figures  $L$  and  $S$  to help you with your explanation.



All measurements are in grid units.

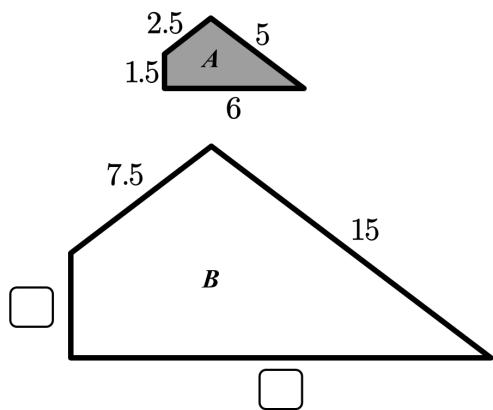
**Cool-Down**

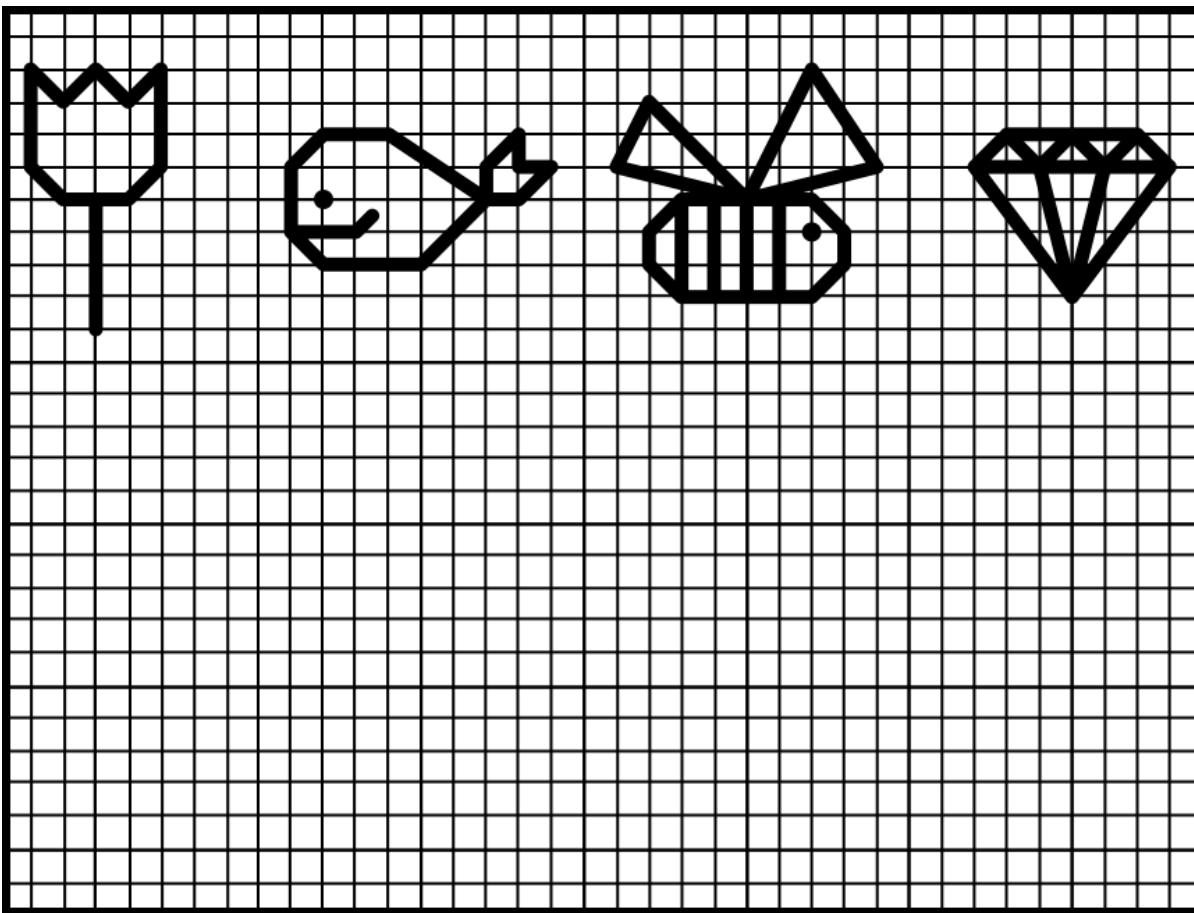
Figure  $B$  is a scaled copy of figure  $A$ .

1. Label the missing side lengths of figure  $B$ .
2. Explain your strategy.

All measurements are in grid units.

**Activity 1: Drawing Scaled Copies on a Grid**

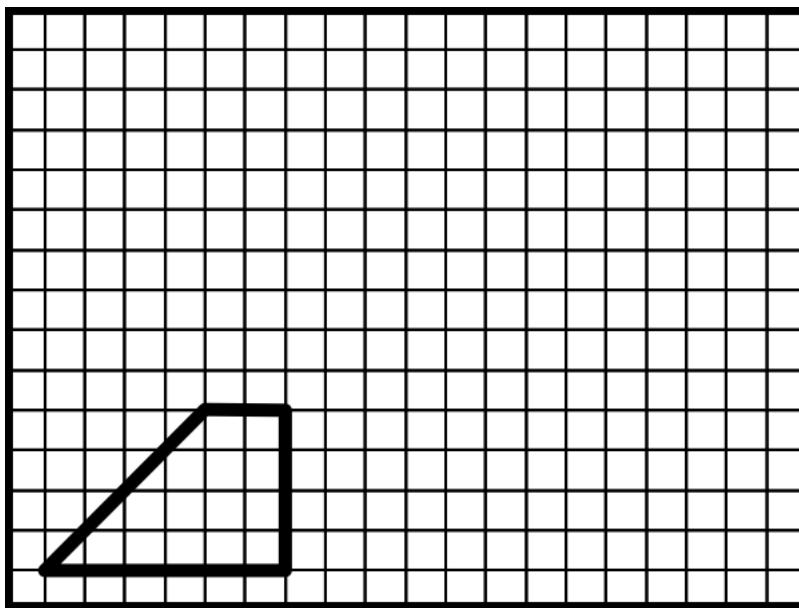
1. Select one image and create a scaled copy of that image using a scale factor of 2.



2. Trade your drawing with a partner. After you exchange, offer the following feedback:
  - Determine if their copy is a scaled copy.
  - Suggest one way they could make the drawing stronger or clearer.
3. Explain your strategy for creating the scaled copy.

**Activity 2: Did It Scale?**

1. Choose a scale factor between 0.5 and 4. **Scale factor:** \_\_\_\_\_
2. Use the scale factor you chose to create a scaled copy of the figure below.

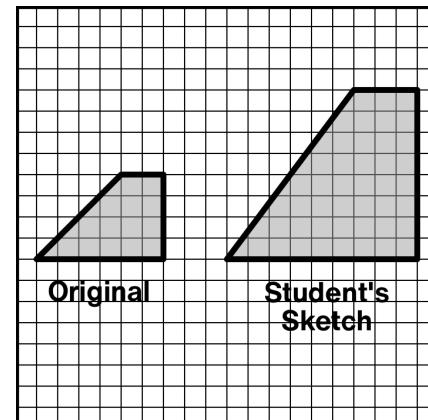


3. Here is one student's work for Problem 1. Sasha thinks the student used a scale factor of 2. Randy thinks the student used a scale factor of 1.5.

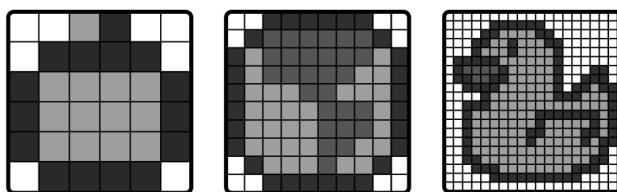
Who is correct?

- A. Sasha
- B. Randy
- C. Both
- D. Neither

Explain your thinking.

**Are You Ready for More?**

On a separate piece of graph paper, draw a scaled copy of the one of the images below (or create your own) using a scale factor of 1.5.

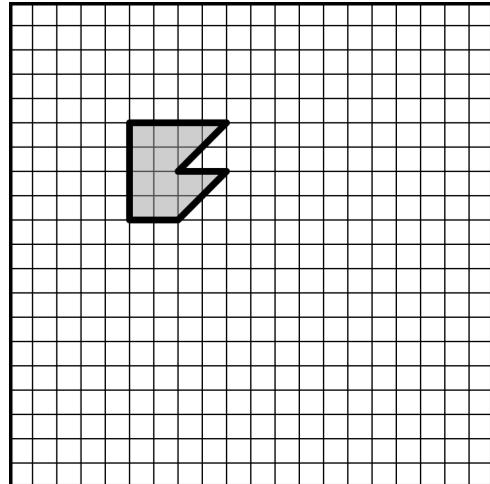


## Lesson Synthesis

Describe how to draw a scaled copy.

Include a few important things to remember.

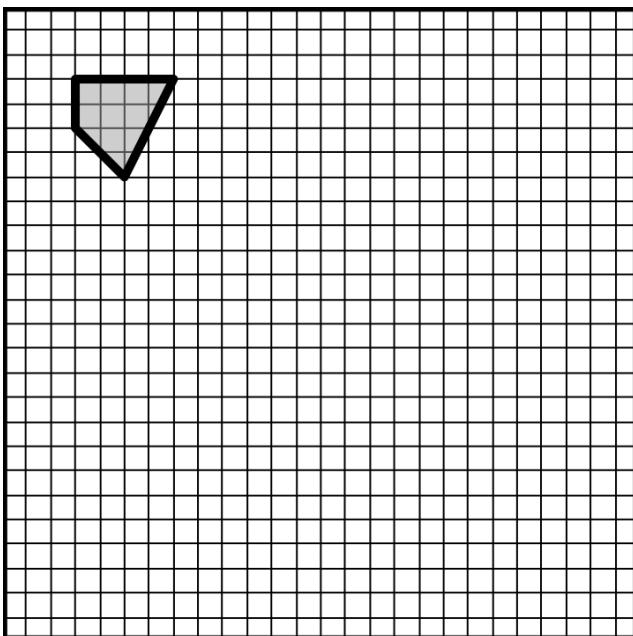
Use the figure if it helps you with your thinking.



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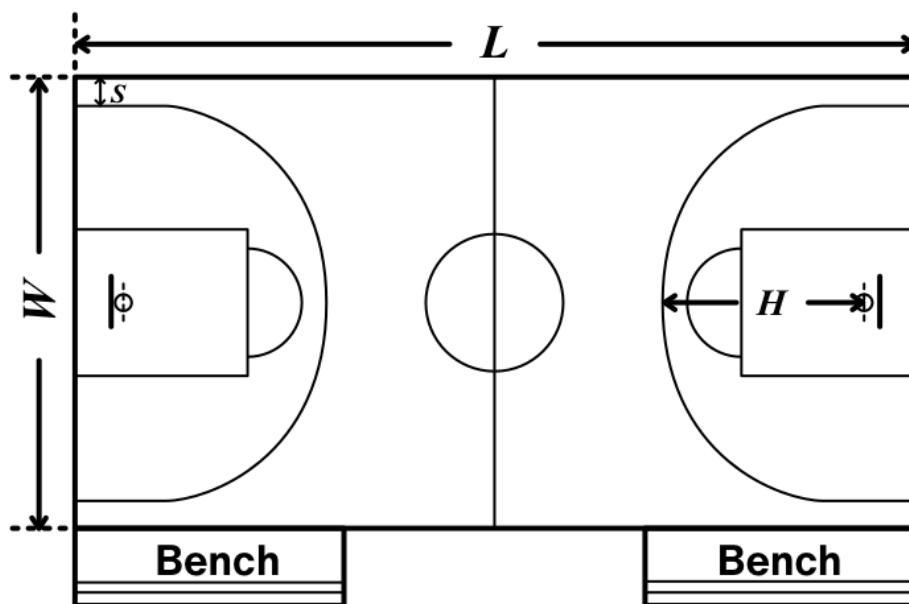
## Cool-Down

Sketch a scaled copy of the polygon using a scale factor of 3.



**Activity 1: Will It Fit?**

Here is the scale drawing that Karima presented to her neighborhood park's board of directors.



1. The scale for Karima's drawing is 2 cm to 5 m. Explain what this means in your own words.
2. Will Karima's court fit in the 20 -by- 20 -meter square area the park directors designated for the court? Use your measuring tools and the table below to help you with your thinking.

Round each measurement to the nearest tenth of a centimeter.

	<b>Length of Court (L)</b>	<b>Width of Court (W)</b>	<b>Hoop to 3-pt. Line (H)</b>	<b>3-pt. Line to Side Line (S)</b>
Scale drawing				
Actual court				

Explain how you know whether or not the court will fit.



# Are You Ready for More?

On an actual basketball court, the bench area is typically 9 meters long. Without measuring, determine how long the bench area should be on the scale drawing.

Does your answer match Karima's drawing?

## Activity 2: Fix It

## Lesson Synthesis

How could you use Karima's scale drawing to calculate the actual diameter of the center court circle? Describe your strategy.

	Diameter of Center Court Circle
Scale drawing	1.8 cm
Actual court	?

---

## Cool-Down

A scale drawing of a school bus has a scale of  $\frac{1}{2}$  in. to 5 ft. If the length of the school bus is 4 inches on the scale drawing, what is the actual length of the bus? Explain or show your reasoning.

# desmos

## Unit 7.1, Lesson 8: Cards

A.

Scale:  
1 cm to 70 mi.  
70 mi. 

B.

Scale:  
3 cm to 70 mi.

C.

Scale:  
1 cm to 14 mi.  
14 mi. 

D.

Scale:  
6 cm to 150 mi.

E.

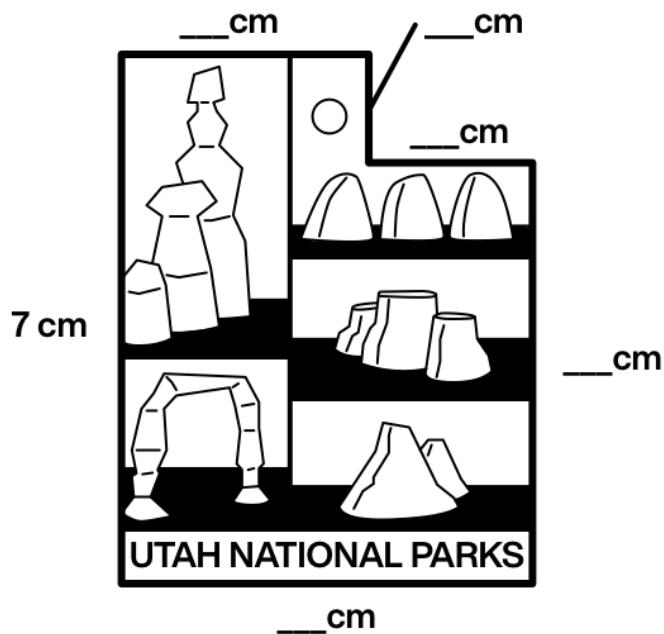
Scale:  
35 mi. 

F.

Scale:  
25 mi. 

## Activity 1: Calculating Scaled Distances

Marco is designing an image to help promote Utah's national parks. His image includes a scale drawing of the state and the five national parks within it.



1. In order to fit the image on the flyer, Marco draws a 7-centimeter line for Utah's western edge. The actual length of Utah's western edge is 350 miles. What scale does Marco use? Explain your thinking.
2. Help Marco complete his scale drawing by determining the rest of the lengths of Utah's outline. Label the lengths on the drawing above.

## Activity 2: Scaling Utah

Marco will print his design on different products (T-shirts, Post-it notes, phone cases, etc.). Work with your group to help Marco create different scale drawings of the outline of the design. You need a ruler and a blank piece of paper for this activity.

1. Select a scale for your scale drawing. Make sure each group member selects a different scale.
  - A. 1 cm to 35 mi.
  - B. 2 cm to 70 mi.
  - C. 1 cm to 70 mi.
  - D. 1 cm to 100 mi.
2. Before you create your drawing, do you think your scale drawing will fit on a phone case? Explain your thinking.
3. On a blank piece of paper, create your own scale drawing of Utah. Include the following:
  - A scale drawing of Utah
  - Labels for each length in the scale drawing
  - A scale for your scale drawing

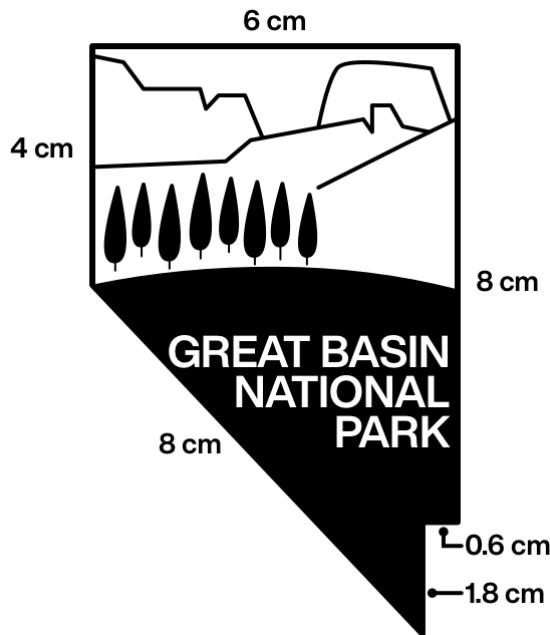
## Activity 2 Synthesis

Compare your scale drawings to other drawings in your group. What do you think will always be the same about scale drawings of the same object? What do you think can be different?

## Activity 3: Scaling Nevada

You need a ruler for this activity.

Marco is making different-sized T-shirts to feature Great Basin National Park in Nevada. His design below is a scale drawing that uses the scale 1 cm to 50 mi.



1. If Marco uses the scale 3 cm to 100 mi., are the distances going to be shorter, longer, or the same size as the distances in the drawing above? Explain your thinking.
2. Create a scale drawing of Nevada using a scale of 3 cm to 100 mi. on the back of this paper.

## Activity 4: Comparing Scales

1. For this activity, you need a set of cards. Each card contains a different scale for printing the design on different T-shirt sizes. Order the scales from the smallest T-shirt size to the largest size. Record your answer below.

**Smallest T-shirt**

**Largest T-shirt**

2. Describe your strategy for ordering the cards.

## Lesson Synthesis

Suppose there are two scale drawings of the same building. Drawing A uses the scale 1 cm to 2 m, and Drawing B uses the scale 1 cm to 4 m.

Which drawing is larger? Explain your thinking.

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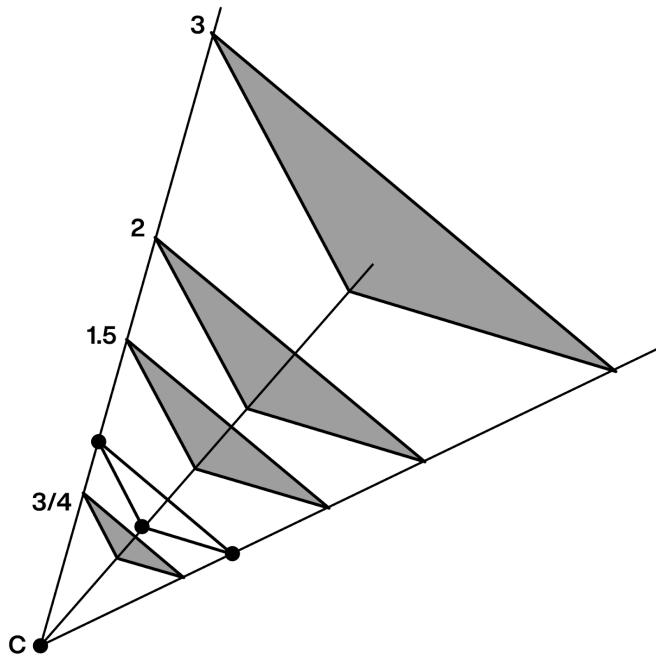
## Cool-Down

You need a ruler for this cool-down.

Aaliyah is making a map of the local park. The park has a rectangular swimming pool that measures 50 meters in length and 25 meters in width.

Make a scale drawing of the swimming pool where 1 centimeter represents 10 meters. Label the side lengths of your scale drawing.

1.



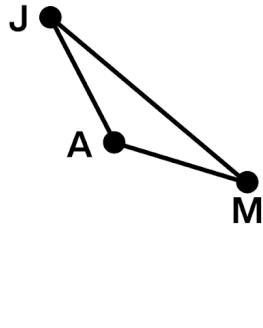
2. *Responses vary.*
  3. *Responses vary.*
  4. *Responses vary.*

The line segments in  $JAM$  look parallel to the line segments in  $J'A'M'$ .

The angles in  $JAM$  look congruent to the angles in  $J'A'M'$ .

**Activity 3: Dilate It!**

1. The triangle  $JAM$  is dilated using  $C$  as the center of dilation with a scale factor of 2.  
Use your geometry tools to create the triangle you saw animated on Screen 9 below.



2. Choose at least one more scale factor. Circle the one(s) you choose.

3

1.5

 $\frac{3}{4}$ 

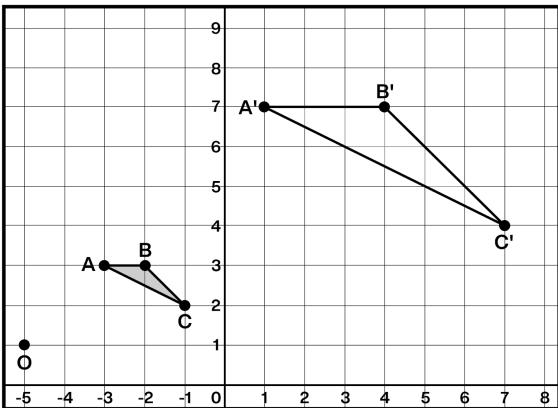
Other: \_\_\_\_\_

3. On the same diagram, dilate triangle  $JAM$  using center  $C$  and each scale factor you chose.
4. List everything that appears to be the same for **all** of the triangles you see.

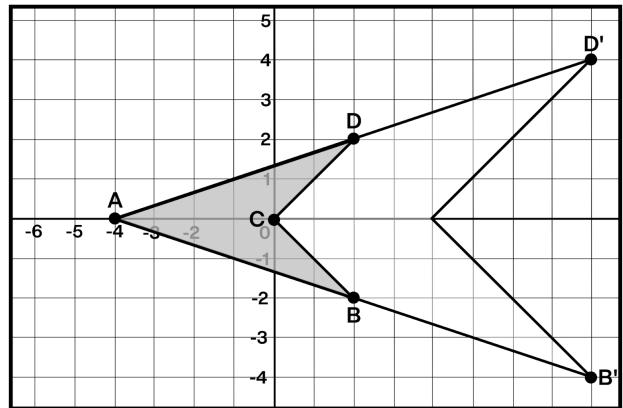
# desmos

## Unit 8.2, Lesson 4: Dilation Cards

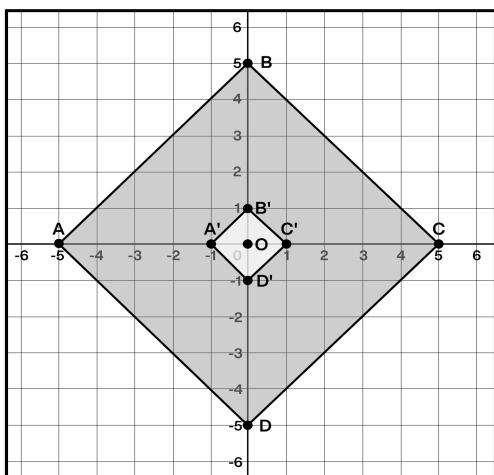
Card 1



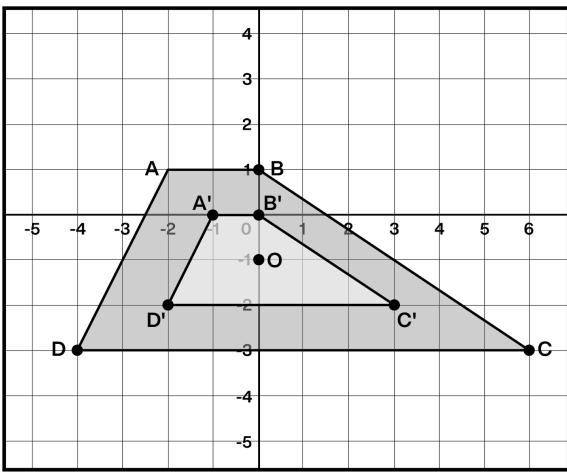
Card 2



Card 3



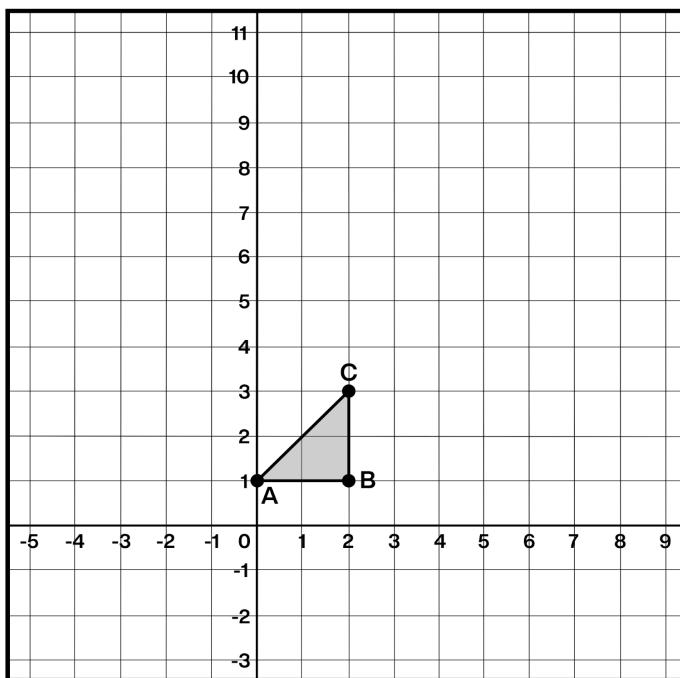
Card 4



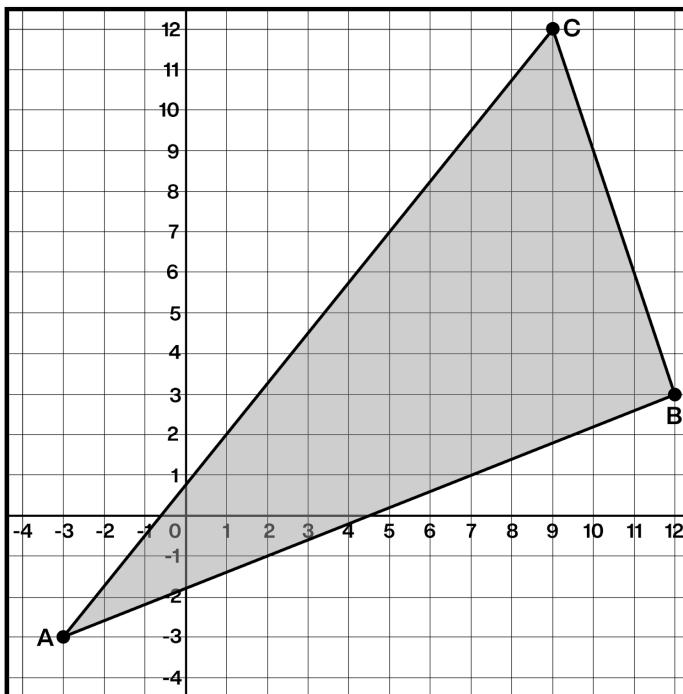
**Activity 1: Dilate It!**

Use whatever tools you'd like to carry out the dilations specified.

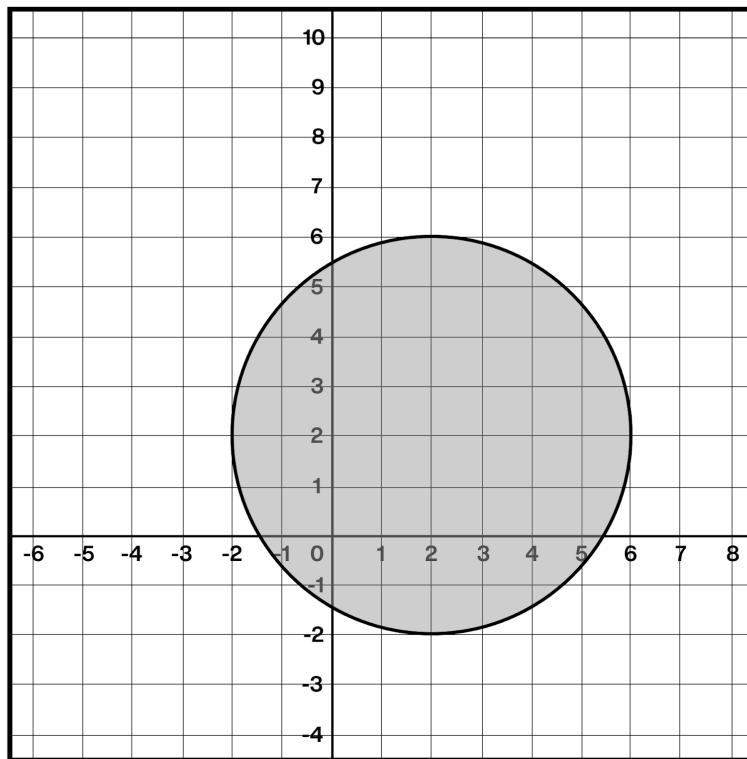
- Dilate this triangle with vertices  $(0, 1)$ ,  $(2, 1)$ , and  $(2, 3)$  using center  $(-4, -2)$  and a scale factor of  $2$ .



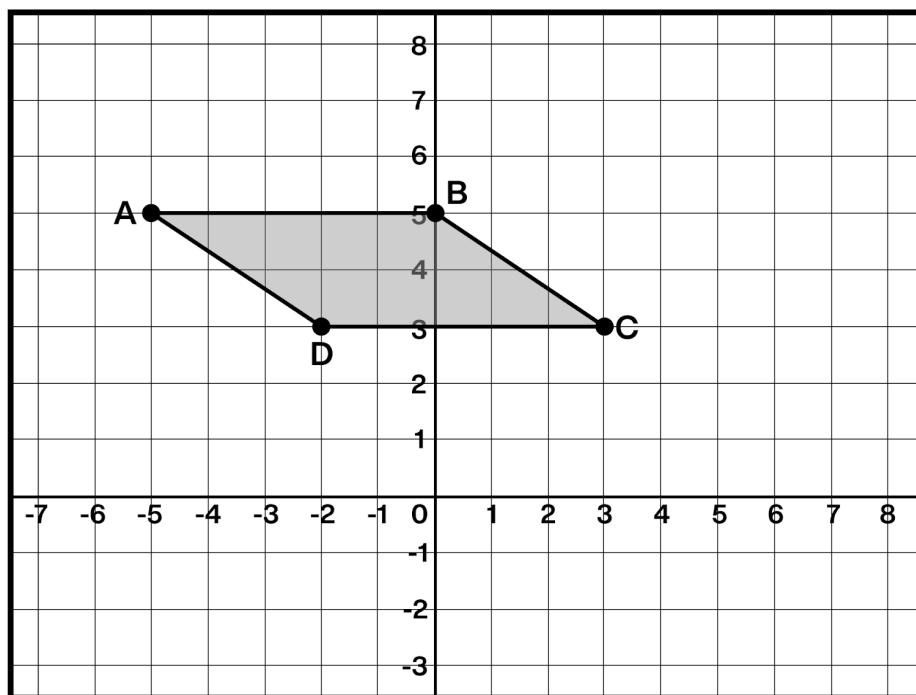
- Dilate this triangle with vertices  $(-3, -3)$ ,  $(12, 3)$ , and  $(9, 12)$  using center  $(0, 0)$  and a scale factor of  $\frac{1}{3}$ .



3. Dilate this circle with radius 4 using center  $(2, 2)$  and a scale factor of  $\frac{3}{4}$ .



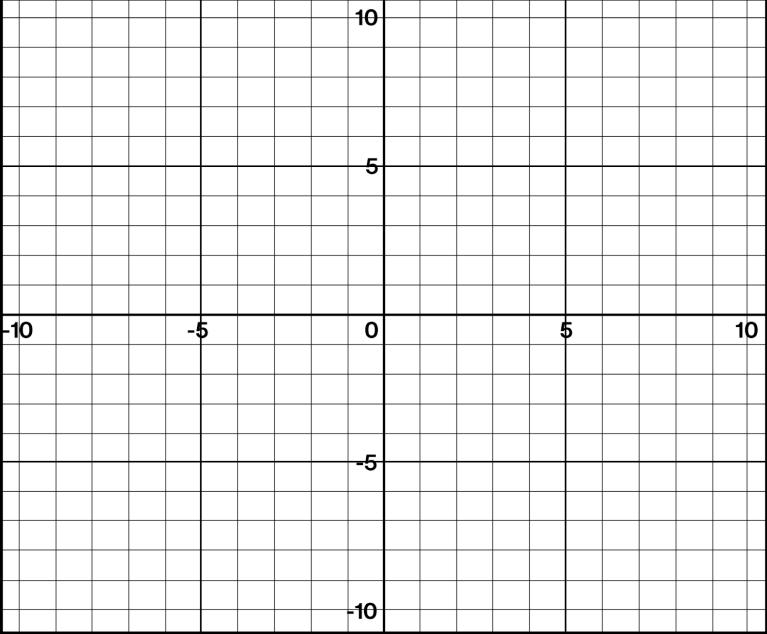
4. Dilate this parallelogram with vertices at  $(-5, 5)$ ,  $(0, 5)$ ,  $(3, 3)$ , and  $(-2, 3)$  using center  $(-5, 5)$  and a scale factor of  $\frac{1}{2}$ .



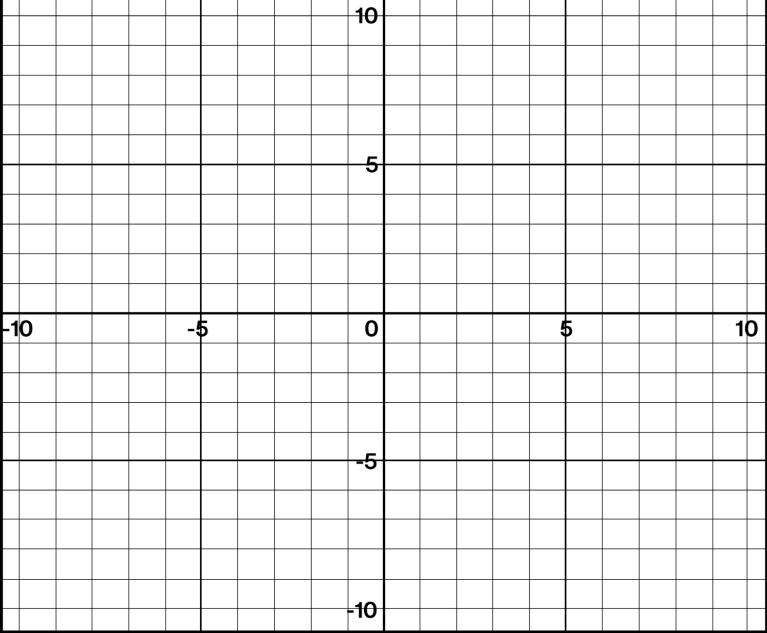
**Activity 2: Make My Dilation**

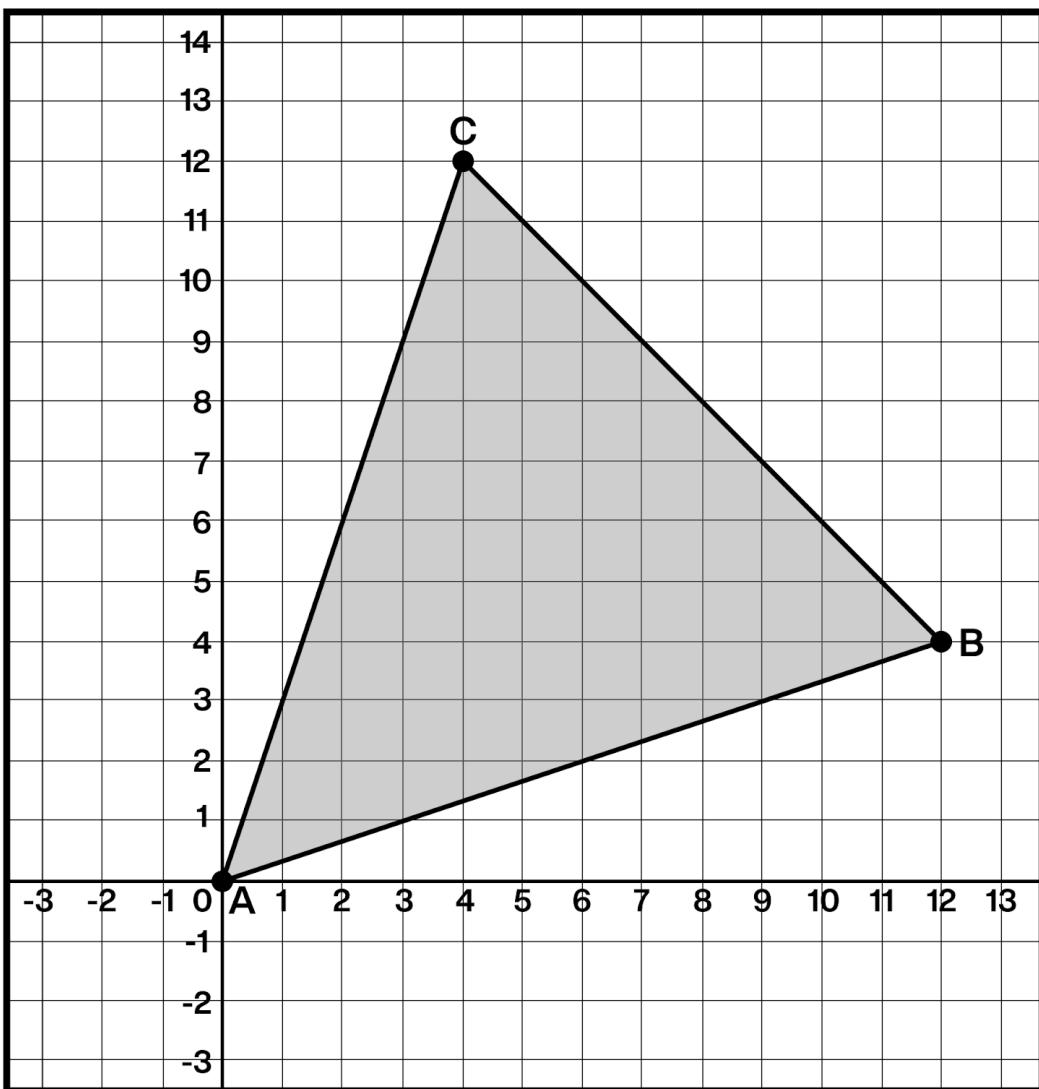
Your partner will describe a figure after a certain transformation. Sketch it here. You can only sketch (no speaking).

1.

Card:	Center:	Scale Factor:
		

2.

Card:	Center:	Scale Factor:
		

**Are You Ready for More?**Here is triangle  $ABC$ .

- Dilate triangle  $ABC$  using center  $(0, 0)$  and a scale factor of  $\frac{3}{4}$ . Label the vertices  $A'B'C'$ .
- Dilate triangle  $ABC$  using center  $(12, 4)$  and a scale factor of  $\frac{1}{4}$ . Label the vertices  $A''B''C''$ .
- Explain why  $A''$  and  $B'$  must be at the same coordinates.

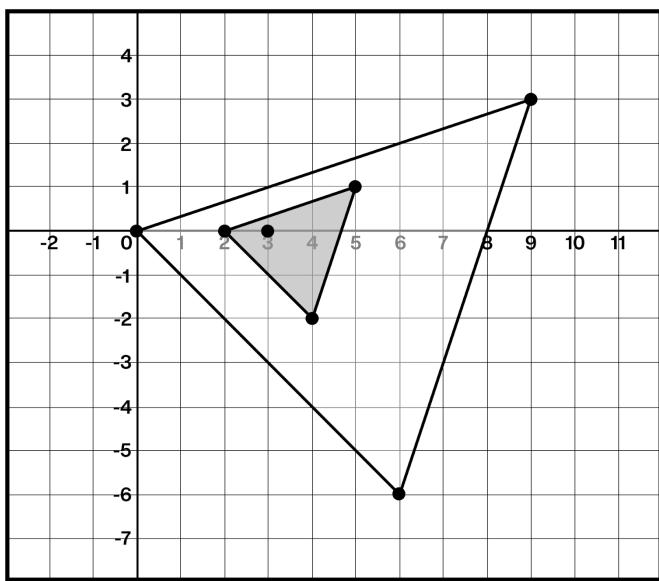
## Lesson Synthesis

How are coordinates useful when describing and drawing dilations?

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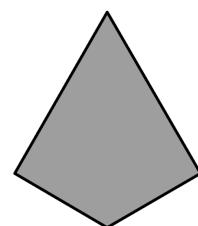
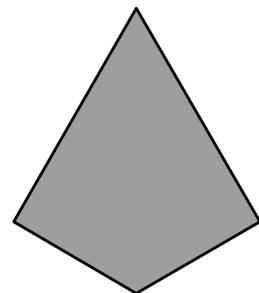
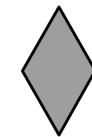
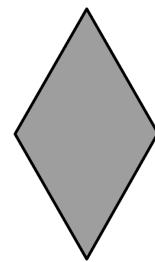
### Cool-Down

The smaller triangle is dilated to create the larger triangle. The center of dilation is plotted but not labeled.

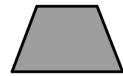
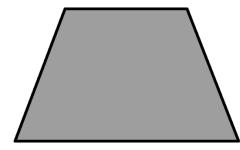
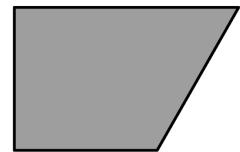


Describe this dilation. Be sure to include all of the information someone would need to perform the dilation.

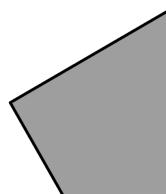
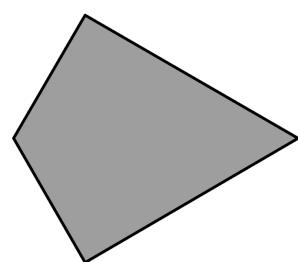
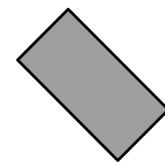
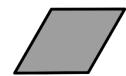
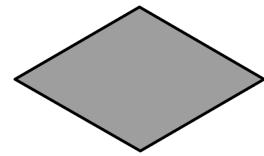
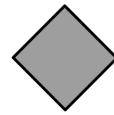
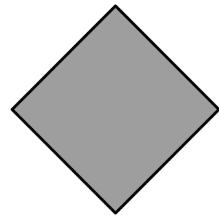
Cards 1–8



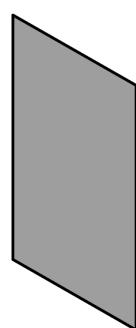
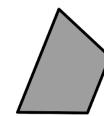
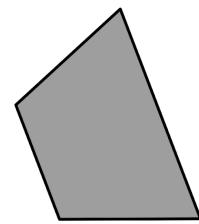
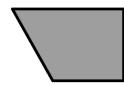
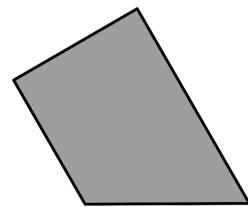
Cards 9–16



Cards 17–24

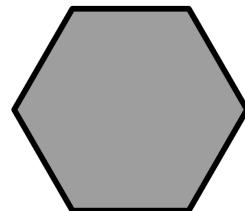
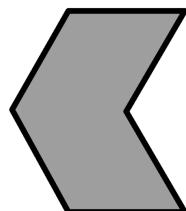
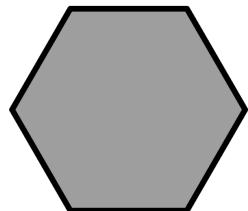
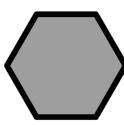
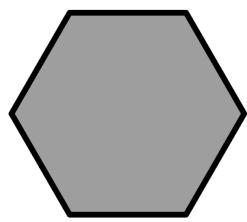
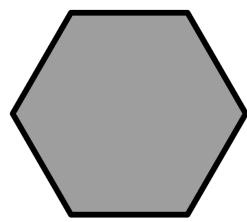
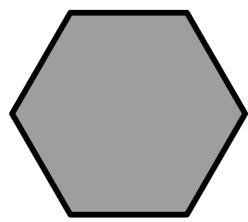


Cards 25–32



**Warm-Up**

Which one doesn't belong?





## Unit 8.2, Lesson 6: Worksheet

Name(s) \_\_\_\_\_

### Social Scavenger Hunt

Your teacher will give you instructions for how to find a partner in each round. Once you have a partner, look carefully at your figures and answer the four questions.

To compare side lengths and angle measures, use whatever tools would be helpful. That may include using a ruler or a protractor, or holding two figures on top of one another to compare directly.

#### Round 1

Questions	Yes	No
Are corresponding sides congruent?		
Are corresponding angles congruent?		
Are the figures similar?		
Are the figures congruent?		

#### Round 2

Questions	Yes	No
Are corresponding sides congruent?		
Are corresponding angles congruent?		
Are the figures similar?		
Are the figures congruent?		

#### Round 3

Questions	Yes	No
Are corresponding sides congruent?		
Are corresponding angles congruent?		
Are the figures similar?		
Are the figures congruent?		

#### Round 4

Questions	Yes	No
Are corresponding sides congruent?		
Are corresponding angles congruent?		
Are the figures similar?		
Are the figures congruent?		

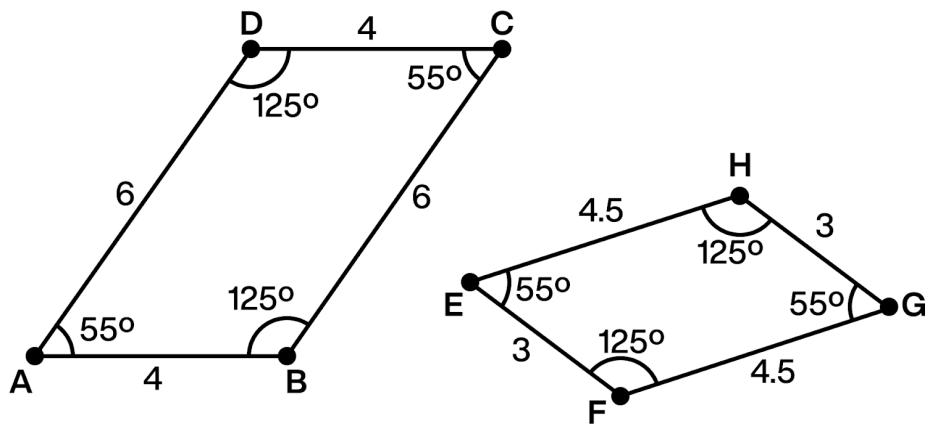
**Lesson Synthesis**

Are the following statements **always** true, **sometimes** true, or **never** true?

Statements	Always	Sometimes	Never
1. If two figures are congruent, then they are similar.			
2. If two figures are similar, then they are congruent.			
3. If two figures have congruent corresponding angles, then the figures are similar.			
4. If two figures have congruent corresponding angles and a common scale factor between corresponding sides, then the figures are similar.			

**Cool-Down**

Is  $ABCD$  similar to  $EFGH$ ? Explain how you know.



**Activity 1: Step by Step by Step by Step**

Here is an equation and all the steps Sadia wrote to solve it:

$$12x + 3 = 3(5x + 9)$$

$$3(4x + 1) = 3(5x + 9)$$

$$4x + 1 = 5x + 9$$

$$1 = x + 9$$

$$-8 = x$$

Here is the same equation and all the steps Amir wrote to solve it:

$$12x + 3 = 3(5x + 9)$$

$$12x + 3 = 15x + 27$$

$$12x = 15x + 24$$

$$-3x = 24$$

$$x = -8$$

1. Are both of their solutions correct? Explain your reasoning.
  
  
  
  
  
  
2. Describe some ways the steps they took are alike and different.
  
  
  
  
  
  
3. Caleb and Roberto also solved the equation, but they made some errors. Find an incorrect step in each solution and explain why it is incorrect.

**Caleb:**

$$12x + 3 = 3(5x + 9)$$

$$7x + 3 = 3(9)$$

$$7x + 3 = 27$$

$$7x = 24$$

$$x = \frac{24}{7}$$

**Roberto:**

$$12x + 3 = 3(5x + 9)$$

$$12x + 3 = 15x + 27$$

$$27x + 3 = 27$$

$$27x = 24$$

$$x = \frac{24}{27}$$

**Activity 2: Make Your Own Steps**

Solve these equations for  $x$ .

1.  $\frac{12+6x}{3} = -2$

2.  $x - 4 = \frac{1}{3}(6x - 54)$

3.  $-3x + 12 = 9x - 4$

**Are You Ready for More?**

I have 24 pencils and 3 cups. The second cup holds one more pencil than the first cup. The third cup holds one more pencil than the second cup. How many pencils does each cup contain?

## Lesson Synthesis

Consider the equation  $2x - 6 = 4 - 8x$ . There are several ways to solve this equation. What are some different first steps that you could use to solve this equation? Explain your thinking.

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## Cool-Down

Nyanna solved the equation  $8(x - 3) + 7 = 2x(4 - 17)$  incorrectly.

**Nyanna's solution:**

$$8(x - 3) + 7 = 2x(4 - 17)$$

$$8(x - 3) + 7 = 2x(13)$$

$$8x - 24 + 7 = 26x$$

$$8x - 17 = 26x$$

$$-17 = 34x$$

$$-\frac{1}{2} = x$$

- Find an error in her solution.

- Find the correct solution to the equation.



**Unit 8.4, Lesson 5: Equation Roundtable**

Name(s) \_\_\_\_\_

## **Activity 1: Roundtable**

Your teacher will give you an equation.

Write **one step** towards solving the equation. When everyone is ready, pass your sheet and get a classmate's sheet. Check the work and write one more step towards solving the equation. Repeat.

1.

2.



**Unit 8.4, Lesson 5: Equation Roundtable**

Name(s) \_\_\_\_\_

3.

4.

**Unit 8.4, Lesson 5: Equation Roundtable**

Name(s) \_\_\_\_\_

**Lesson Synthesis**

Solve this equation in two different ways:

$$5(2x - 3) - 10 = 15x - 10$$

Solution 1	Solution 2
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**Cool-Down**Melanie and Kala each started solving equation 2 for  $x$ .

$$\frac{1}{2}(7x - 6) = 6x - 10$$

The result of Melanie's first step was: $3.5x - 6 = 6x - 10$	The result of Kala's first step was: $7x - 6 = 12x - 20$
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One of them made an error. Who was it, and what was the error?

A.	E.
$2(2q + 1.5) = 18 - q$	$-\frac{1}{2}(t + 3) - 10 = -6.5$
B.	F.
$\frac{10-v}{4} = 2(v + 17)$	$2r + 49 = -8(-r - 5)$
C.	G.
$\frac{n}{7} - 12 = 5n + 5$	$3(c - 1) + 2(3c + 1) = -(3c + 1)$
D.	H.
$\frac{4m - 16}{4} = -\frac{8 + 4m}{8}$	$p - 5(p + 4) = p - (8 - p)$



## Activity 1: Predicting Solutions

Without solving, identify whether each equation has a solution that is positive, negative, or zero.

A. $7x = 3.25$	B. $7x = 32.5$	C. $\frac{x}{6} = \frac{3x}{4}$	D. $-8 + 5x = -20$
E. $9 - 4x = 4$	F. $3x + 11 = 11$	G. $-\frac{1}{2}(-8 + 5x) = -20$	

Select one problem and explain how you decided if the solution was positive, negative, or zero.

## Activity 2: Least and Most Difficult

Your teacher will give you a set of equations. Look through the equations, and without solving, find three equations that you think would be the least difficult to solve and three equations that you think would be the most difficult to solve. Write the letter of each of the equations below.

Least Difficult Cards	Most Difficult Cards

Explain how you decided which equations would be the least difficult to solve.

**Unit 8.4, Lesson 6: Strategic Solving**

Name(s) \_\_\_\_\_

**Activity 3: Solve 'em**

Look through the equations and choose three to solve. At least one should be from your "least difficult" list and one should be from your "most difficult" list.




## Lesson Synthesis

1. Write an equation that you would consider difficult to solve.
  2. What makes your equation difficult to solve?
  3. What are some strategies that we know for solving equations that have this feature?

# Cool-Down

1. Without solving, identify whether this equation has a solution that is positive, negative, or zero:

$$3x - 5 = -3$$

2. Solve the equation:

$$x - 5(x - 1) = x - (2x - 3)$$