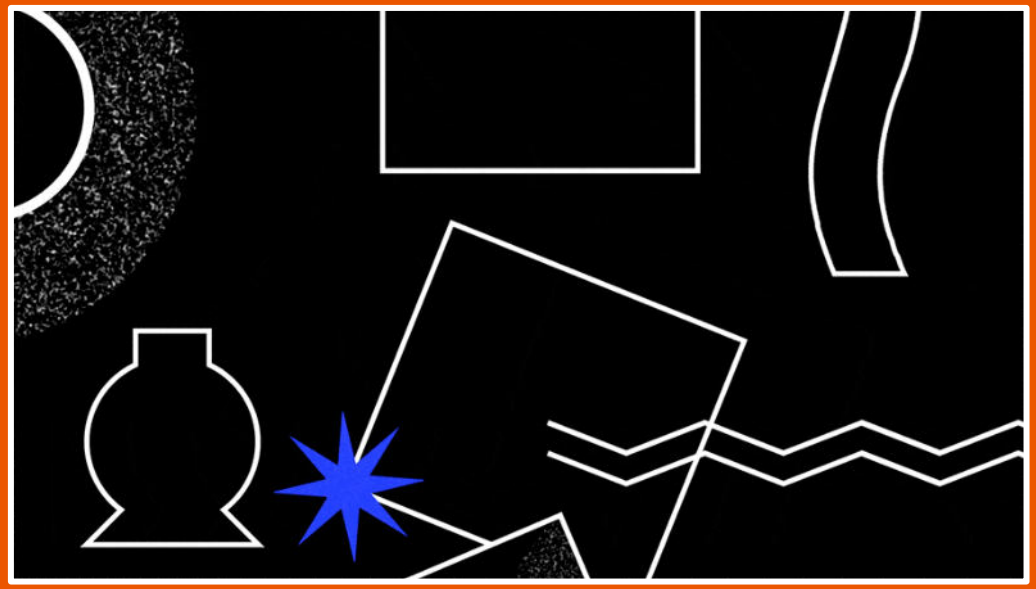
What Is the Same?

Lesson 11

CCSS Standards: Addressing	• 8.G.A.1 • 8.G.A.2
CCSS Standards: Building towards	• 8.G.A.2

Let’s decide whether shapes are the same!

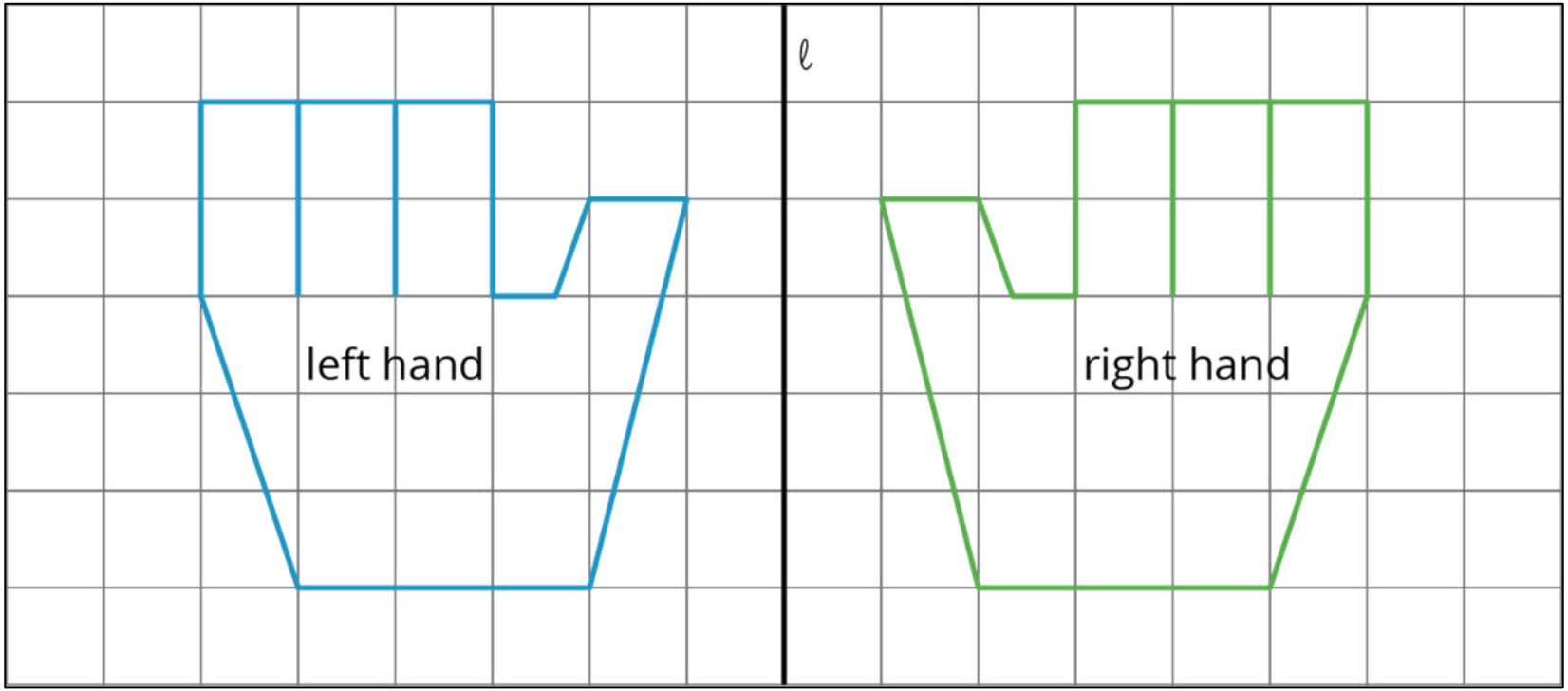


Find the Right Hands

Warm Up 11.1

Hold out your hands in front of you.
Our hands are mirror images of each other!

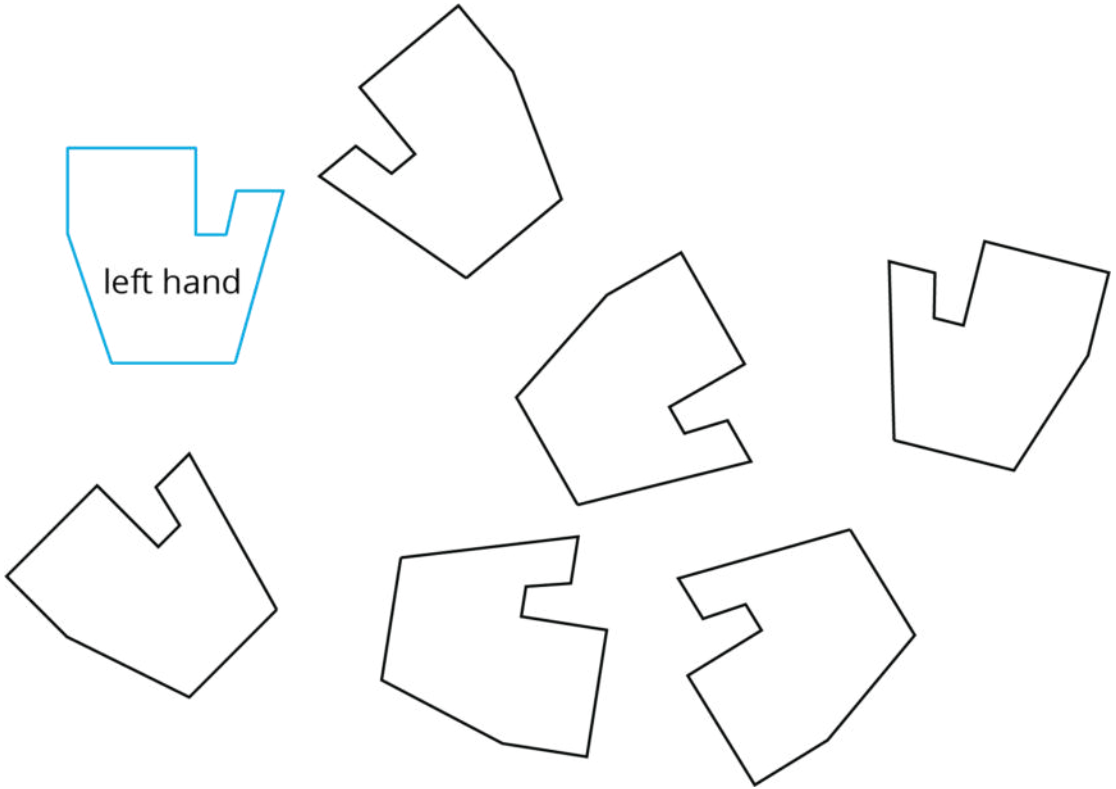
These are hands shown from the back, like all of the hands in this task.



A person's hands are mirror images of each other. In the diagram, a left hand is labeled. Shade all of the right hands.

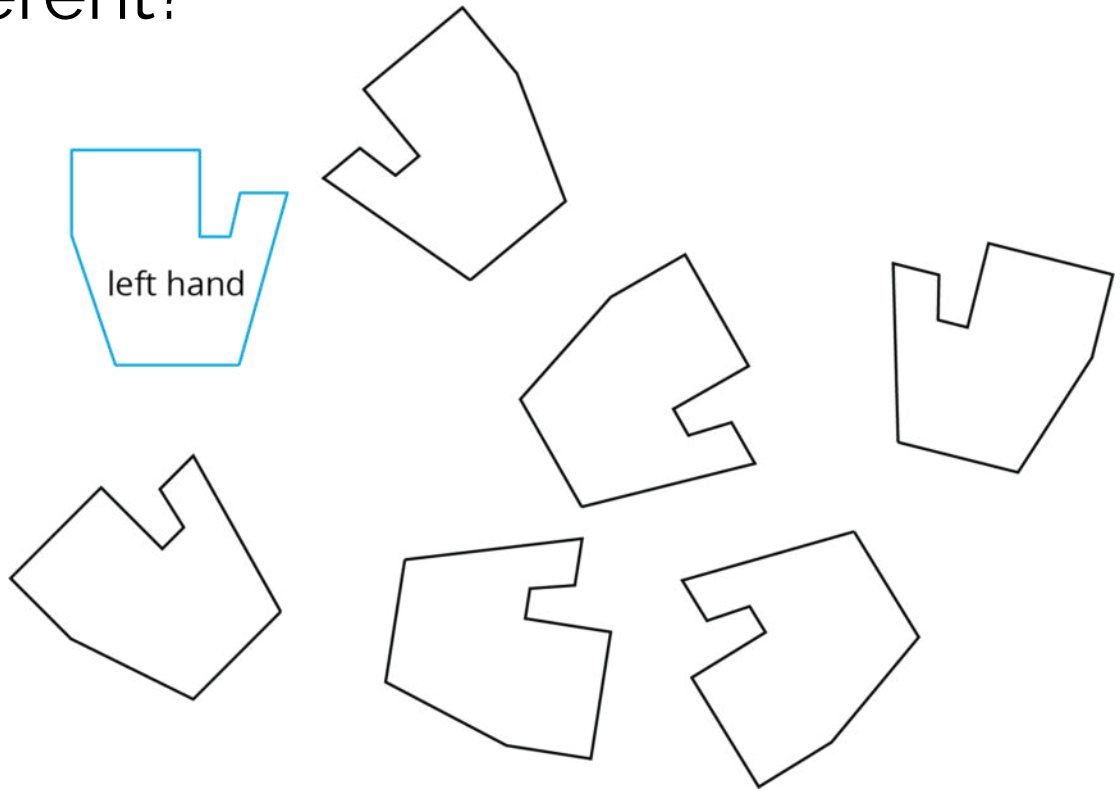
Begin working with Quiet Work Time.

(2 min)



How are the left and right hands the same?

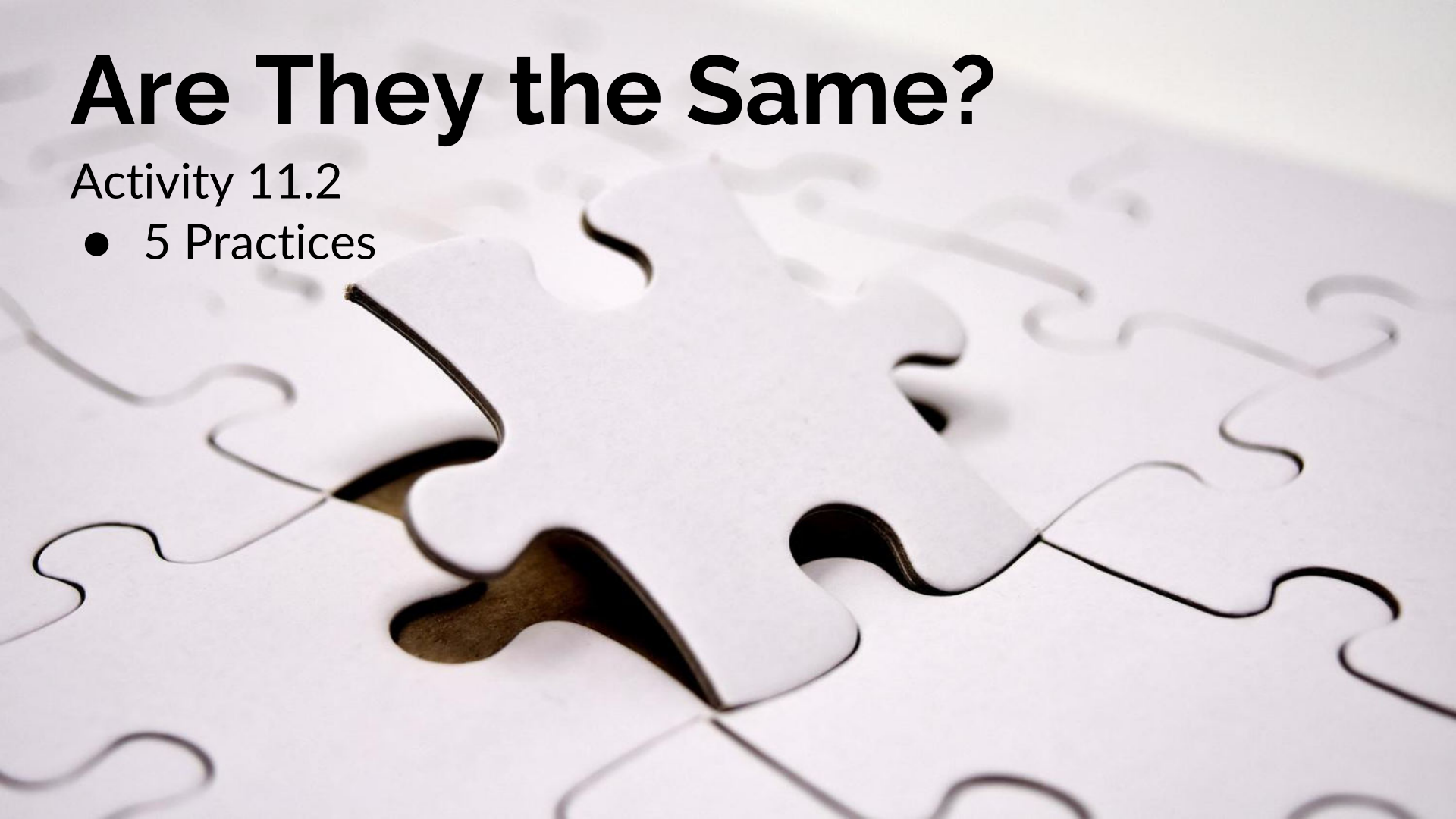
How are they different?



Are They the Same?

Activity 11.2

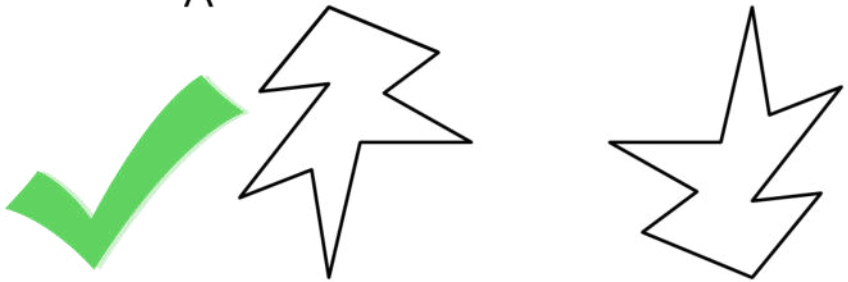
- 5 Practices



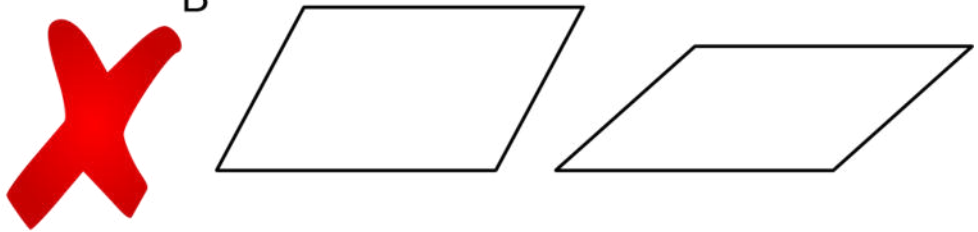
Begin with Quiet Work Time.

(5 min)

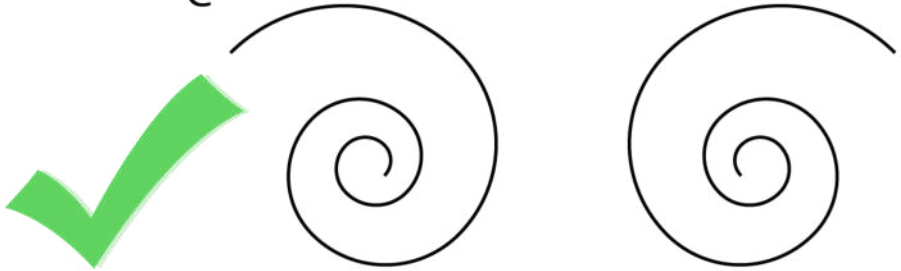
A



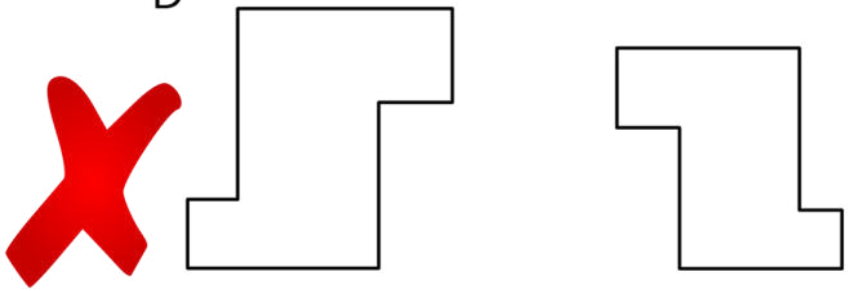
B



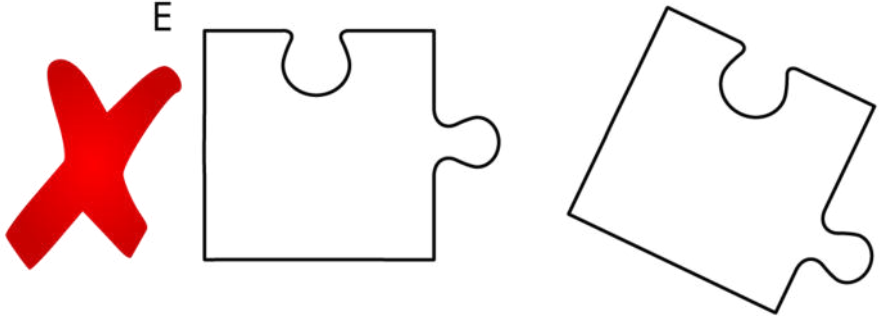
C



D



E



Why might someone conclude that the pair of figures in C were not the same?

C

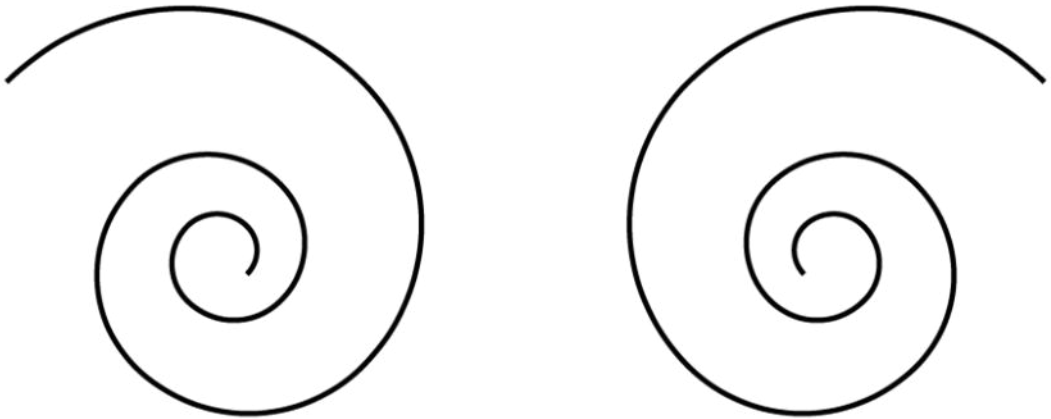
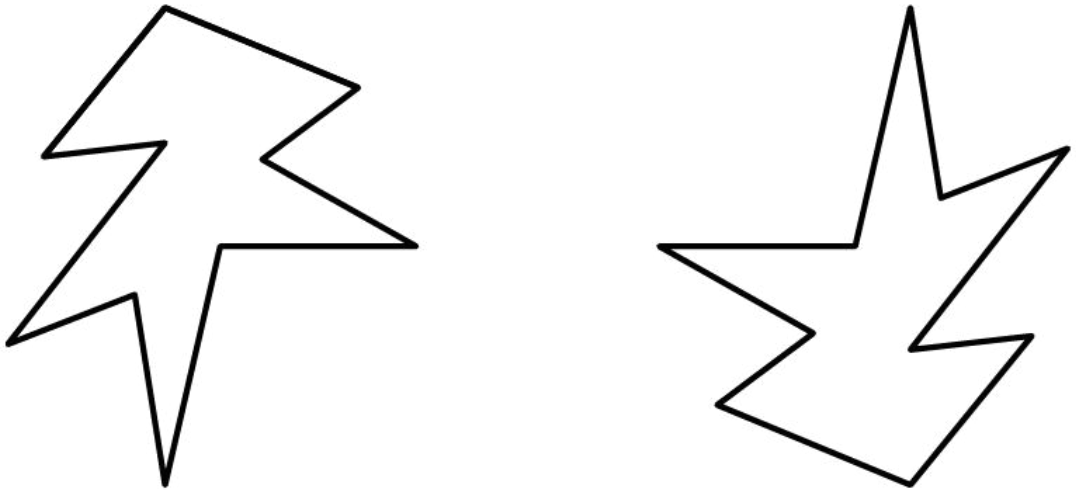


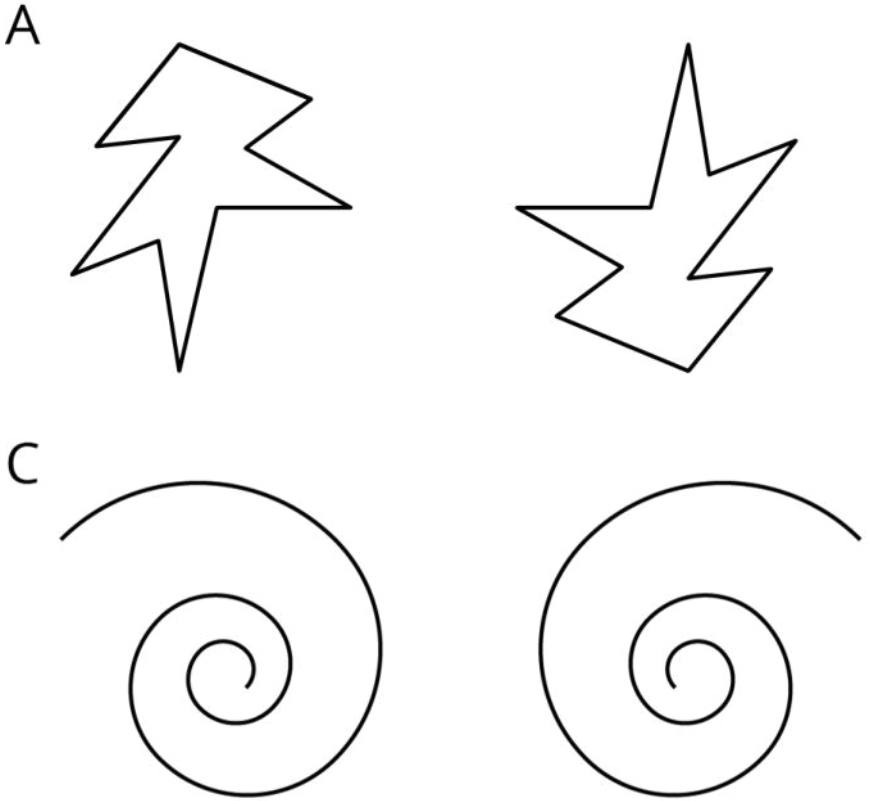
Figure A is congruent to Figure B if there is a sequence of translations, rotations, and reflections which make Figure A match up exactly with Figure B.

A



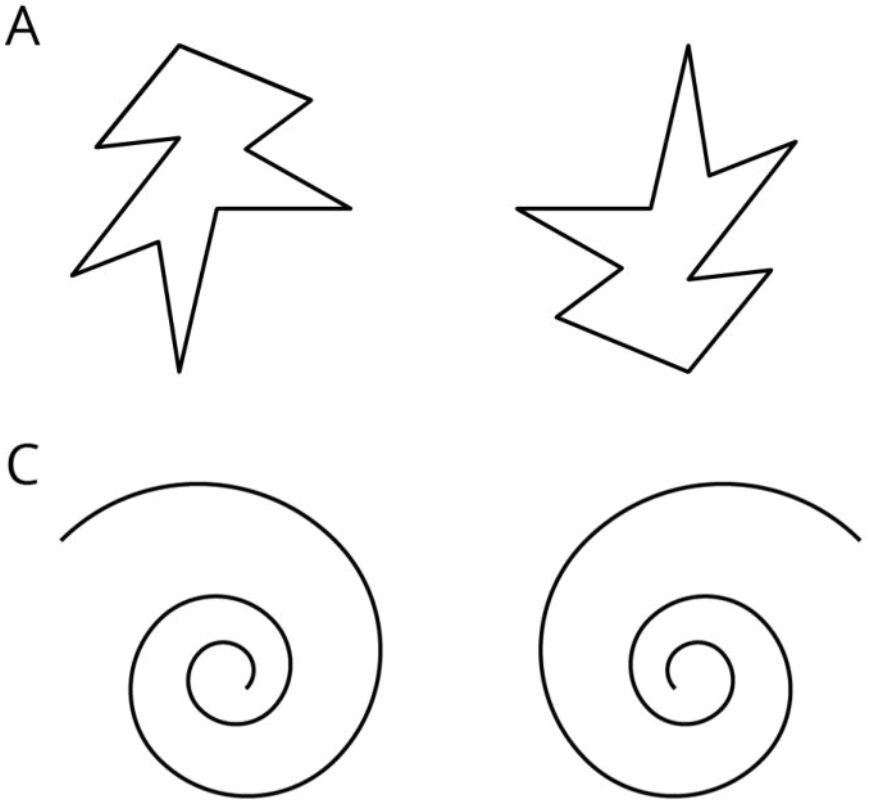
Congruent figures include...

- corresponding sides that are congruent.
- corresponding angles that are congruent.
- areas that are equal.



Congruent figures may not include...

- the same location.
- the same orientation.



Area, Perimeter, and Congruence

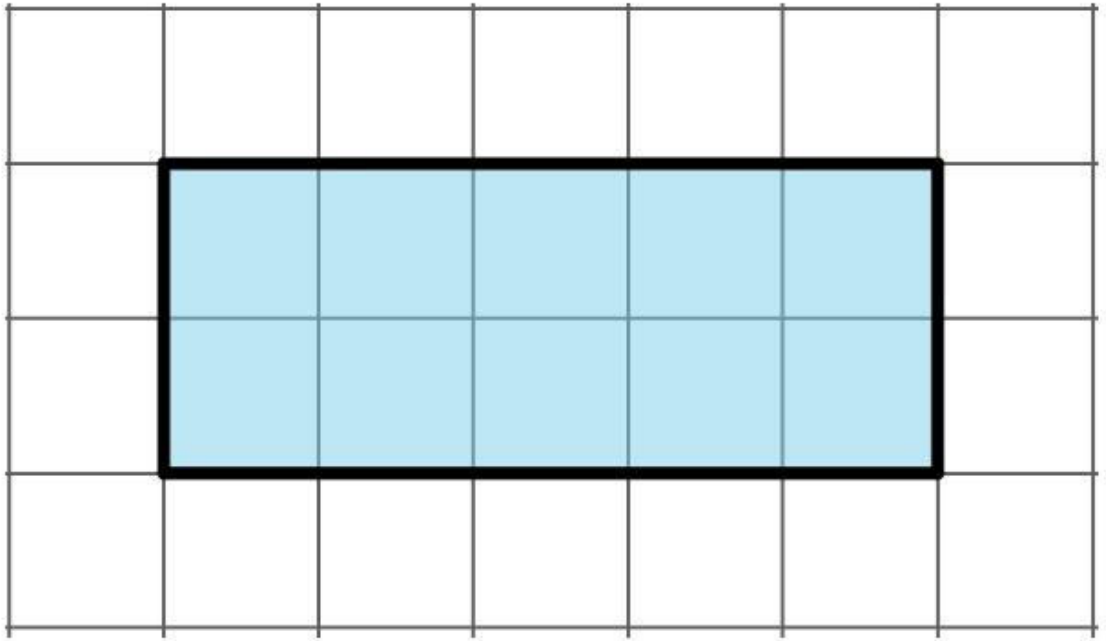
Activity 11.3

- Think Pair Share

In this activity...

you will investigate further how finding the area and perimeter of a shape can help show that two figures are not congruent.

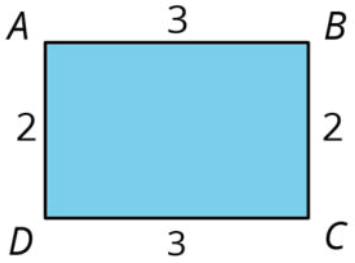
What is perimeter?
How can you find the perimeter and area of this rectangle?



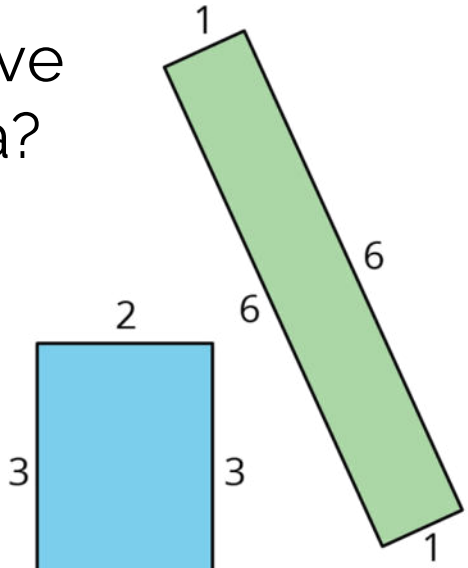
Begin working with Quiet Work Time. (2 min)

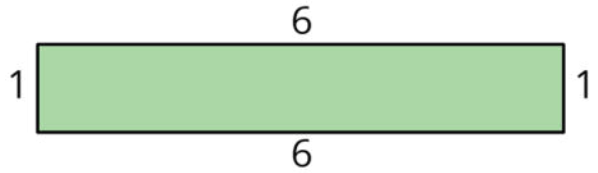
Share your thinking as a team!

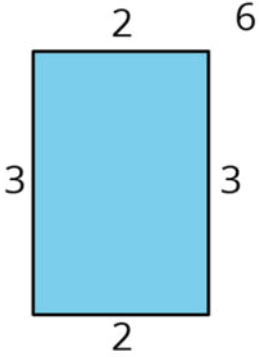
Do congruent rectangles have the same perimeter? Explain your reasoning.

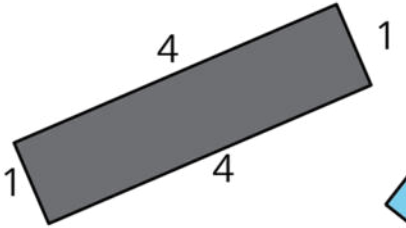


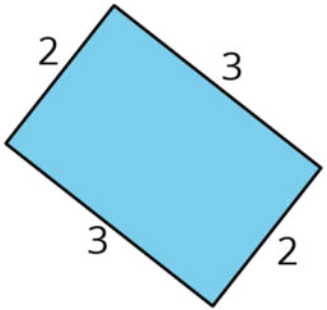
Do congruent rectangles have the same area? Explain your reasoning.

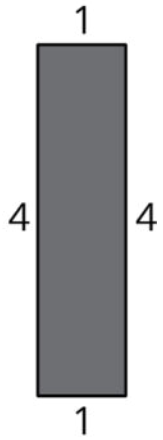






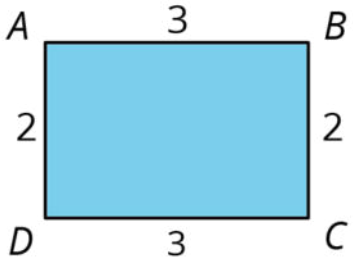


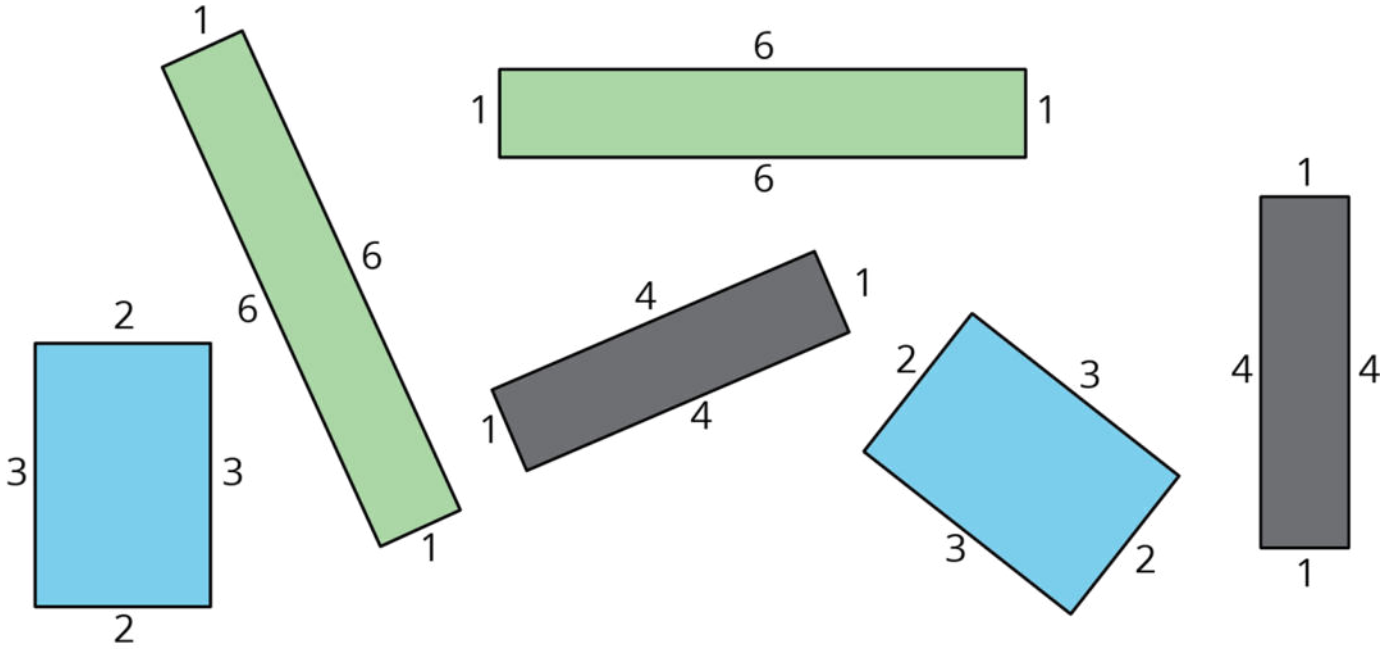




Are rectangles with the same perimeter always congruent?

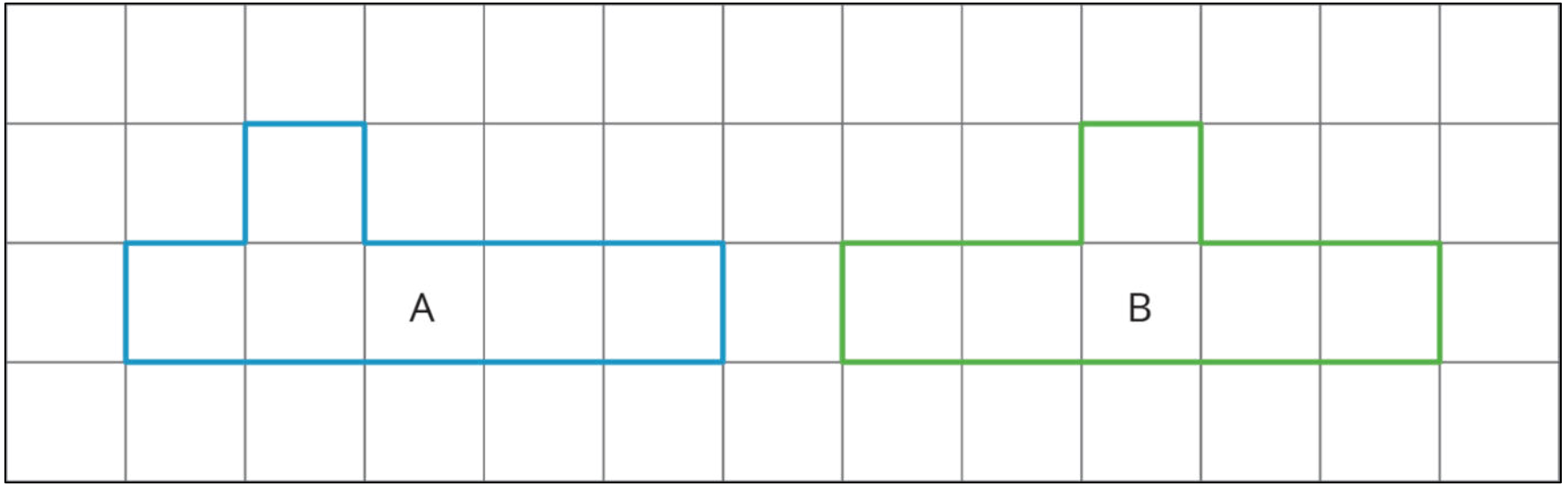
Are rectangles with the same area always congruent?





Measuring perimeter and area is a good method to show that two shapes are *not* congruent if these measurements differ.

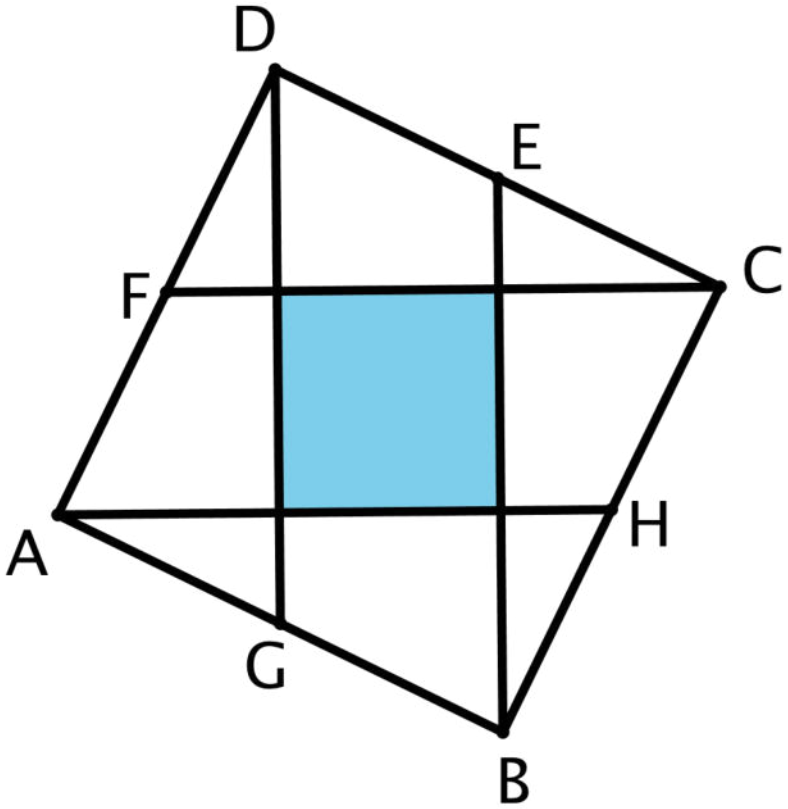
When the measurements are the same, more work is needed to decide whether or not two shapes are congruent.



“Are you ready for more?”

In square *ABCD*, points *E*, *F*, *G*, and *H* are midpoints of their respective sides.

What fraction of square *ABCD* is shaded?
Explain your reasoning.



In your own words,
define **congruent.**

Two shapes are congruent when there is a sequence of translations, rotations, and reflections that take one shape to the other.

How can you check if two shapes are **congruent**?

- For rectangles, the side lengths are enough to tell.
- For more complex shapes, experimenting with transformations is necessary.

Are a shape and its mirror image **congruent**?

Yes, because a reflection takes a shape to its mirror image.

What are some ways to know that two shapes are **not congruent**?

Two shapes are not congruent if they have different areas, side lengths, or angles.

What are some properties that are shared by **congruent** shapes?

They have the same number of sides, same length sides, same angles, same area.

Today's Goal

❑ I can decide visually whether or not two figures are congruent.

Mirror Images

Cool Down 11.4