Grid Moves

Lesson 3

CCSS Standards: Addressing
- 8.G.A.1
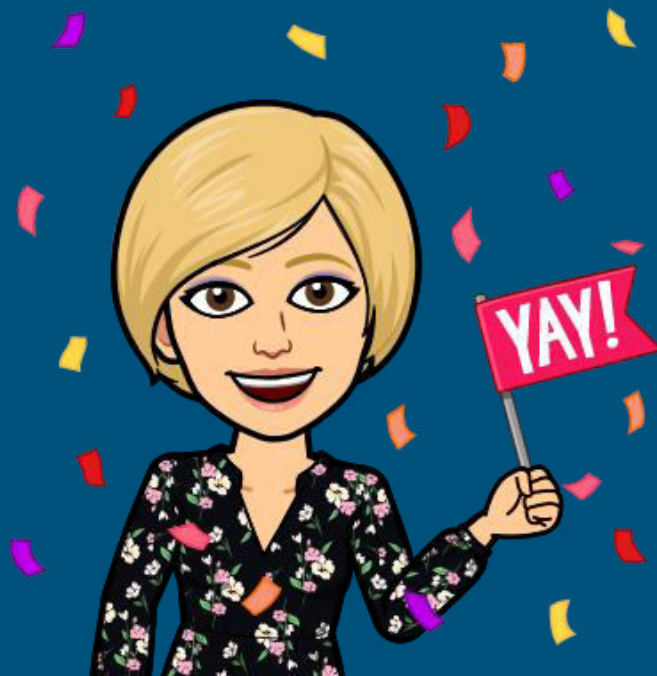
Let's **transform** some figures on grids.
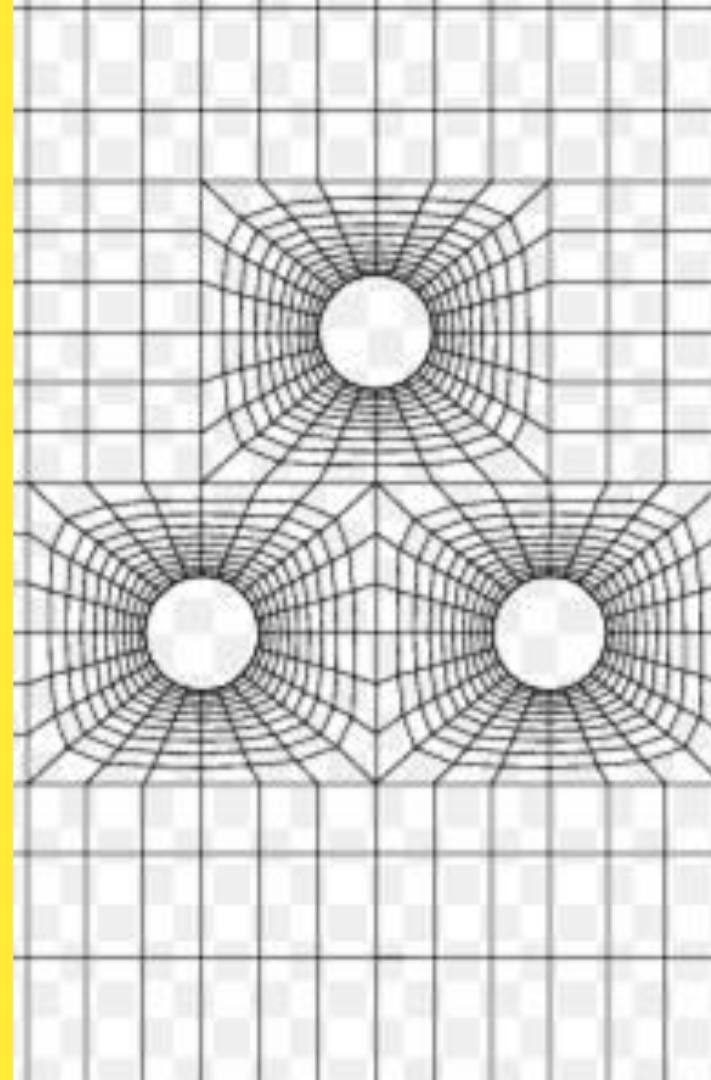
Today's Goals

❑ I can use grids to carry out transformations of figures.

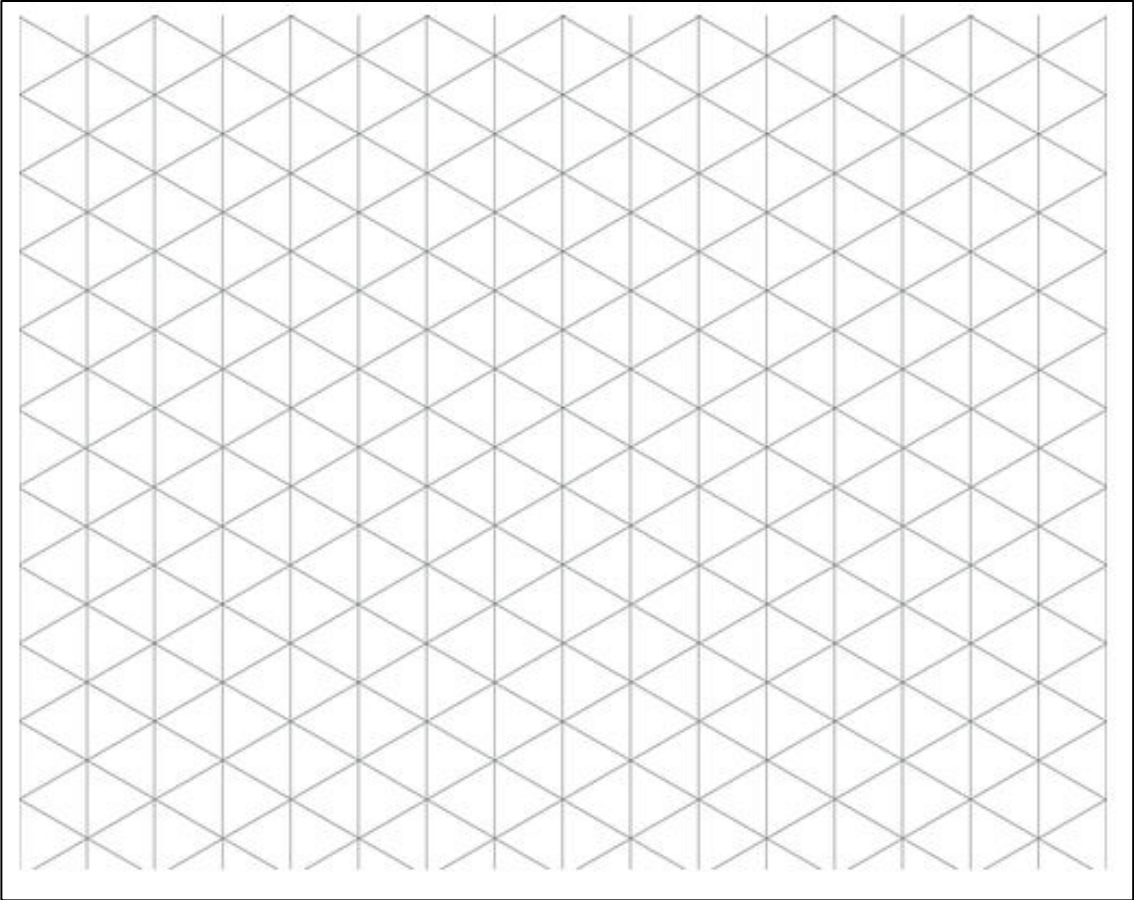❑ I can decide which type of transformations will work to move one figure to another.
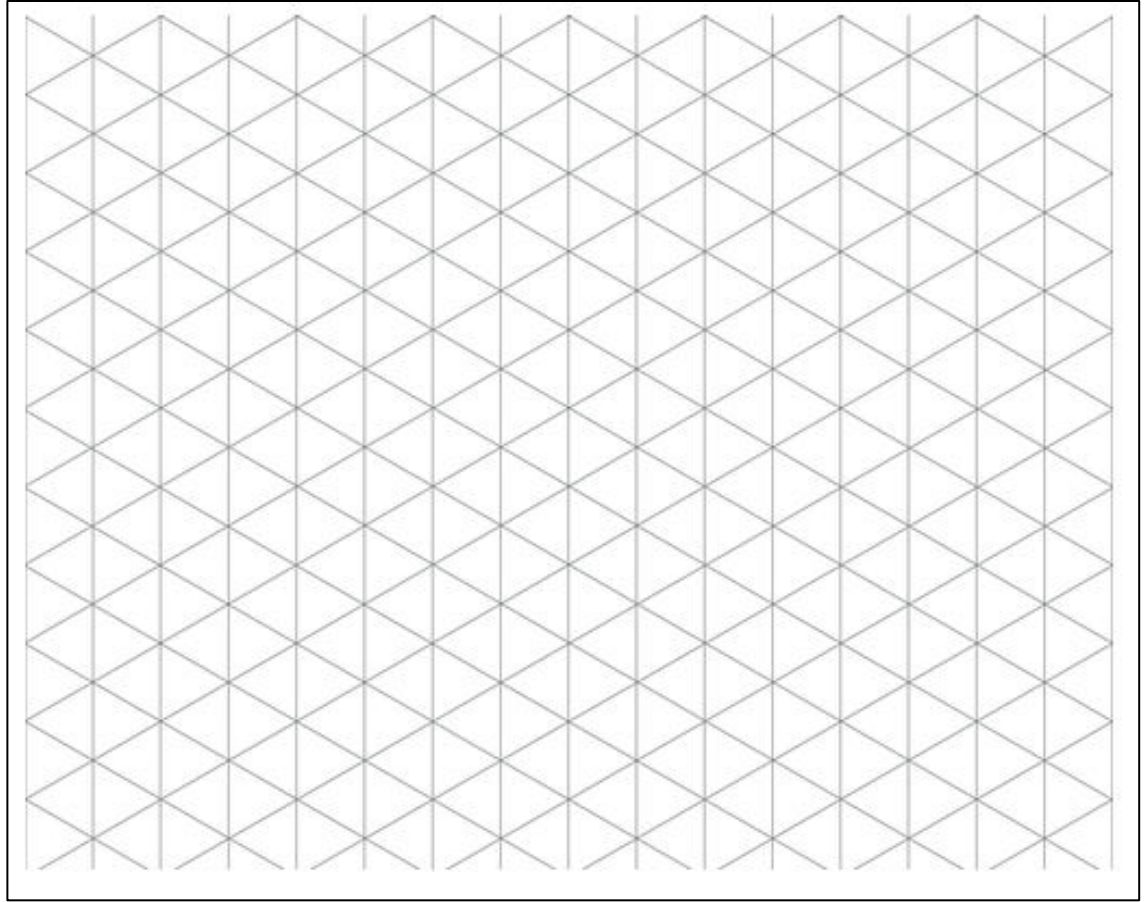
Notice & Wonder: **The Isometric Grid**

Warm Up 3.1

What do you notice?
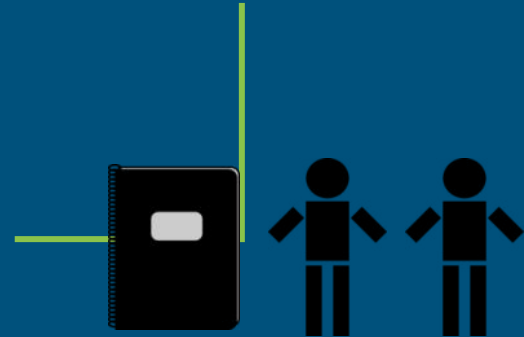**What do you wonder?**

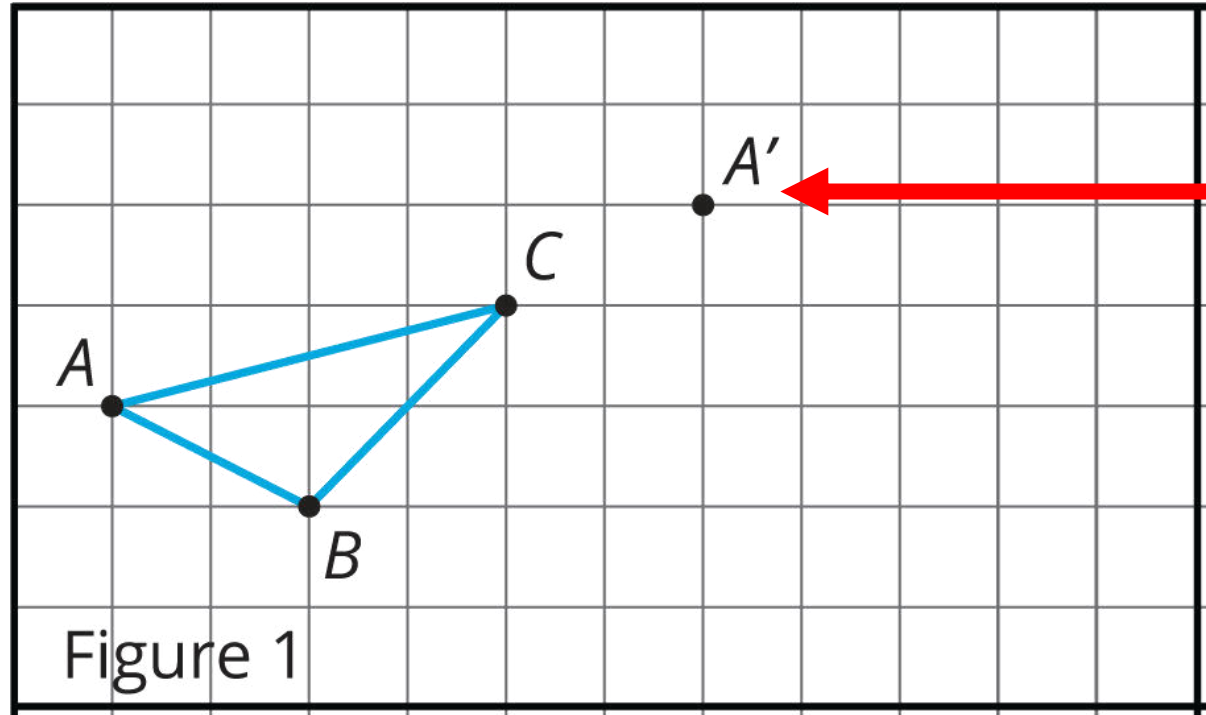**How could you figure out the measure of each angle?**

Transformation Information

Activity 3.2

We call point *A′*, "**A prime**."

After a transformation, it corresponds to A in the original figure.

Figure 1

Figure 1

Figure 2
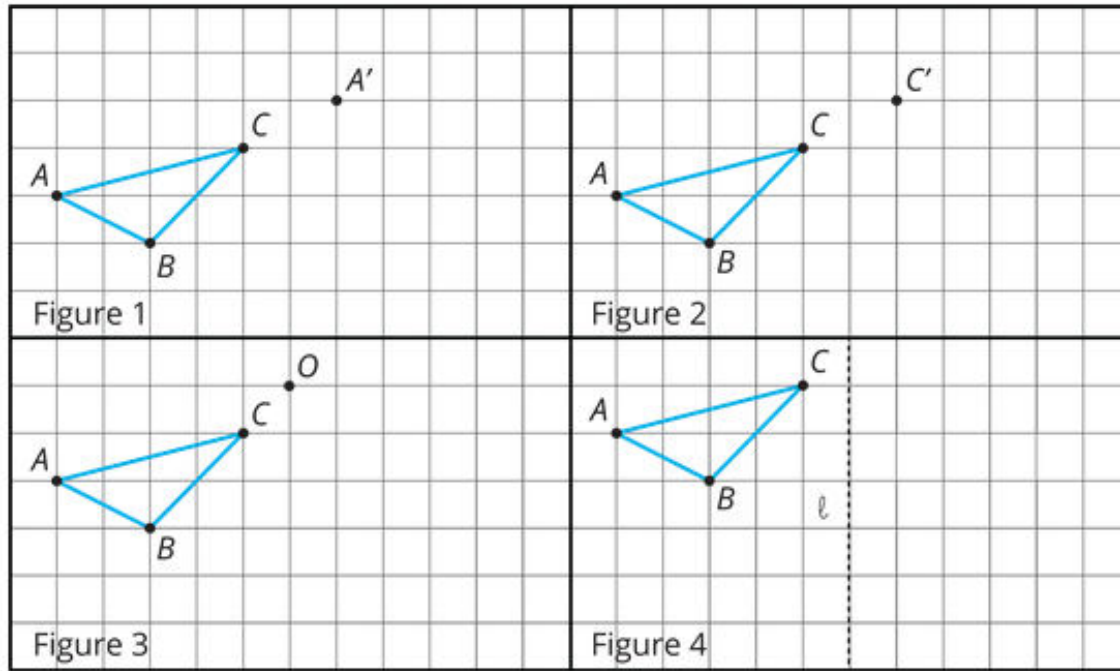
Figure 3

Figure 4

1. In Figure 1, translate triangle ABC so that A goes to A′.

2. In Figure 2, translate triangle ABC so that C goes to C′.

3. In Figure 3, rotate triangle ABC 90∘ counterclockwise using center O.

4. In Figure 4, reflect triangle ABC using line ℓ.

Figure 5

Figure 6
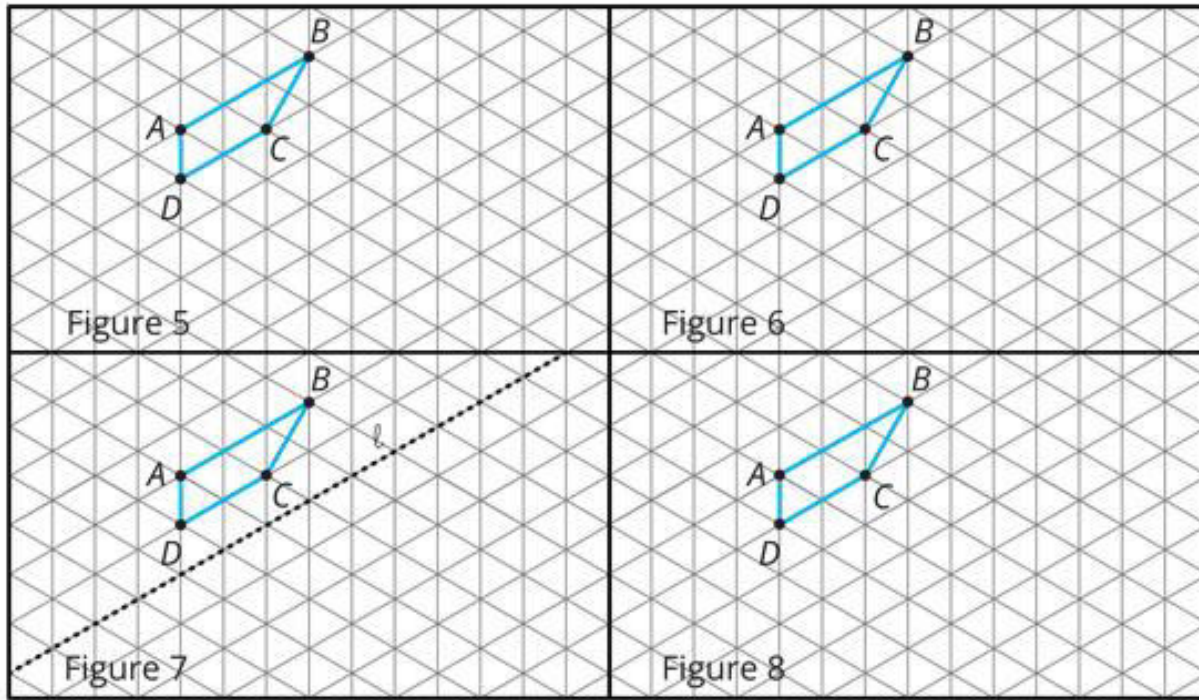
Figure 7

Figure 8

5.   In Figure 5, rotate quadrilateral ABCD 60∘ counterclockwise using center B.

6.   In Figure 6, rotate quadrilateral ABCD 60∘ clockwise using center C.

7.   In Figure 7, reflect quadrilateral ABCD using line ℓ.

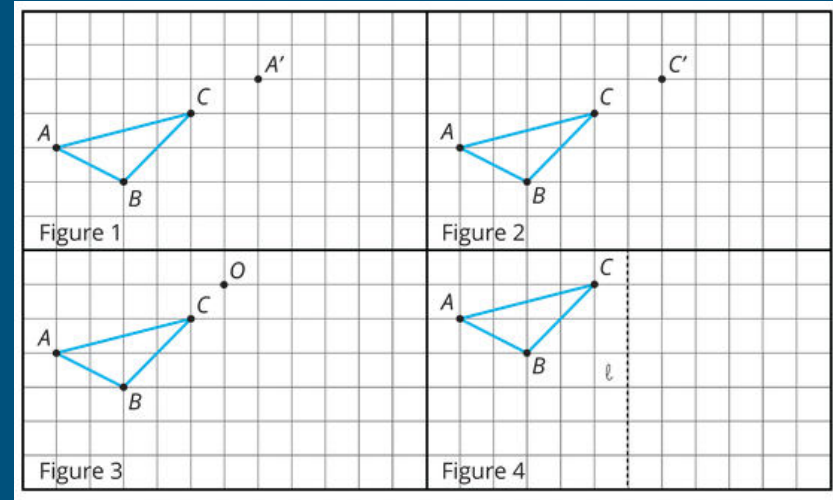8.   In Figure 8, translate quadrilateral ABCD so that A goes to C.

How did you find the images?
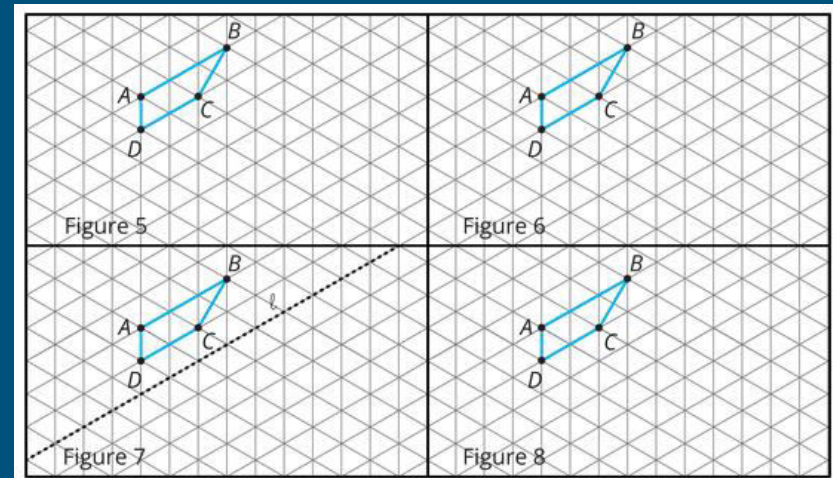
What mathematical patterns did you find?

In figure 4, How can the intersection of grid lines help to identify the image of Triangle ABC?
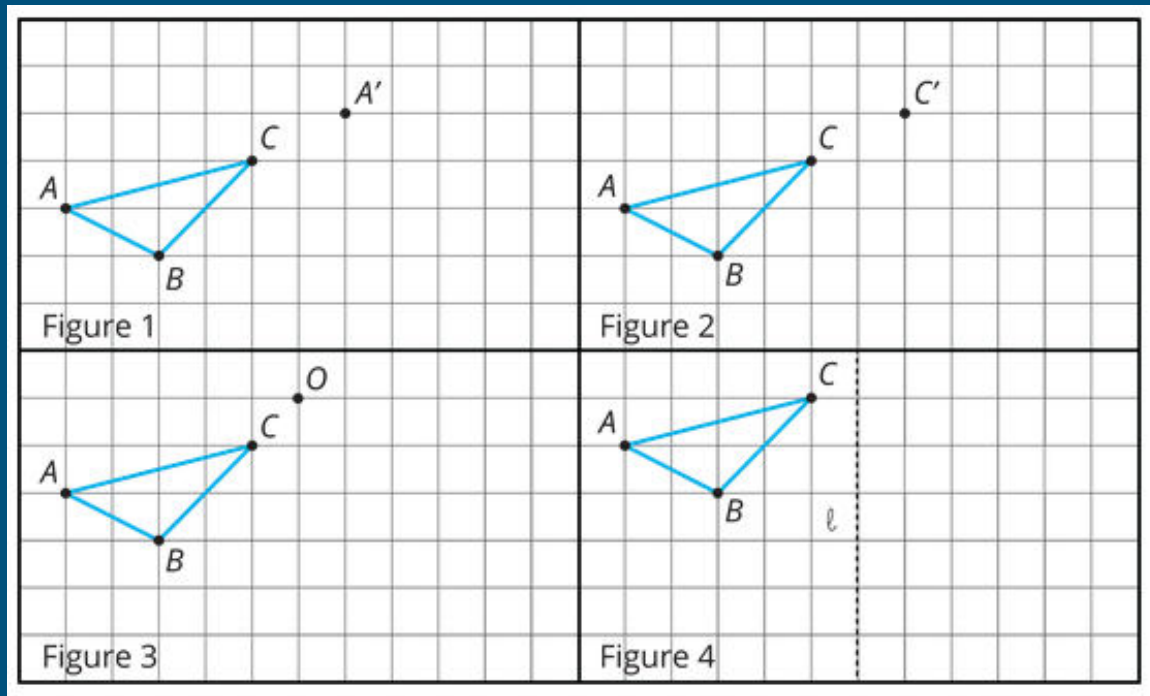
How is working on the isometric grid similar to working on a regular grid?

How is it different?

"Are you ready for more?" (digital)

Try your own translations, reflections, and rotations.

1. Make your own polygon to transform, and choose a transformation.
2. Predict what will happen when you transform the image. Try it–were you right?
3. Challenge your partner! Right click on any vectors or lines and uncheck show object. Can they guess what transformation you used?

"Are you ready for more?" (print)

The effects of each move can be "undone" by using another move. For example, to undo the effect of translating 3 units to the right, we could translate 3 units to the left. What move reverses each of the following moves?

1. translate 3 units up
2. translate 1 unit up and 1 unit to the left
3. rotate 30 degrees clockwise around a point P
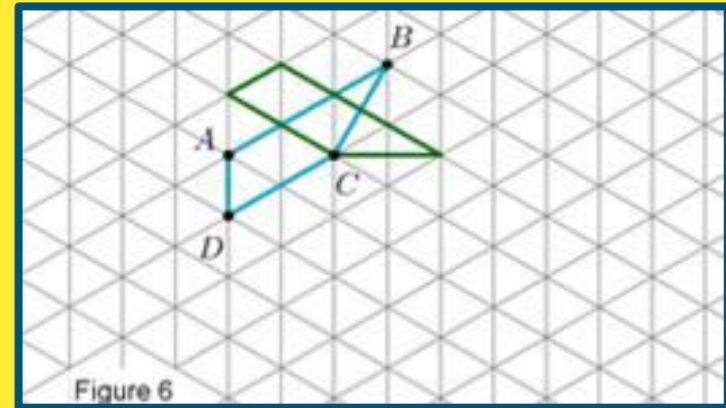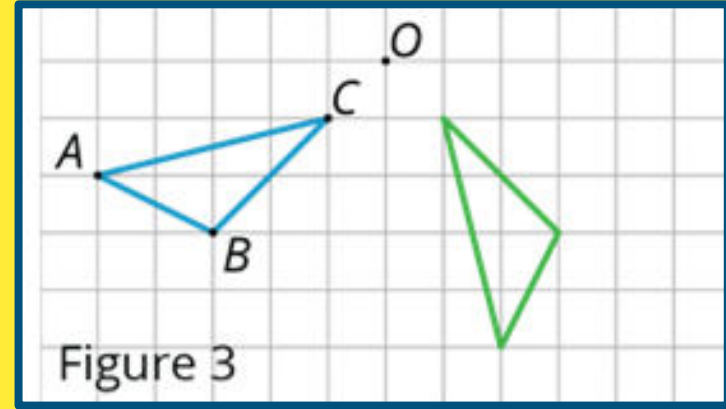4. reflect across line l

TRANSLATIONS

1. What are **important things to keep in mind** when we want to do a translation?

2. What is **something new** that you learned today about translations?

3. **Describe the two grids** we used for translations. What was a **similarity and difference** for translations?
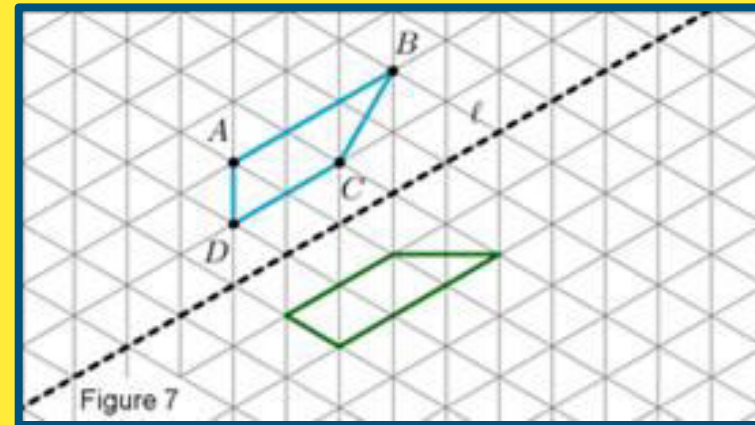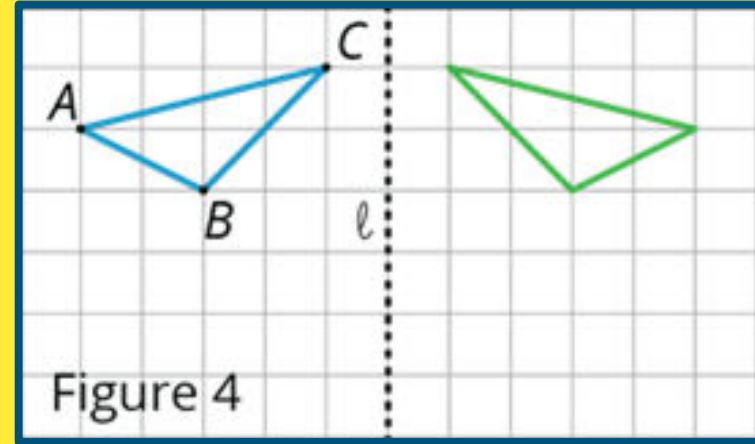

Figure 1

Figure 8
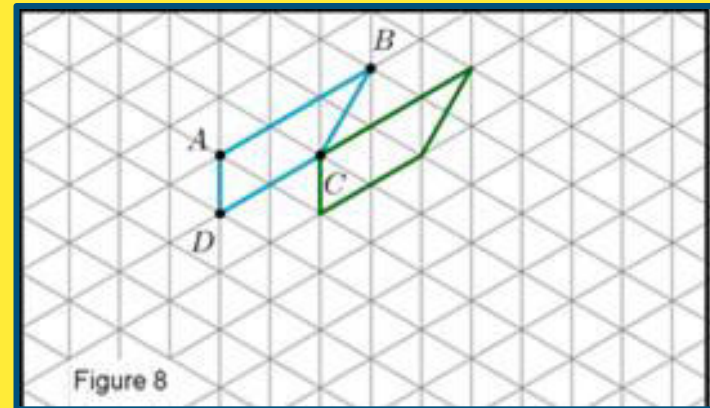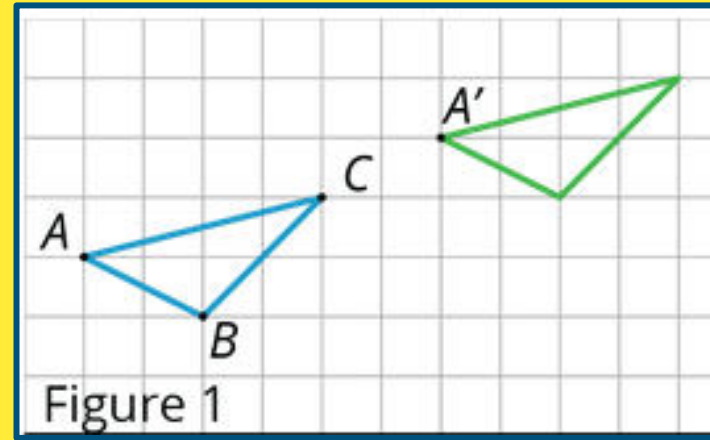
ROTATIONS

1. What are **important things to keep in mind** when we want to do a rotation?

2. What is **something new** that you learned today about rotations?

3. **Describe the two grids** we used for translations. What was a **similarity and difference** for rotations?

Figure 3

Figure 6

REFLECTIONS

1. What are **important things to keep in mind** when we want to do a reflection?

2. What is **something new** that you learned today about reflections?

3. **Describe the two grids** we used for translations. What was a **similarity and difference** for reflections?

Figure 4

Figure 7

Today's Goals

- ❏ I can use grids to carry out transformations of figures.

- ❏ I can decide which type of transformations will work to move one figure to another.

Some are Translations and Some Aren't

Cool Down 3.3