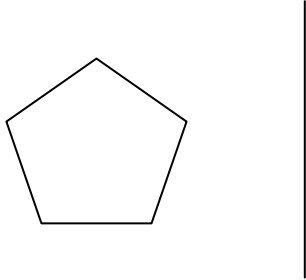


Geometry – G.CO.3 – Exploration and Practice

So, we've been exploring all different kinds of transformations. On this handout, you will explore just two: **rotations** and **reflections**.

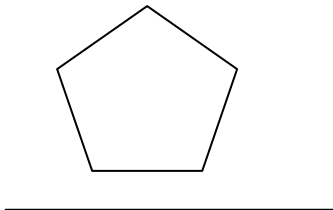
So, let's suppose that we are looking at a regular pentagon. (Remember, **regular** means that all the sides are the congruent (equilateral) and all of the interior angles are congruent (equiangular)).



Suppose further that we are going to reflect this pentagon over a vertical line segment to create an image. Being as accurate as you can, sketch the image of the pentagon after it has been reflected over the vertical line segment shown above.

Describe the LOCATION of the image in a sentence or two.

Now, let's do it again except, let's choose a horizontal line segment this time. Again, sketch the image of the pentagon after a reflection over the horizontal line segment.

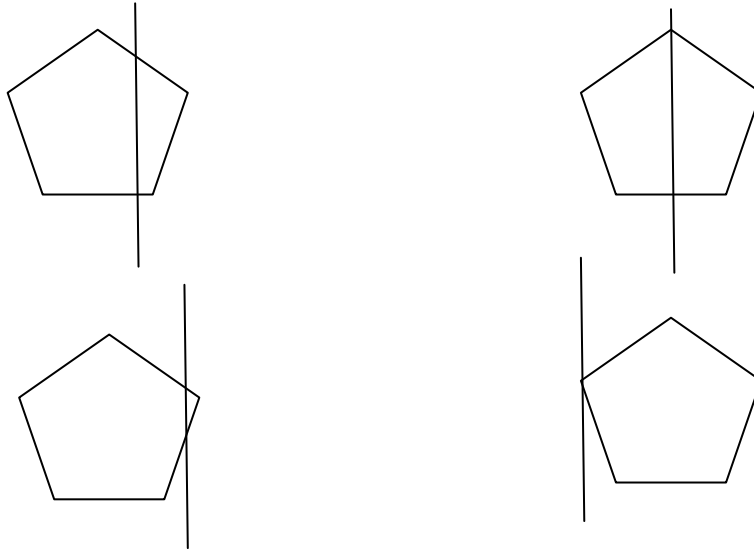


In a sentence or two, describe the location of the image of the pentagon.

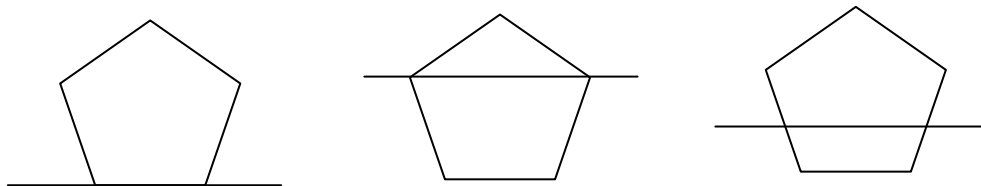
Geometry – G.CO.3 – Exploration and Practice

Now, let's make a small change. Let's do the same exercise again, except this time the lines of reflection are not going to be outside the pentagon, but instead they will be inside the pentagon.

As accurately as you can, draw reflected images over the given lines of reflection.



Let's do it again with the horizontal lines.



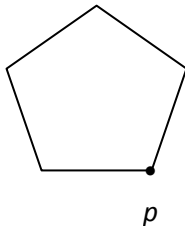
Did you notice any situations in the last seven that caused the pentagon's image to lay exactly on top of the preimage? Discuss in a sentence or two.

Geometry – G.CO.3 – Exploration and Practice

When a transformation creates an image that lays perfectly on top of the preimage, that is called a transformation “**carrying an object onto itself.**”

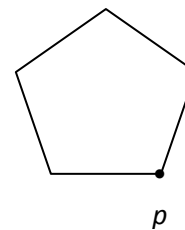
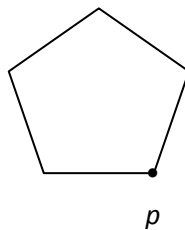
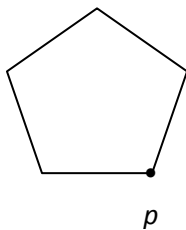
Let’s explore rotations.

Suppose we bring back our pentagon.



Now, as accurately as you can, using vertex p , rotate the pentagon 90° . You may need patty paper, or a compass, or some patience.

Now, rotate the pentagons again about p . This time rotate 180° , 270° , and 360° .



Did you notice any situations in the last four that caused the pentagon’s image to lay exactly on top of the preimage? Discuss in a sentence or two.