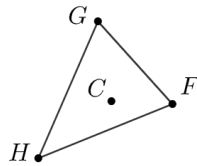


Lesson 3.03 Dilations

Geometry GT

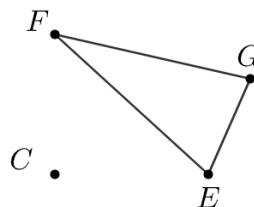
Recall

Dilate triangle $\triangle FGH$ using center C and a scale factor of 3.



Explore

Here is a center of dilation and a triangle.

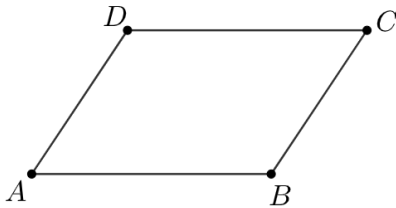


- A. Measure the sides of $\triangle EFG$ (to the nearest mm).
- B. Dilate $\triangle EFG$ using center C and your scale factor.
- C. Compare your image with those around you. What do you notice?

Discuss

Dilate quadrilateral $ABCD$ using center P and your scale factor from the previous exercise.

P .



Complete the table.

Ratio	$\frac{PA'}{PA}$	$\frac{PB'}{PB}$	$\frac{PC'}{PC}$	$\frac{PD'}{PD}$
Value				

What do you notice?

Complete the table.

Ratio	$\frac{B'A'}{BA}$	$\frac{C'B'}{CB}$	$\frac{D'C'}{DC}$	$\frac{A'D'}{AD}$
Value				

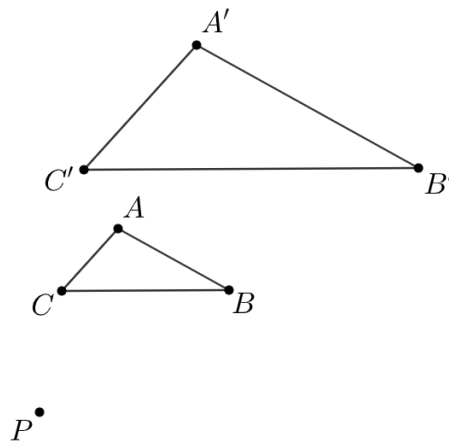
What do you notice?

Assertion

If a figure is dilated, then corresponding angles are congruent.

Demonstrate

Jada dilated $\triangle ABC$ using center P and scale factor 2.



Jada claims that all the segments in $\triangle ABC$ are parallel to the corresponding segments in $\triangle A'B'C'$.

Prove that this is true.

Theorem

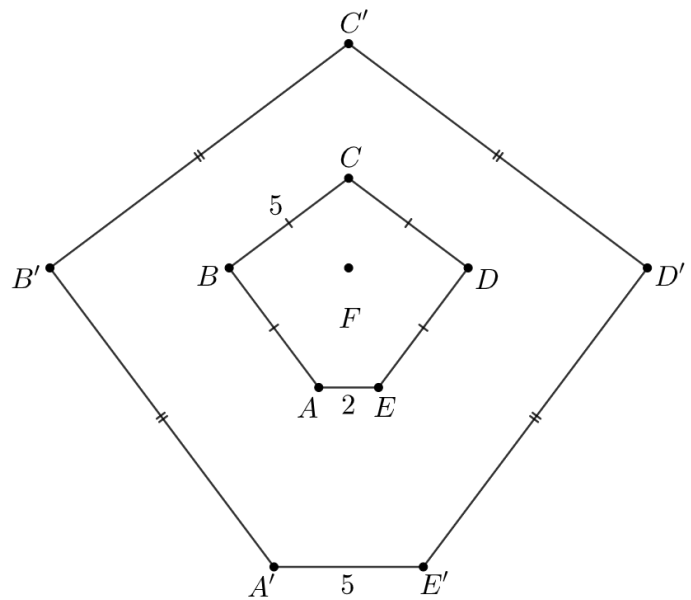
A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.

Practice

1. Pentagon $A'B'C'D'E'$ is the image of pentagon $ABCDE$ after a dilation centered at F .

A. What is the scale factor of this dilation?

B. What is the length of $\overline{D'E'}$?



2. Triangle $\triangle ABC$ is taken to triangle $A'B'C'$ by a dilation. Which of these scale factors for the dilation would result in an image that was *larger* than the original figure?

A. $\frac{3}{5}$

B. $\frac{13}{17}$

C. 1

D. $\frac{4}{3}$

3. A polygon has perimeter 12 units. It is dilated with a scale factor of $\frac{3}{4}$. What is the perimeter of its image?

4. Triangle $\triangle ABC$ is taken by a dilation with center P and scale factor 3 to triangle $\triangle A'B'C'$. The measure of angle $\angle ABC$ is 21° . What is the measure of $\angle A'B'C'$?

5. Line f is dilated with a scale factor of 2, and the image is line g . Which labeled point could be the center of this dilation?

