

# Lesson 5.2.1 Investigating Properties of Dilations



By the end of this lesson, I will be able to answer the following questions...

1. What are the four properties of dilations?
2. What is a scale factor?
3. How do I use it to determine if a dilation is an enlargement, reduction, or congruence?
4. What additional notation do I need to communicate about dilations?

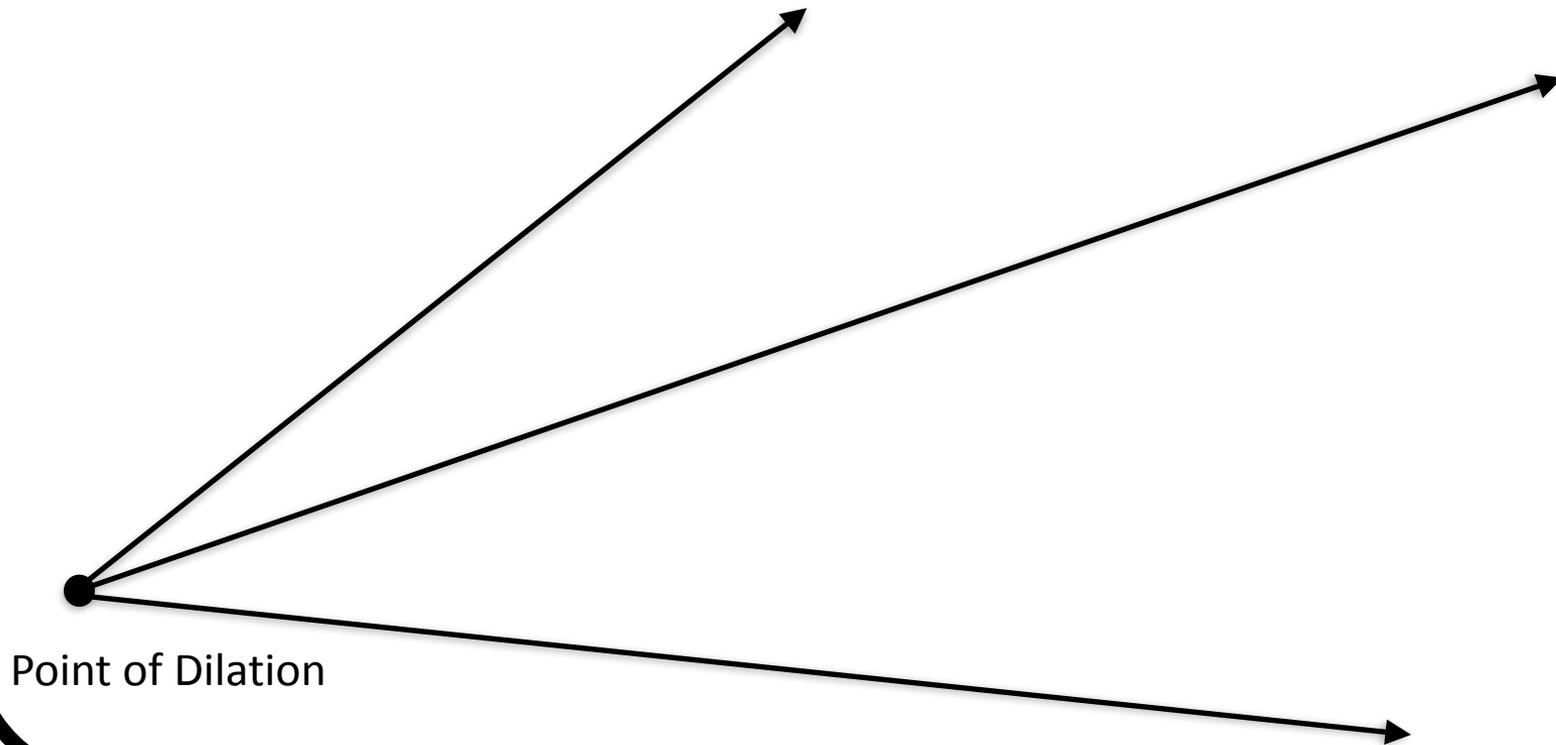
# Vocabulary (Supplement with GeoGebra)

- 1. Dilation:** A transformation in which a figure is either reduced or enlarged by a scale factor.
- 2. Scale Factor:** The multiple of lengths of the sides from one figure to the transformed figure.
- 3. Enlargement:** Scale factor is greater than one.
- 4. Reduction:** Scale factor is less than one and greater than zero.
- 5. Congruence:** Scale factor is one.

# Prerequisite Skills with Practice

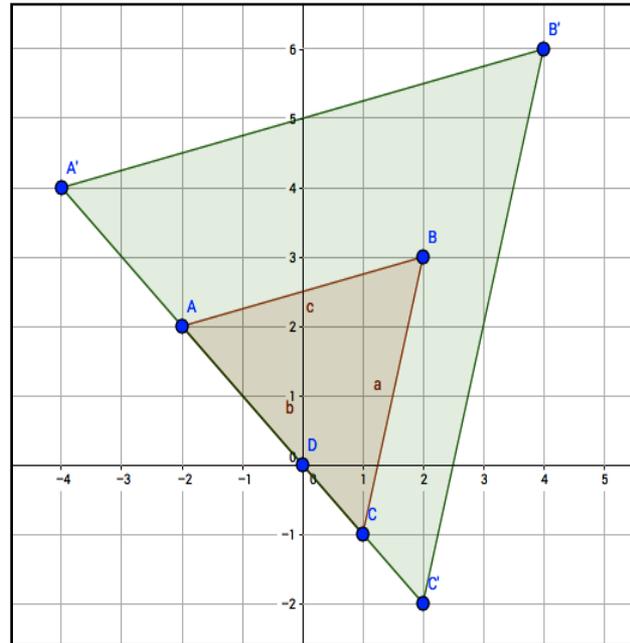
Exploring the properties of dilations:

1. Shape, orientation, and angles are preserved.
2. All sides change by a single scale factor,  $k$ .
3. The corresponding pre image and image sides are parallel.
4. The corresponding points of the figure are collinear with the center of dilation.



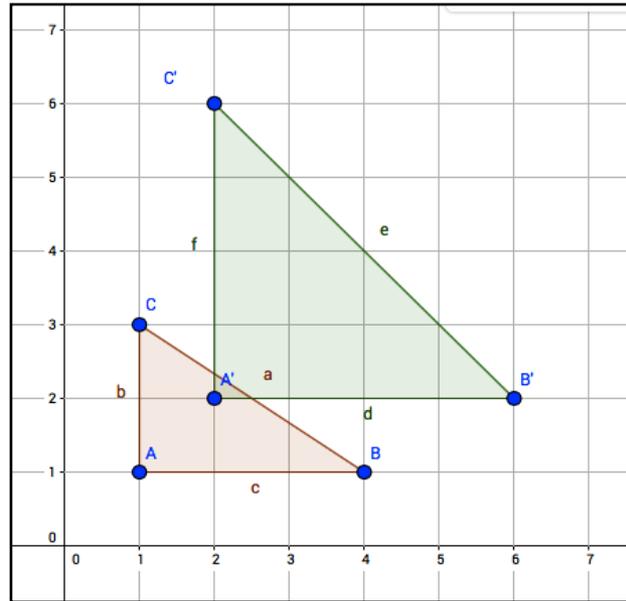
Determining if a transformation is a dilation.

1. Verify that shape, orientation, and angles have been preserved from the preimage to the image.
2. Verify that the corresponding sides are parallel.
3. Verify that the distances of the corresponding sides have changed by a common scale factor,  $k$ .
4. Verify that corresponding vertices are collinear with the center of dilation,  $D$ .

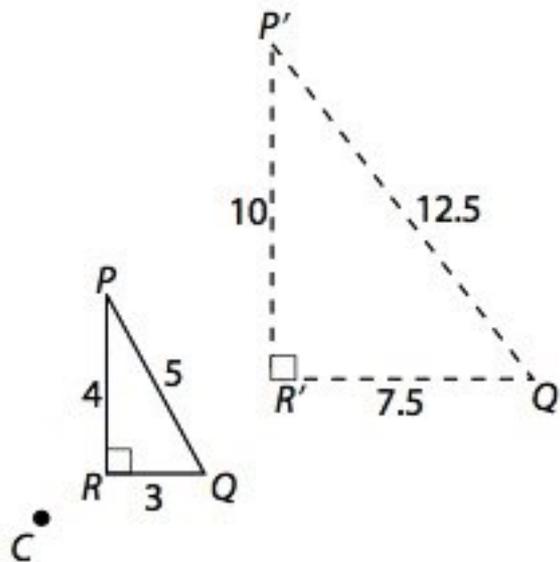
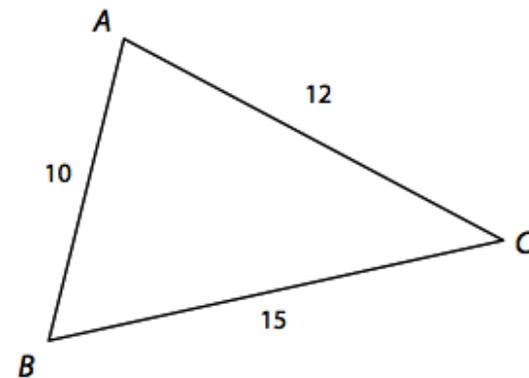
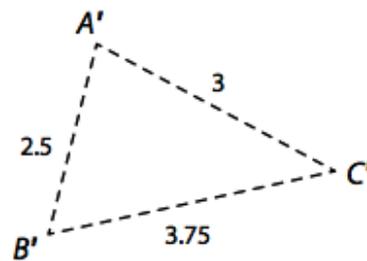


Determining if a transformation is a dilation.

1. Verify that shape, orientation, and angles have been preserved from the preimage to the image.
2. Verify that the corresponding sides are parallel.
3. Verify that the distances of the corresponding sides have changed by a common scale factor,  $k$ .
4. Verify that corresponding vertices are collinear with the center of dilation,  $D$ .



Do the following transformations represent a dilation. What is the scale factor? Does this indicate enlargement, reduction, or congruence?



# THE END



Visit [PlottsMath](#) for assignment details