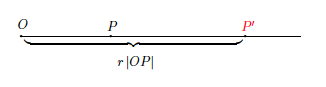
**Problem Set**

Lesson Summary

**Definition:** A dilation, a transformation of the plane with center , with scale factor () is a rule that assigns to each point of the plane a point so that

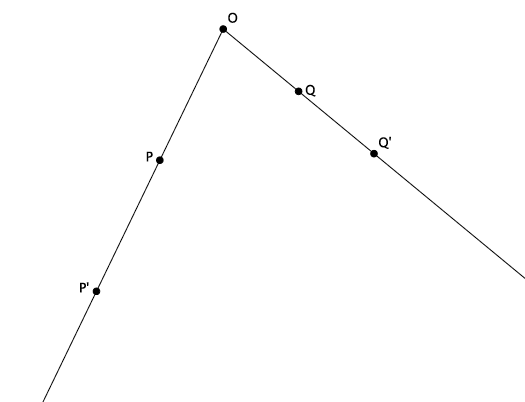
1. , (i.e., a dilation does not move the center of dilation.)



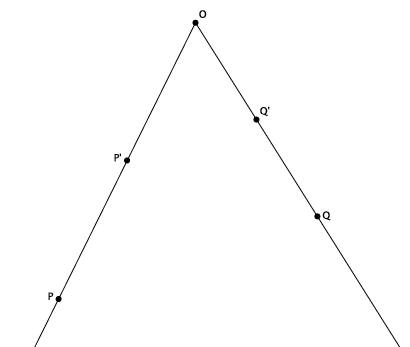
1. If , then the point , (to be denoted more simply by ) is the point on the ray so that .

In other words, a dilation is a rule that moves points in the plane a specific distance, determined by the scale factor , from a center . When the scale factor , the dilation magnifies a figure. When the scale factor the dilation shrinks a figure. When the scale factor , there is no change in the size of the figure; that is, the figure and its image are congruent.

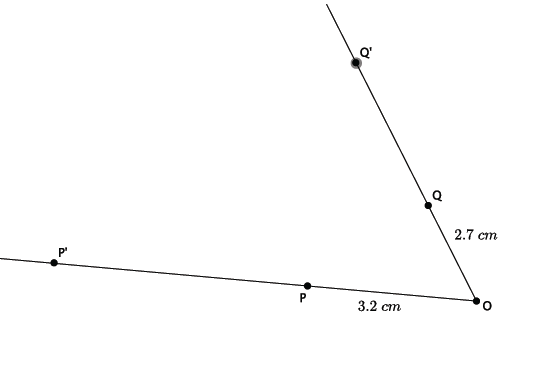
1. Let there be a dilation from center . Then and .Examine the drawing below. What can you determine about the scale factor of the dilation?



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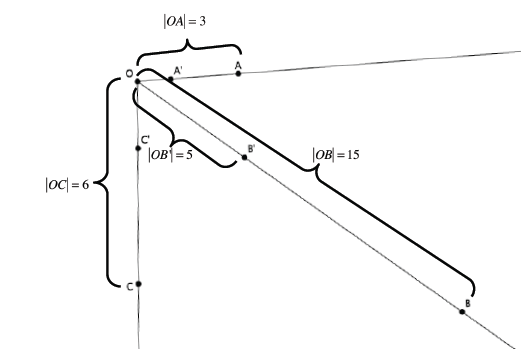


1. Let there be a dilation from center with a scale factor . Then and .cm,and cm, as shown. Use the drawing below to answer parts (a) and (b). Drawing not to scale.



* 1. Use the definition of dilation to determine the length of .
  2. Use the definition of dilation to determine the length of

1. Let there be a dilation from center with a scale factor . Then *,* and . , , ,and , as shown. Use the drawing below to answer parts (a)–(c).



* 1. Using the definition of dilation with lengths and *,* determine the scale factor of the dilation.
  2. Use the definition of dilation to determine the length of .
  3. Use the definition of dilation to determine the length of .