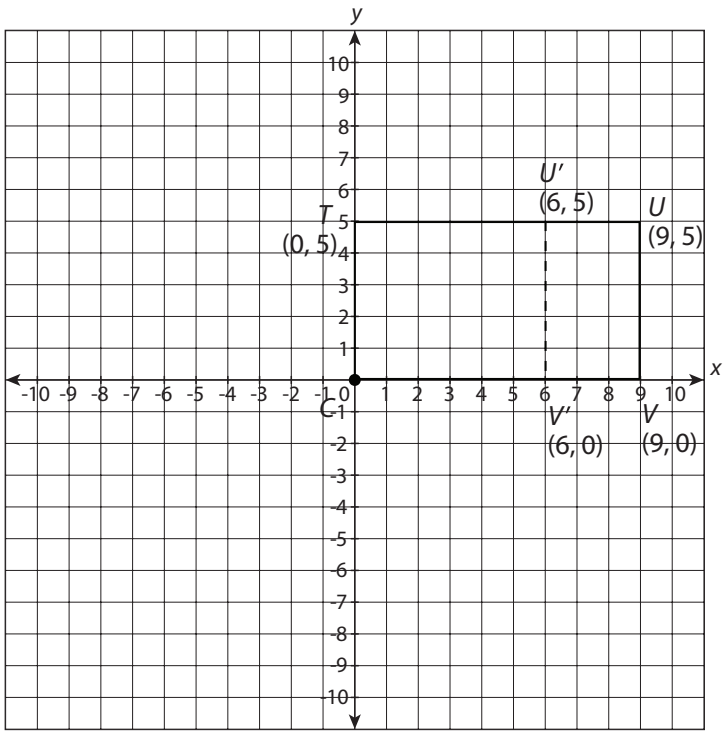
Honors Geometry
Unit 2 Day 2 Properties of Dilations

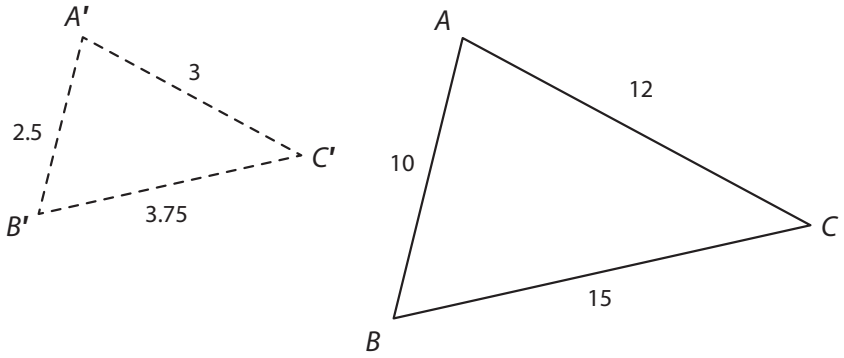
Example 2

Is the following transformation a dilation? Justify your answer using the properties of dilations.



Example 3

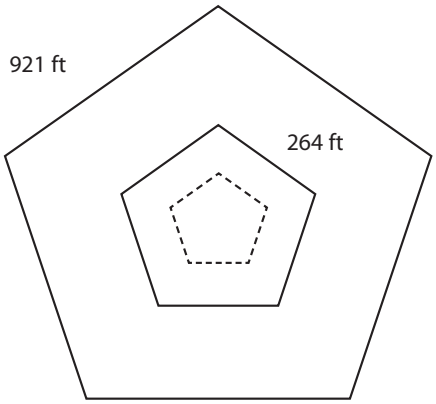
The following transformation represents a dilation. What is the scale factor? Does this indicate enlargement, reduction, or congruence?



Problem-Based Task 1.1.1: Prettying Up the Pentagon

The Pentagon, diagrammed below, is one of the world's largest office buildings. The outside walls are each 921 feet long and are a dilation of the inner walls through the center of the courtyard. The courtyard is the area inside the inner wall. Since the courtyard is surrounded by the inner walls, each side of the courtyard is the same length as the inner walls. The dashed lines represent a walkway that borders a garden. The walkway is a dilation of the inner wall of the office building.

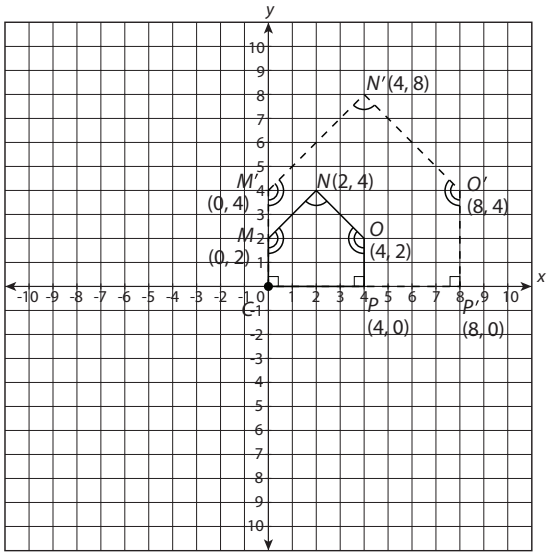
A team of landscapers has been hired to update the courtyard. The landscapers need to know the perimeter of the walkway in order to install some temporary fencing while the courtyard is redone. What is the perimeter of the walkway if the dilation from the inner wall to the walkway has a scale factor of 0.25? What relationship does the scale factor have to the perimeters of the figures?



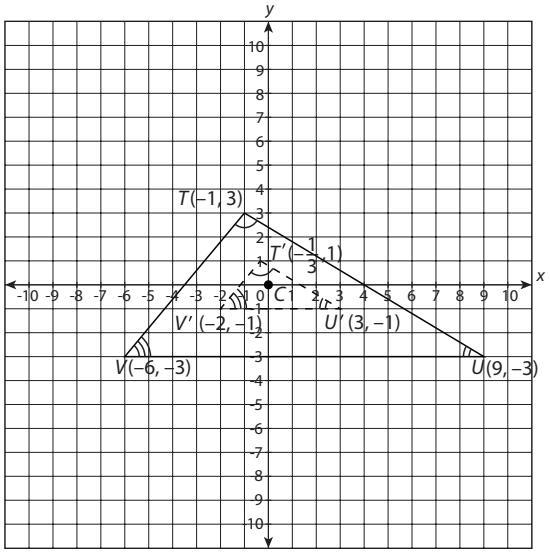
Practice 1.1.1: Investigating Properties of Parallelism and the Center

Determine whether each of the following transformations represents a dilation. Justify your answer using the properties of dilations.

1. Compare polygon *CMNOP* to polygon $CM'N'O'P'$.



2. Compare $\triangle TUV$ to $\triangle T'U'V'$.



continued

For problems 5 and 6, the following transformations represent dilations. Determine the scale factor and whether the dilation is an enlargement, a reduction, or a congruency transformation.

5.