

SHOW ALL WORK.

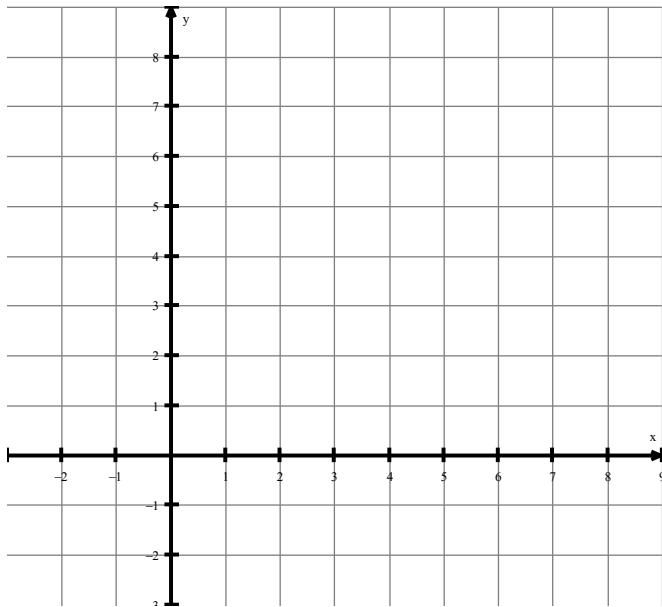
Determine whether each statement is true or false.

1. For a dilation, corresponding angles of the image and pre-image are congruent.
2. A dilation image cannot have any points in common with its pre-image.
3. A dilation preserves length.

Draw the pre-image and the image of each figure with the given center and scale factor. Label the vertices of each and find the length of each side.

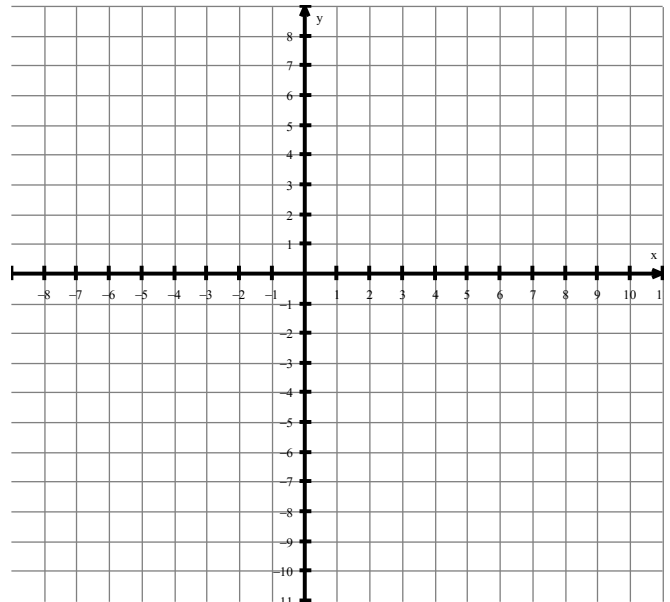
4. $Q(0,6)$ $R(6,6)$ $S(6,0)$ $T(0,0)$

Center of dilation: $(0,0)$; scale factor: $\frac{1}{4}$



5. $A(-4,-2)$ $B(-3,2)$ $C(3,3)$ $D(5,-2)$ $E(1,-5)$

Center of dilation: $(0,0)$; scale factor: 2



Q _____ \rightarrow Q' _____

R _____ \rightarrow R' _____

S _____ \rightarrow S' _____

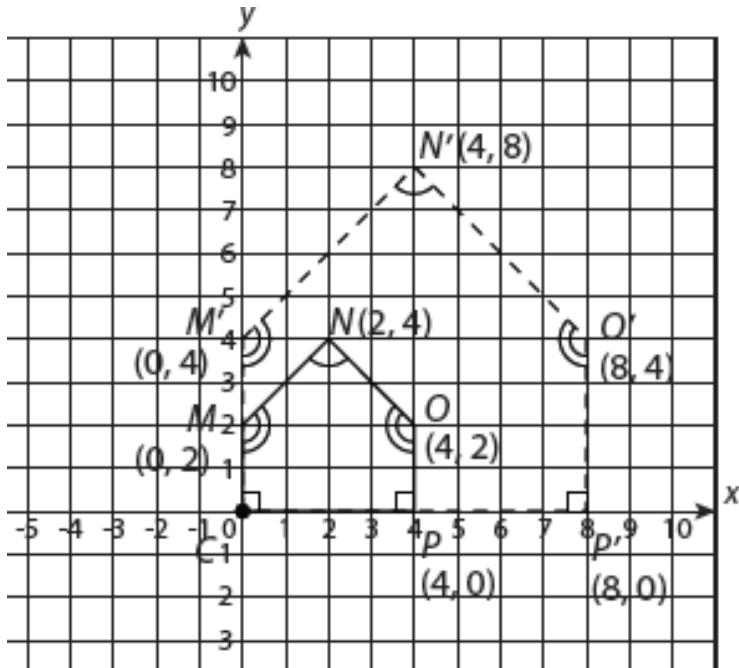
$|\overline{QR}| =$ _____ $|\overline{Q'R'}| =$ _____

$|\overline{RS}| =$ _____ $|\overline{R'S'}| =$ _____

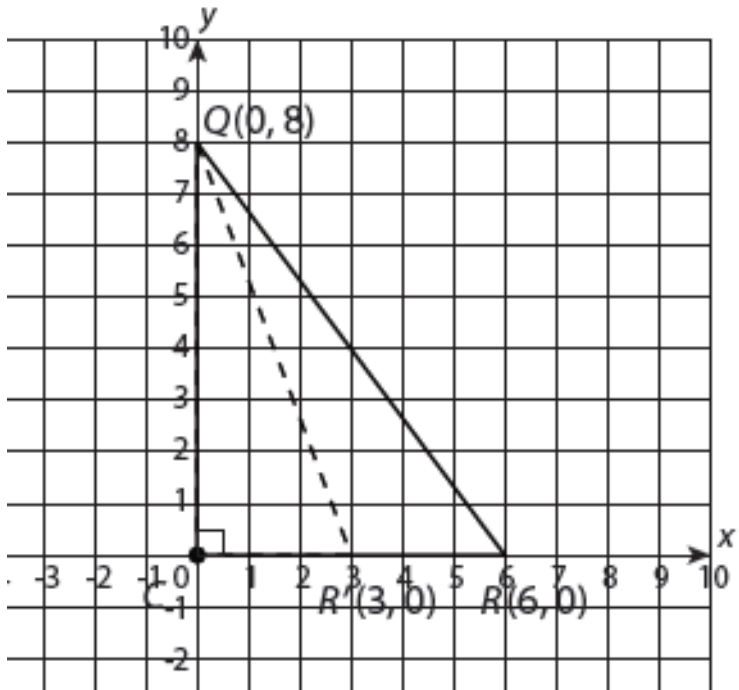
$|\overline{QS}| =$ _____ $|\overline{Q'S'}| =$ _____

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

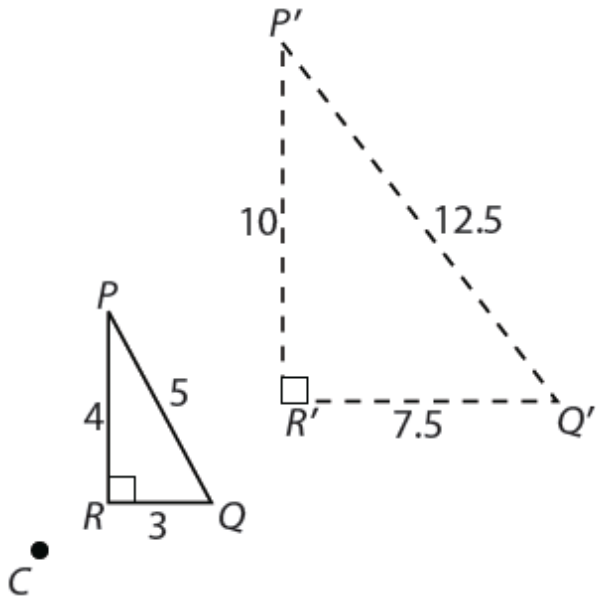
6. Compare polygon CMNOP to polygon CM'N'O'P'.



7. Compare $\triangle QRC$ to $\triangle QR'C$.



8. Determine if the following transformation represents a dilation. If so, determine the scale factor and whether the dilation is an enlargement, reduction or a congruency transformation.

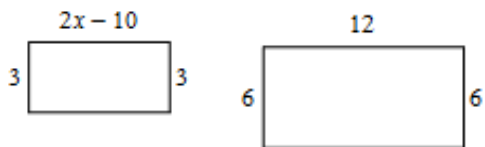


9. A right triangle has the following side lengths: $AB = 13$, $BC = 12$, and $CA = 5$. The triangle is dilated so that the image has side lengths $A'B' = \frac{26}{5}$, $B'C' = \frac{24}{5}$ and $C'A' = 2$. What is the scale factor? Does this represent an enlargement, a reduction, or a congruency transformation?

10. A university wants to put in a courtyard for a new building. The courtyard is bounded by the coordinates $P(-4,0)$, $Q(-2,-6)$, $R(6,2)$, and $S(0,4)$. The landscape architects created a dilation of the space through the center $C(0,0)$ to outline the garden. The garden is bounded by the points $P'(-2.4,0)$, $Q'(-1.2,-3.6)$, $R'(3.6,1.2)$, and $S'(0,2.4)$. What is the scale factor? Does this represent an enlargement, a reduction, or a congruency transformation?

The following polygons are similar. State the scale factor and solve for x .

11.



12.

