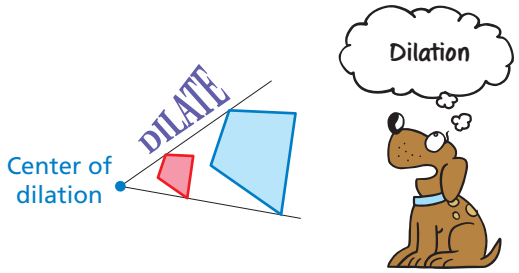
REVIEW: Dilations

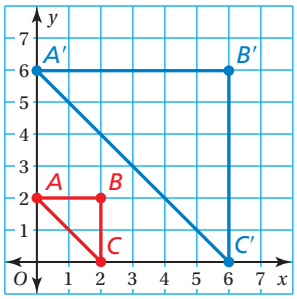
Name _____

Key Concept and Vocabulary



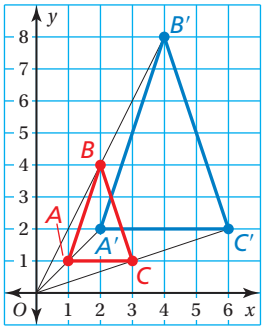
Visual Model

To dilate with respect to the origin, multiply the coordinates of each vertex by the scale factor k.



Skill Example

1.



After a dilation with a scale factor of 2, the coordinates of the image are $A'(2, 2)$, $B'(4, 8)$, and $C'(6, 2)$.

Application Example

2. The location of a building is represented by the points $A(0, 0)$, $B(0, 4)$, $C(8, 4)$, and $D(8, 0)$ in a coordinate plane. An expansion of the building is represented using a dilation with a scale factor of 1.5. What are the coordinates of the image?

$$(x, y) \longrightarrow (1.5x, 1.5y)$$

∴ The coordinates of the image are $A'(0, 0)$, $B'(0, 6)$, $C'(12, 6)$, and $D'(12, 0)$.

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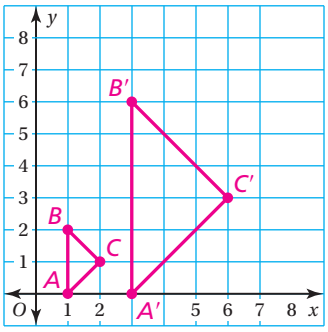
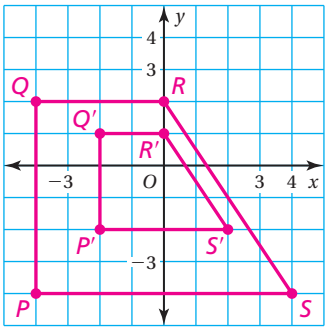
Check your answers at BigIdeasMath.com.

Draw the figure and its image after a dilation with the given scale factor.

3. $A(1, 0)$, $B(1, 2)$, $C(2, 1)$; $k = 3$



4. $P(-4, -4)$, $Q(-4, 2)$, $R(0, 2)$, $S(4, -4)$; $k = \frac{1}{2}$



5. RESTAURANT A restaurant expands a patio using a dilation with a scale factor of 1.75. The dilated patio is represented in the coordinate plane. What were the coordinates of the original patio?

(0, 0), (0, 4), (4, 4), and (4, 0)