

NAME _____

Module 11 Transformations of Shapes
Lesson 3 Dilations

Lesson Objectives

- Draw and describe dilations (enlargements and reductions) of two-dimensional figures.
- Graph dilations on a coordinate plane.

Subtopic 1 Dilations

Dilation

- Figure changes _____ but not shape.
- Figure and its image are _____.
- An _____ if the image is larger than the original figure
- A _____ if the image is smaller than the original figure

Scale factor

- A number that indicates how much larger—or smaller—the image is from the original
- Describes the _____ from the original figure to its image

Enlargement

- A dilation with scale factor $>$ _____
- The image is larger than the figure.

Reduction

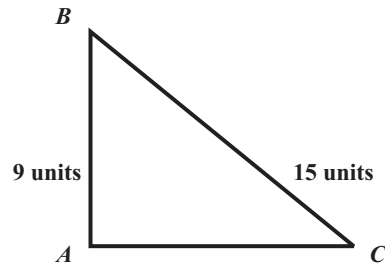
- A dilation with $0 <$ _____ $<$ 1
- The image is smaller than the figure.

In a dilation with scale factor = 1, the figure and its image have the _____ points.

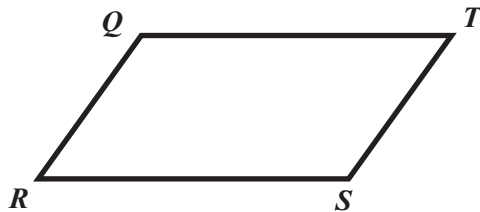
The _____ of dilation is a fixed point from which all points contract or expand to make the similar image.



Construct a dilation on $\triangle ABC$ with scale factor $\frac{1}{3}$ and center B .



Construct a dilation of quadrilateral $QRST$ with scale factor two and center R .



Subtopic 2

Dilations on the Coordinate Plane



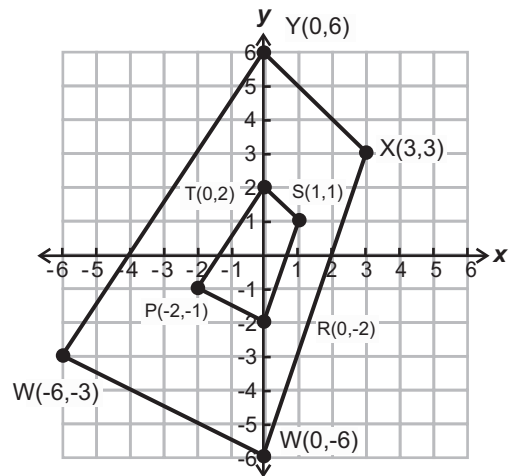
$\triangle FGH$ has vertices $F(2, 8)$, $G(0, -4)$, and $H(-3, 5)$. What are the vertices of an image with a $(0,0)$ center and a scale factor of 5?



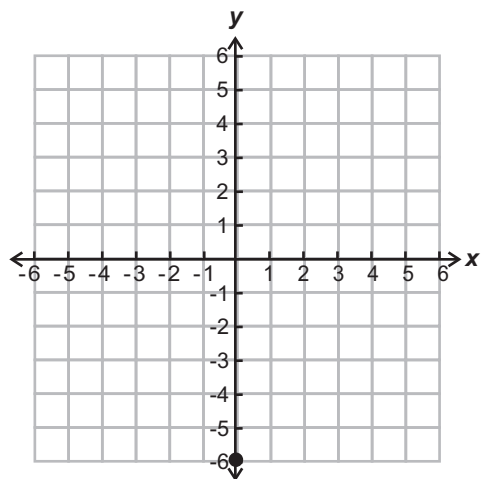
NAME _____

Module 11 Transformations of Shapes
Lesson 3 Dilations

- 4** Quadrilateral $PRST$ is the image of quadrilateral $VWXY$ under a dilation with center $(0, 0)$. What is the scale factor of the dilation?



- 5** Graph the image of a line segment with endpoints at $(-4, -3)$ and $(6, 3)$ under a dilation with scale factor $\frac{1}{2}$.



- 6** Graph the image of $\triangle BCD$ under a dilation with scale factor 2.

