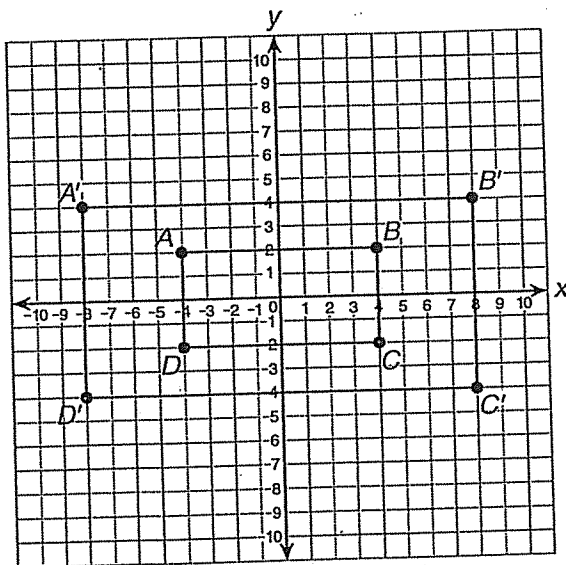


Dilations

A **dilation** occurs when you enlarge or reduce a figure. Figures will be dilated from a point called the center of dilation. In this lesson, the center of dilation will be the origin. To perform a dilation on a figure, multiply the coordinates of each vertex by a positive scale factor. If the scale factor is less than 1, the dilation will be a **reduction**. If the scale factor is greater than 1, the dilation will be an **enlargement**. In a dilation, the image (the dilated figure) is similar to the original figure.

Example

The following coordinate plane shows a dilation, using a scale factor of 2, of rectangle $ABCD$ to form rectangle $A'B'C'D'$.



To form rectangle $A'B'C'D'$, the x - and y -coordinates of each vertex of rectangle $ABCD$ have been multiplied by a scale factor of 2. Rectangle $A'B'C'D'$ is an enlargement of rectangle $ABCD$.

Vertices of rectangle $ABCD$

$$A: (-4, 2)$$

$$B: (4, 2)$$

$$C: (4, -2)$$

$$D: (-4, -2)$$

Vertices of rectangle $A'B'C'D'$

$$A': (-8, 4)$$

$$B': (8, 4)$$

$$C': (8, -4)$$

$$D': (-8, -4)$$

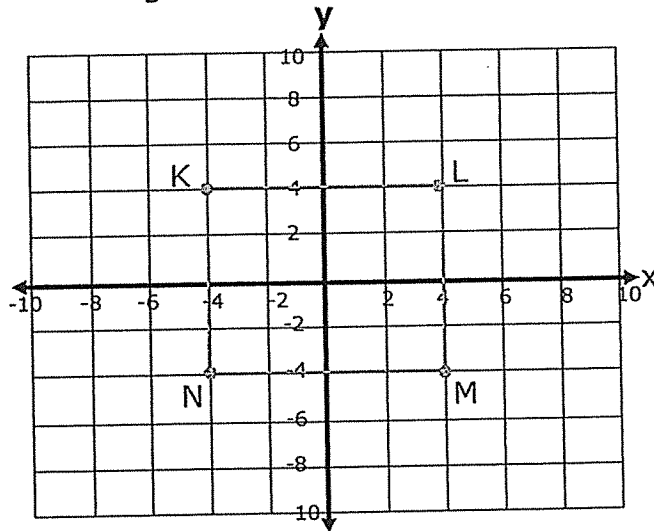
Name _____

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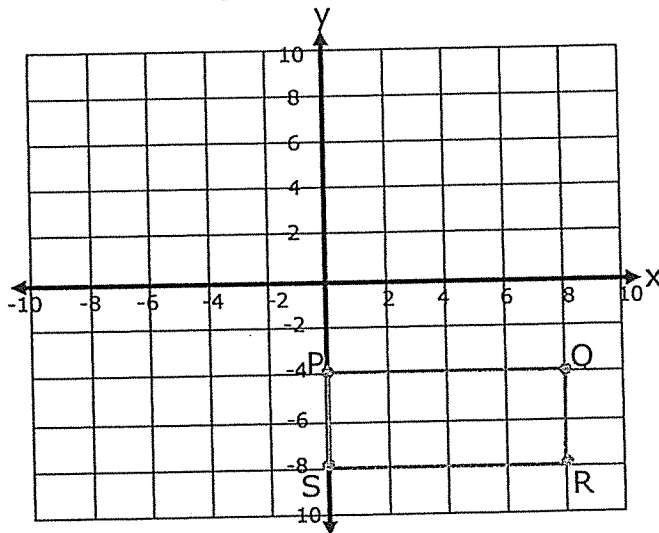
Dilations and Scale Factors - Independent Practice Worksheet

Complete all the problems.

1. Graph the image of rectangle KLMN after dilation with a scale factor of 2, centered at the origin.



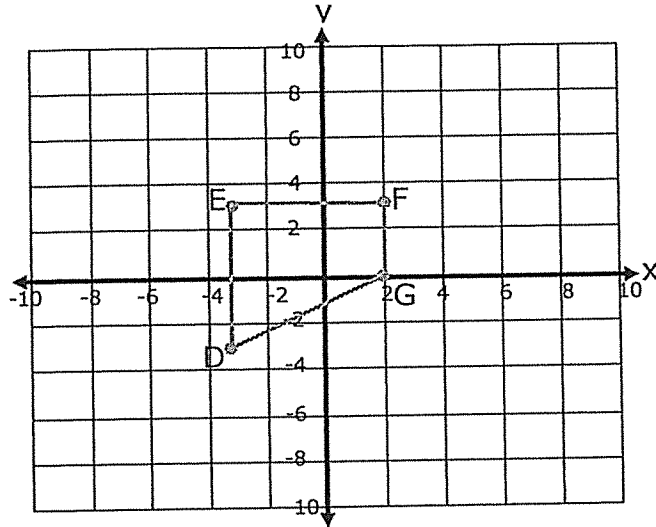
2. Graph the image of rectangle PQRS after a dilation with a scale factor of $\frac{1}{4}$, centered at the origin.



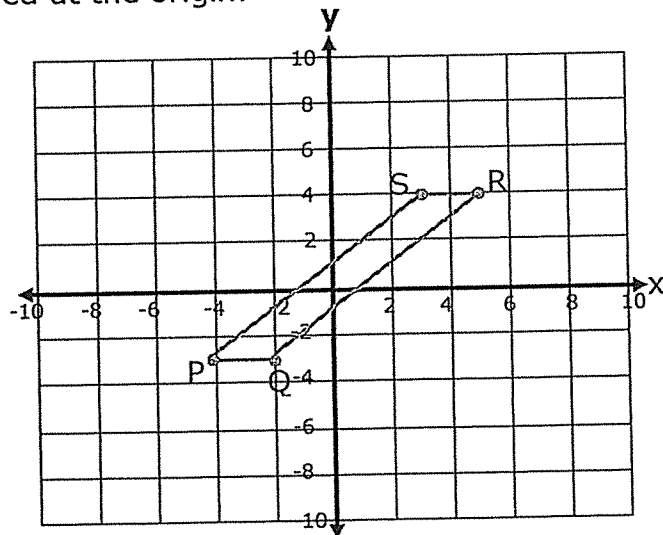
Name _____

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3. Graph the image of rectangle PQRS after a dilation with a scale factor of 3, centered at the origin.



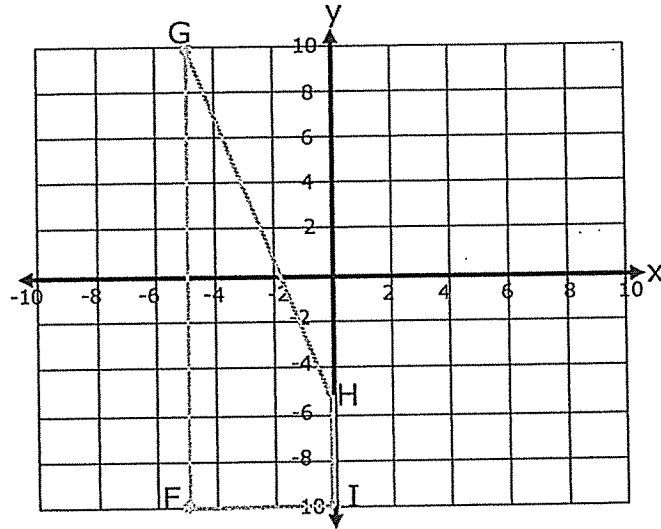
4. Graph the image of rectangle PQRS after a dilation with a scale factor of 2, centered at the origin.



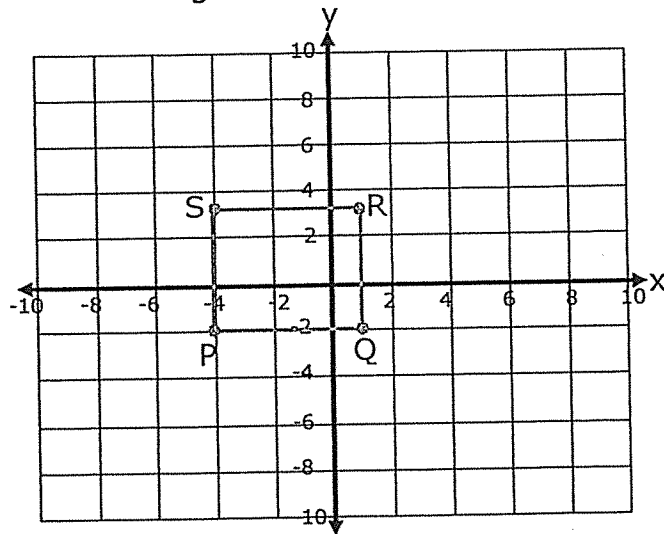
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5. Graph the image of rectangle FGHI after a dilation with a scale factor of $\frac{1}{5}$, centered at the origin.



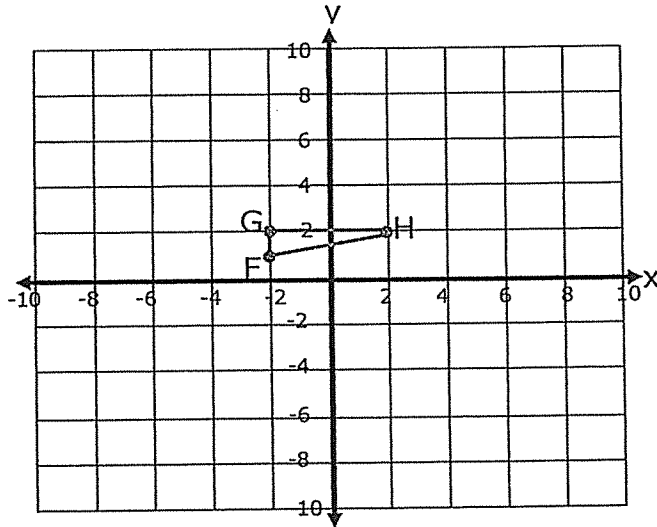
6. Graph the image of rectangle PQRS after a dilation with a scale factor of 2, centered at the origin.



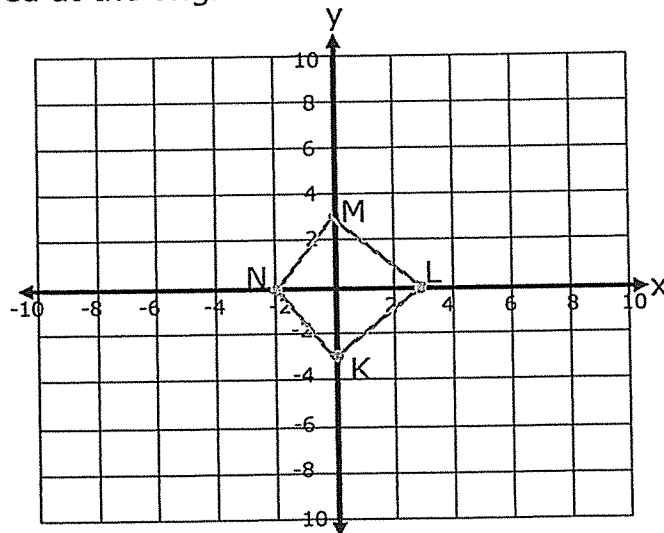
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7. Graph the image of rectangle FGH after a dilation with a scale factor of 5, centered at the origin.



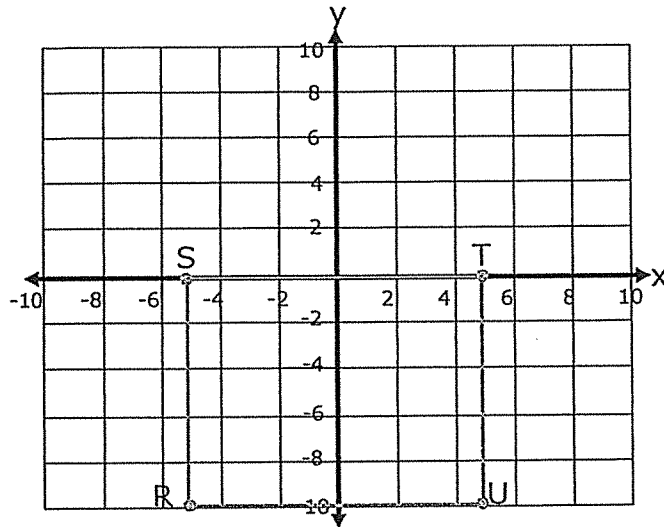
8. Graph the image of rectangle $KLMN$ after a dilation with a scale factor of 3, centered at the origin.



Name _____

Date _____

9. Graph the image of rectangle RSTU after a dilation with a scale factor of $\frac{1}{5}$, centered at the origin.



10. Graph the image of rectangle ABCD after a dilation with a scale factor of 5, centered at the origin.

