

Notes - Dilations.notebook

Dilations

Name: _____

Dilate: to enlarge or reduce the size of a figure.

Scale Factor: the number that you multiply by.

Example:

Dilate $\triangle RST$ with vertices $R(-1, 2)$, $S(-1, -1)$ and $T(2, -1)$ by a scale factor of 3 with the origin as the center of dilation.

Steps:

1. Plot original triangle.
2. Multiply the pre-image points by the scale factor. What are the points of the image?

$R'(-3, 6)$

$S'(-3, -3)$

$T'(6, -3)$

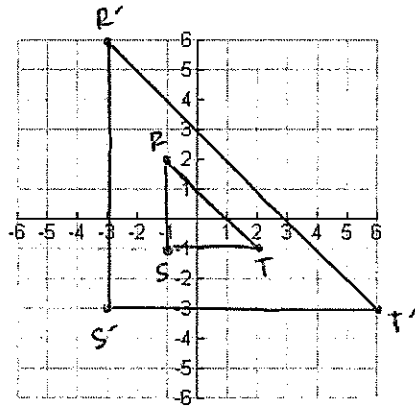
3. Plot the image

4. Find the area of the pre-image and the area of the image. How does the ratio of the image to the pre-image compare to the scale factor?

pre-image = $\frac{3 \cdot 3}{2} = 4.5$

image = $\frac{9 \cdot 9}{2} = 40.5$

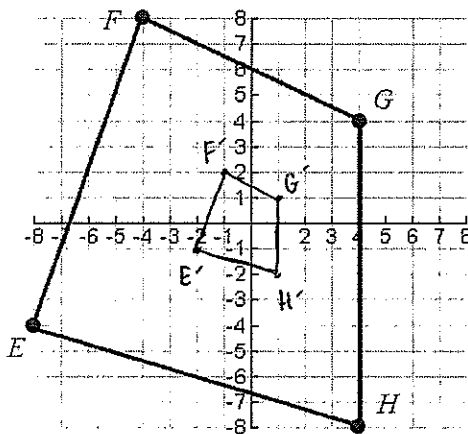
$\times 9$



You Try!

Dilate each of the following by the given scale factor.

1. Dilate Quadrilateral EFGH by a scale factor of $\frac{1}{4}$.



$E(-8, -4)$

$E'(-2, -1)$

$F(-4, 8)$

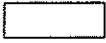
$F'(-1, 2)$

$G(4, 4)$

$G'(1, 1)$

$H(4, -8)$

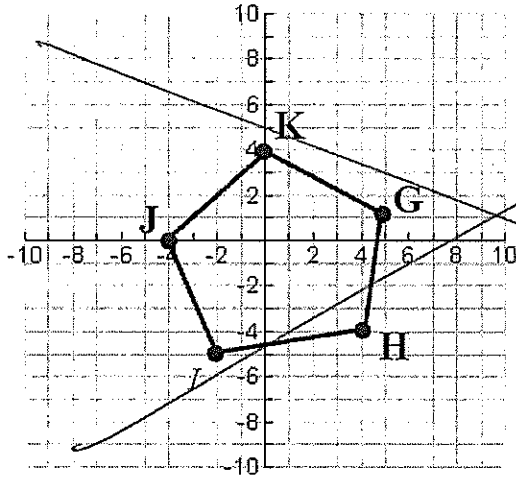
$H'(1, -2)$



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2. Dilate Pentagon GHIJK by a scale factor of 1.5



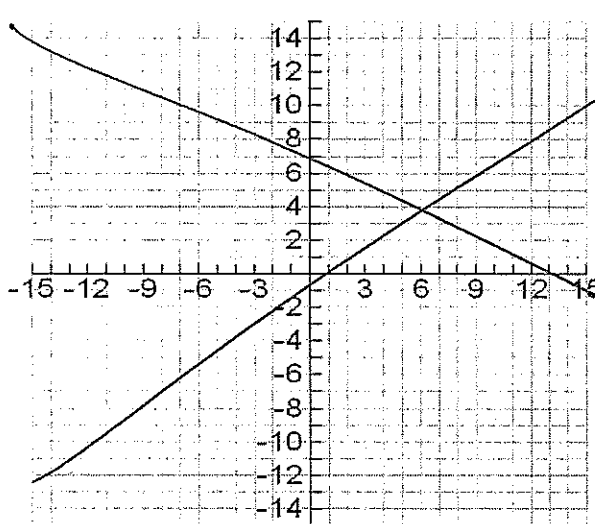
G _____	G' _____
H _____	H' _____
I _____	I' _____
J _____	J' _____
K _____	K' _____

3. Given $\triangle ABC$ with $A(-4, 5)$, $B(3, 2)$, and $C(-2, -3)$, dilate the triangle such that $(x', y') = (3x, 3y)$.

What does this notation mean?

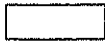
What is the scale factor to make $\triangle ABC \sim \triangle A'B'C'$? \rightarrow

Draw the dilation below and give the coordinates of its vertices.



A' _____
B' _____
C' _____

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CCMS

Dilations

Name:

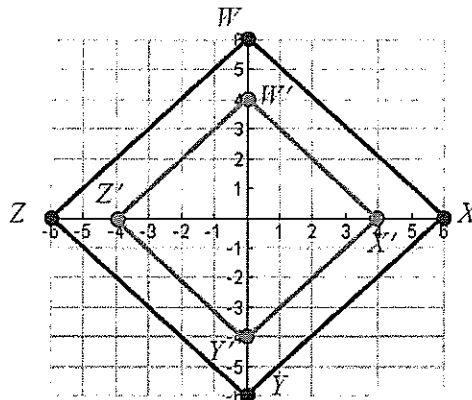
4. The image of WXYZ is figure W'X'Y'Z'.

Determine the scale factor for this dilation and give the rule that could be used to create the dilation.

$$X(6, 0) \rightarrow X'(4, 0)$$

$$\frac{6x}{6} = \frac{4}{6}$$

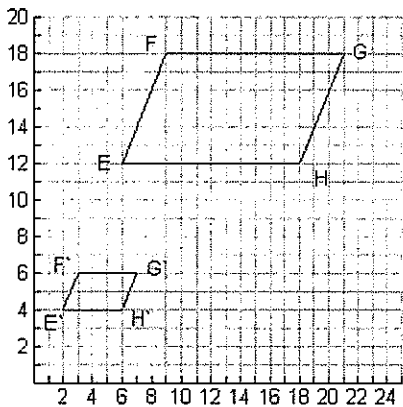
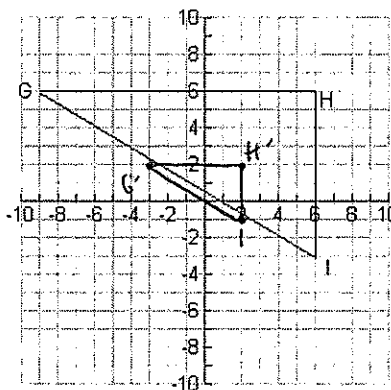
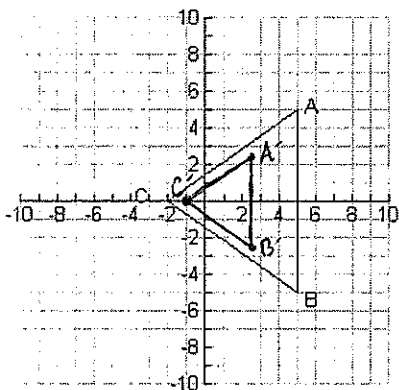
$$x = \frac{2}{3}$$



Dilate each figure by the given scale factor.

6. Scale factor of 1/2

7. Scale factor of 1/3



8. Determine the scale factor of the dilation to the left and give the rule that could be used to create the dilation.

$$E(6, 12) \rightarrow E'(2, 4)$$

$$\frac{6x}{6} = \frac{2}{6}$$

$$x = \frac{1}{3}$$

