Name:	Key
	T

about Similarit and congruence

M8-U2/3: Notes #6 – Dilations

class: \_\_\_ but it's a focus in Lesson 8.

\*You may talk

**Dilation** - transformation that produces an image that is the <u>Same Shape</u>, as the original but  $\underline{\text{hot the Same S12e}}$ 

- A dilation is <u>SIMILAR</u> to the original figure.
- Dilations are centered around the origin (0, 0), unless otherwise stated.

- If the scale factor is between 0 and 1, the figure becomes **Smaller**.

**Rule:**  $(x, y) \rightarrow (fx, fy)$  where f represents the scale factor.

## Example 1:

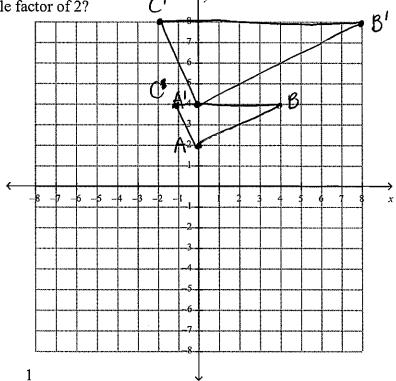
Triangle ABC has vertices A(0, 2), B(4, 4), and C(-1, 4).

What are the vertices of its *image* with a scale factor of 2?

What is the rule for this dilation?

$$(x,y) \rightarrow (\mathcal{A}_X, \mathcal{A}_Y)$$

Graph the triangle and its image.



## Try it:

Triangle XYZ has vertices X(0, -2), Y(-1, 2), and Z(2, 2).

What are the vertices of its *image* with a scale factor of 3?  $X \mathcal{J} \uparrow^y$ 

$$X'(O_1-O_1)$$

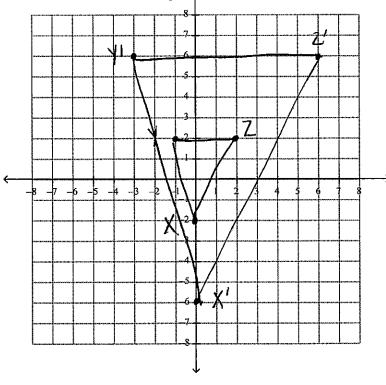
$$Y'(-3, 6)$$

$$Z'$$
 ((0,16)

What is the rule for this dilation?

$$(x_1y) \rightarrow (3x_13y)$$

Graph the triangle and its image.

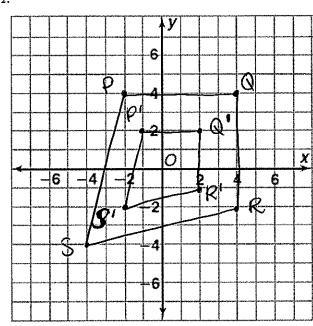


## Example 2:

Quadrilateral PQRS has vertices P(-2, 4), Q(4, 4), R(4, -2), and S(-4, -4). It is dilated by a scale factor of  $\frac{1}{2}$ .

What are the coordinates of the image?

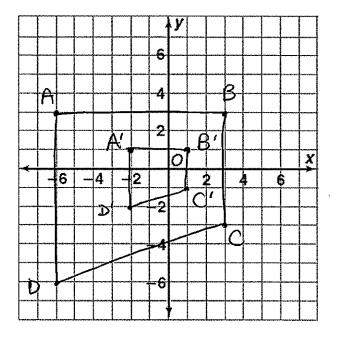
R(2,-1) S'(-2,-2)Graph the quadrilateral and its image.



Try It: Quadrilateral ABCD has vertices A (-6, 3), B (3, 3), C (3, -3), and D(-6, -6). It is dilated by a scale factor of 1/3,

What are the coordinates of the image?

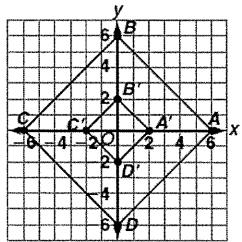
Graph the quadrilateral and its image.



PRACTICE:

- 1. If a scale factor is  $\frac{5}{2}$ , how would you write the general rule?

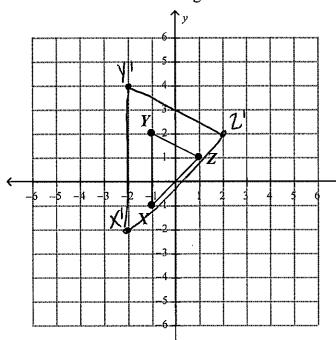
  Is this an enlargement or a reduction?  $(\chi, \chi) \rightarrow (5/2 \chi, 5/2 \chi)$
- 2. Quadrilateral A'B'C'D' is a dilation of quadrilateral ABCD. Find the scale factor. Classify the dilation as an enlargement or a reduction. It gots maller.



A(610) > A'(210)

The scale factor must be 1/3.

3. Triangle XYZ is graphed below. Draw and label Triangle X'Y'Z' after a dilation using a scale factor of two.  $(\chi \mathcal{Q})$ 



$$X(-| , -| ) \rightarrow X'(-2, -2)$$

$$y(-1,2) \rightarrow Y'(-2,4)$$

$$\Rightarrow z(1,1) \rightarrow (2,2)$$