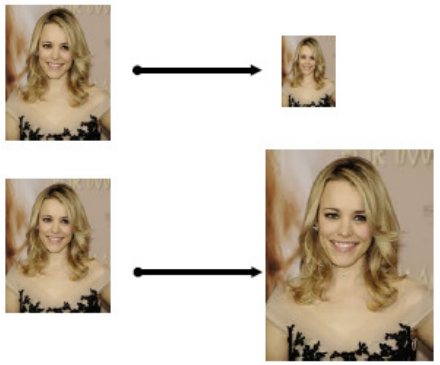
NOTES: LESSON 10.5 – DILATIONS W/ ALGEBRAIC RULE Name: _____

Learning Goal: I can ***dilate*** a figure and write the algebraic rule for the ***dilation***. **Meta de Aprendizaje**: *Puedo **dilatar** una figura y escribir la regla algebraica para la **dilatación**.*	**Language Goal:** I can write the algebraic rule for a ***dilation*** and justify my answer to a partner. **Lenguaje Objetivo**: *Puedo escribir la regla algebraica para una **dilatación** y justificar mi respuesta a un compañero.*

DILATIONS



MOST IMPORTANT INFORMATION:

1. **Dilations** are _____ !
   - The angles of the OLD and NEW shape are _____ .
   - The sides of the OLD and NEW shape are _____ .
2. **Dilations** are the ONLY rule that _____ .
3. The _____ is the number that _____ the x and y coordinates.

$$\textbf{SCALE FACTOR} = \frac{\textbf{Coordinate}}{\textbf{Coordinate}}$$

4. There are _____ types of **dilations**:

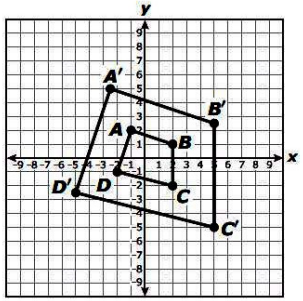
ENLARGEMENTS

- New shape gets bigger
- Multiply by a **SCALE FACTOR** greater than 1.

$(x, y) \rightarrow (3x, 3y)$

OR

$(x, y) \rightarrow (\frac{3}{2}x, \frac{3}{2}y)$



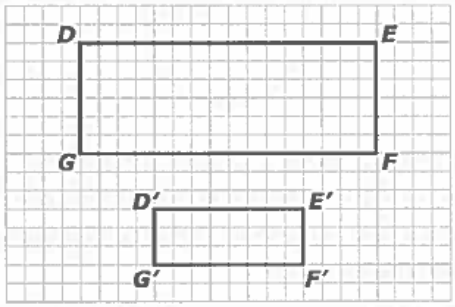
REDUCTIONS

- New shape gets smaller
- Multiply by a **SCALE FACTOR** less than 1.

$(x, y) \rightarrow (0.5x, 0.5y)$

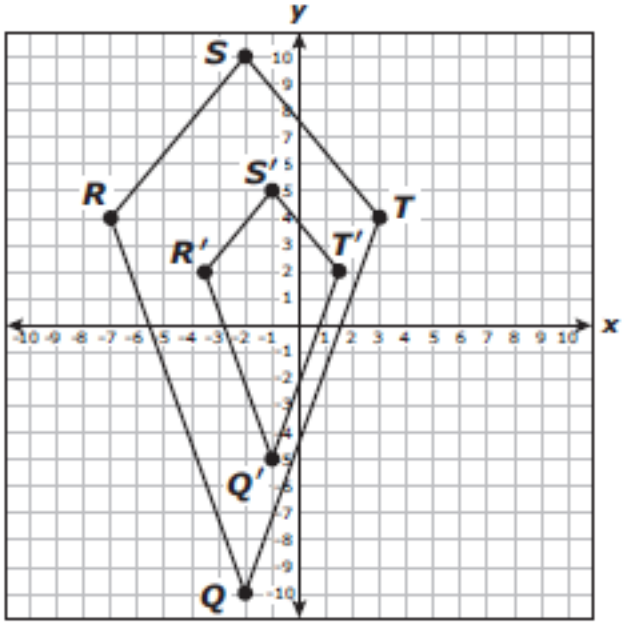
OR

$(x, y) \rightarrow (\frac{1}{4}x, \frac{1}{4}y)$



EXAMPLE 1

Quadrilateral QRST was ***dilated*** with the origin as the center of dilation to create quadrilateral Q'R'S'T'.



Point	(x , y) Coordinate
R	(-7 , 4)
R'	(,)

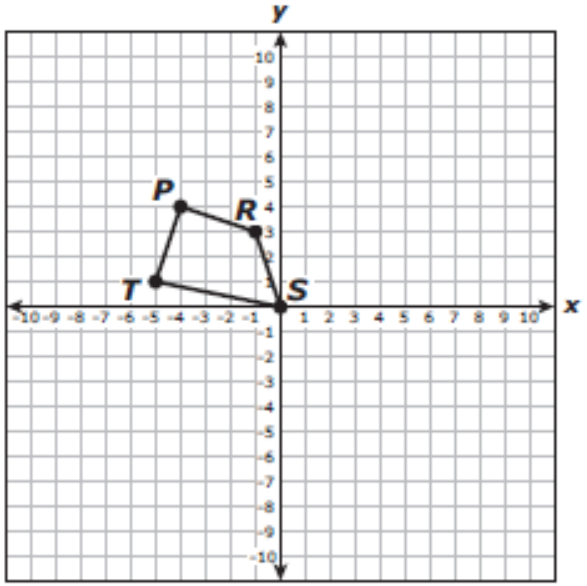
$$\textit{SCALE FACTOR} = \frac{\textit{NEW}}{\textit{OLD}} = \text{\_\_\_\_}$$

What is the ***rule*** for the ***dilation***?

$$(x, y) \rightarrow (\text{\_\_\_\_\_}, \text{\_\_\_\_\_})$$

EXAMPLE 2

Becca drew a figure on the coordinate grid below.



She then ***dilated*** the figure by using a ***scale factor*** of 2. What are the new ordered pairs?

Point	Original Coordinate	New Coordinate
P	(-4 , 4)	
R	(-1 , 3)	
S	(0 , 0)	
T	(-5 , 1)	

What is the ***rule*** for the ***dilation***?

$$(x, y) \rightarrow (\text{\_\_\_\_\_}, \text{\_\_\_\_\_})$$