

PRACTICE: 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*.

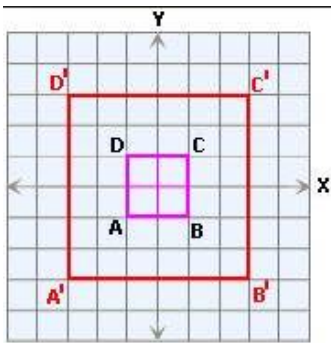
Language Goal: I can write the algebraic rule for a *dilation* and justify my answer to a partner.

Lenguaje Objetivo: Puedo escribir la regla algebraica para una *dilatación* y justificar mi respuesta a un compañero.

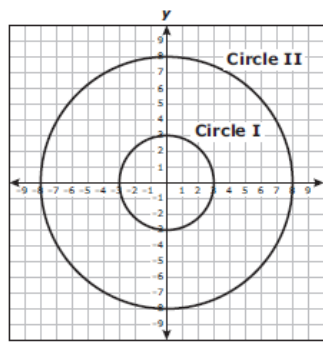
Directions: Use your notes from Lesson 10.1 and Lesson 10.4 to answer the following questions.

- Which rule is the **ONLY** rule that adds or subtracts? _____
- Which rule is the **ONLY** rule that multiplies? _____
- Are the side lengths congruent for **dilations**? Circle one: **YES NO SOMETIMES**
- What is a **dilation** called that gets bigger? _____

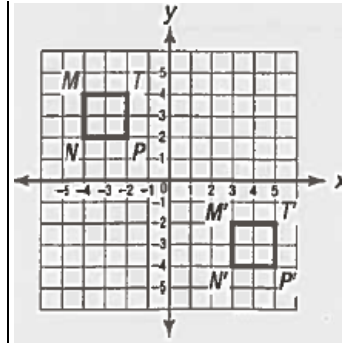
Problems 5 through 8: What transformation is represented by each graph?



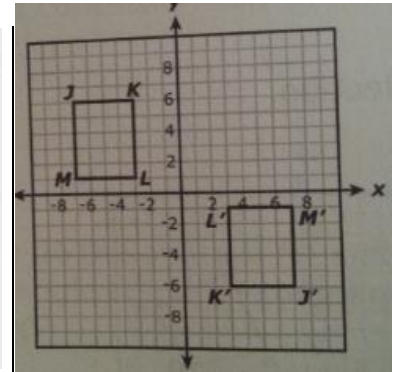
Answer: _____



Answer: _____



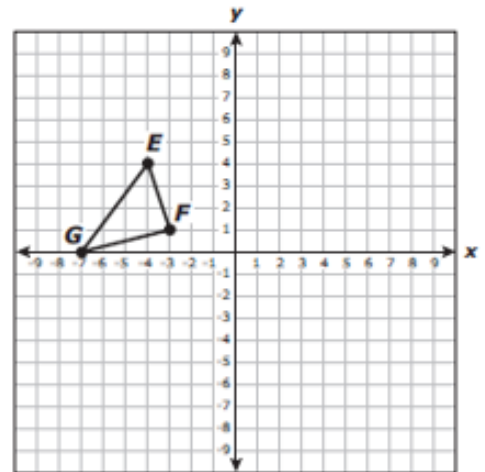
Answer: _____



Answer: _____

- Triangle GEF has coordinates as shown below. What are the coordinates of Triangle GEF after a **dilation** using a **scale factor of 0.5**. Fill in the table.

Point	(x, y) Coordinate
G	(-7 , 0)
G'	(,)
E	(-4 , 4)
E'	(,)
F	(-3 , 1)
F'	(,)



What is the rule for the **dilation**? $(x, y) \rightarrow (\text{_____} , \text{_____})$

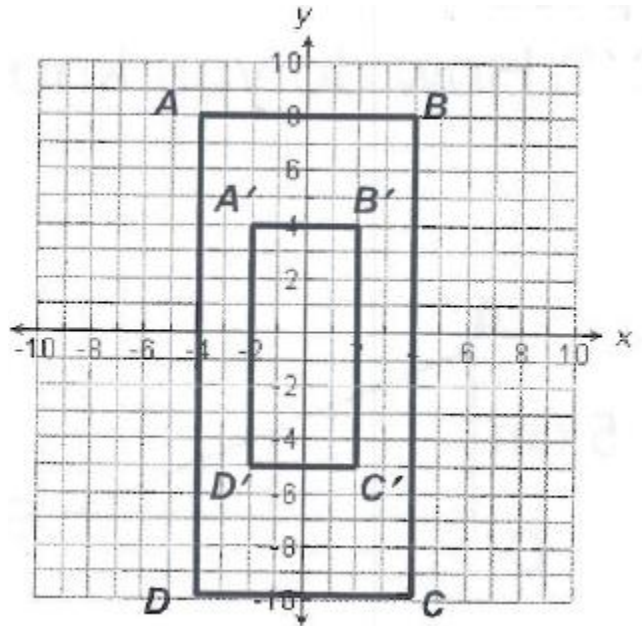
- A **transformation** is applied to a figure to create a new figure. Which **transformation** does **NOT** preserve congruence?

- A A reflection across the x-axis
- B A translation 7 units down
- C A dilation by a scale factor of 5
- D A rotation of 90° clockwise

11. Rectangle ABCD was **dilated** to create Rectangle A'B'C'D'.

Find the **scale factor** and write the rule.

Point	(x, y) Coordinate
A	(,)
A'	(,)



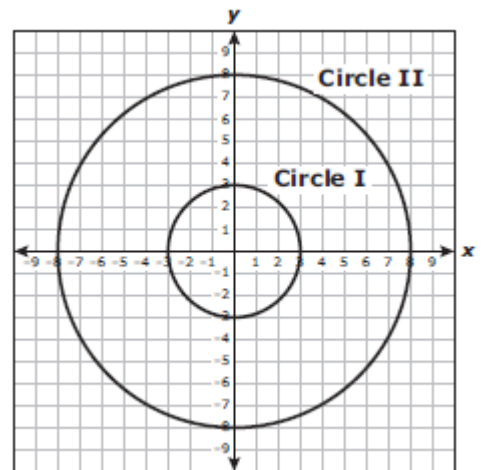
$$\text{SCALE FACTOR} = \frac{\text{NEW}}{\text{OLD}} = \underline{\hspace{2cm}}$$

What is the rule for the **dilation**? $(x, y) \rightarrow (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

12. Circle I was **dilated** with the origin as the center of **dilation** to create Circle II.

Find the **scale factor** and write the rule.

Point	(x, y) Coordinate
	(,)
	(,)

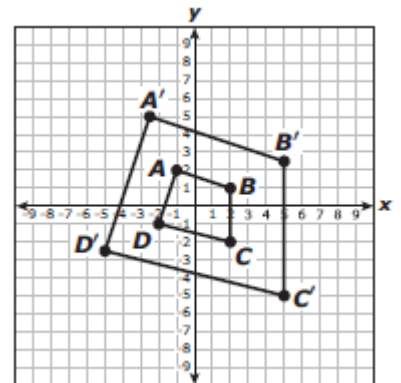


$$\text{SCALE FACTOR} = \frac{\text{NEW}}{\text{OLD}} = \underline{\hspace{2cm}}$$

What is the rule for the **dilation**? $(x, y) \rightarrow (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

13. Quadrilateral ABCD was **dilated** with the origin as the center of **dilation** to create Quadrilateral A'B'C'D'. Find the **scale factor** and write the rule.

Point	(x, y) Coordinate
C	(,)
C'	(,)



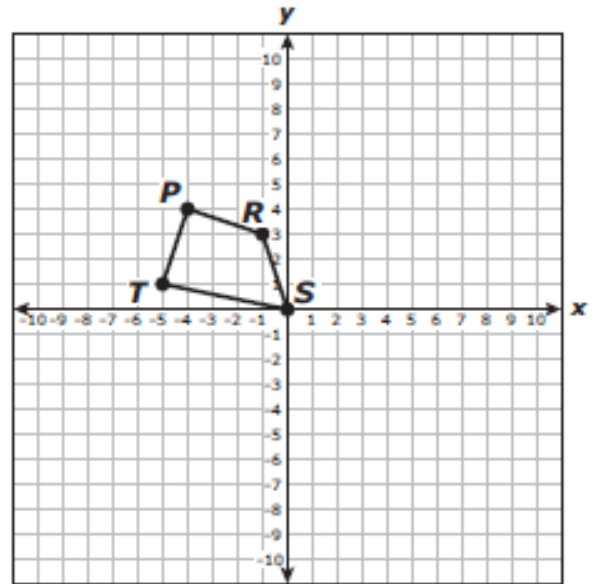
$$\text{SCALE FACTOR} = \frac{\text{NEW}}{\text{OLD}} = \underline{\hspace{2cm}}$$

What is the rule for the **dilation**? $(x, y) \rightarrow (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

14. Becca drew a figure on the coordinate grid below.
She then **dilated** the figure by using a **scale factor** of 2.5.

What are the new coordinates?

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



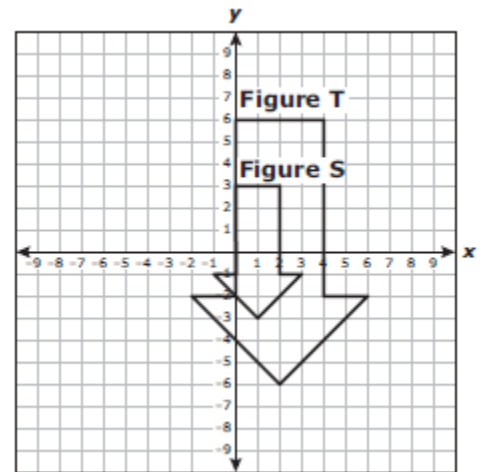
What is the rule for the **dilation**? $(x, y) \rightarrow (\underline{\hspace{2cm}} , \underline{\hspace{2cm}})$

15. Figure S, the small arrow, was **dilated** with the origin as the center of **dilation** to create Figure T, the large arrow. Find the **scale factor** and write the rule.

$$\text{SCALE FACTOR} = \frac{\text{NEW}}{\text{OLD}} = \underline{\hspace{2cm}}$$

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

$$(x, y) \rightarrow (\underline{\hspace{2cm}} , \underline{\hspace{2cm}})$$

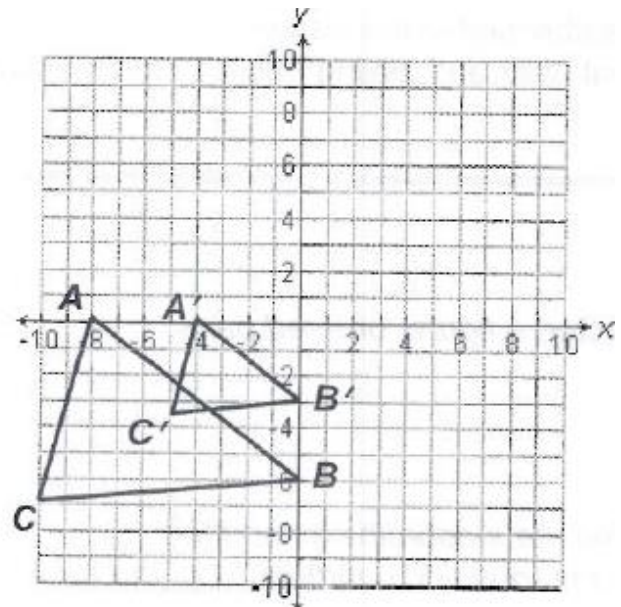


16. Triangle ABC was **dilated** with the origin as the center of **dilation** to create Triangle A'B'C'. Find the **scale factor** and write the rule.

$$\text{SCALE FACTOR} = \frac{\text{NEW}}{\text{OLD}} = \underline{\hspace{2cm}}$$

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

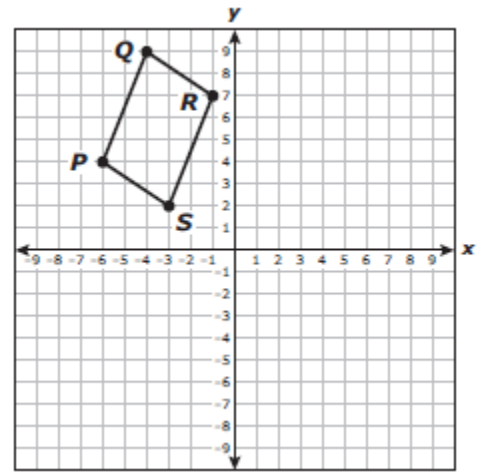
$$(x, y) \rightarrow (\underline{\hspace{2cm}} , \underline{\hspace{2cm}})$$



17. Parallelogram PQRS is as shown.

Dilate the figure by using a **scale factor** of $\frac{1}{4}$.

What are the original and the new coordinates?



Point	Original Coordinate	New Coordinate
P	(,)	(,)
Q	(,)	(,)
R	(,)	(,)
S	(,)	(,)

What is the rule for the **dilation**? $(x, y) \rightarrow (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

18. The triangle shown was **dilated** with the origin as the center of **dilation** to create a new triangle. Vertex A is as shown.

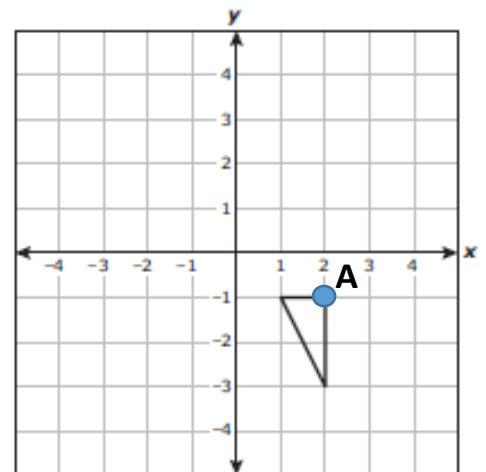
The new coordinates for **A'** are $(3, -1.5)$.

Find the **scale factor** and write the rule.

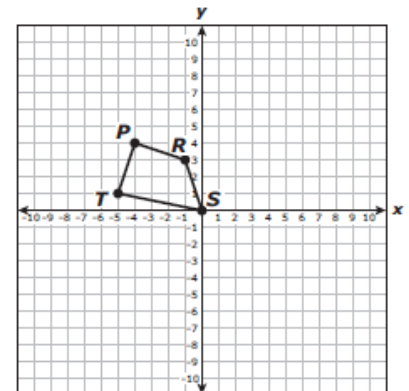
$$\text{SCALE FACTOR} = \frac{\text{NEW}}{\text{OLD}} = \underline{\hspace{2cm}}$$

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

$(x, y) \rightarrow (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$



19. Quadrilateral PRST is transformed according to the rule $(x, y) \rightarrow (x + 9, y + 4)$ to create quadrilateral P'R'S'T'.



Which statement is true?

- A The side lengths of quadrilateral P'R'S'T' are twice the corresponding side lengths of quadrilateral PRST.
- B The angle measures of quadrilateral P'R'S'T' are equal to the corresponding angle measures of quadrilateral PRST.
- C The side lengths of quadrilateral P'R'S'T' are 9 units longer than the corresponding side lengths of quadrilateral PRST.
- D The angle measures of quadrilateral P'R'S'T' are greater than the corresponding angle measures of quadrilateral PRST.