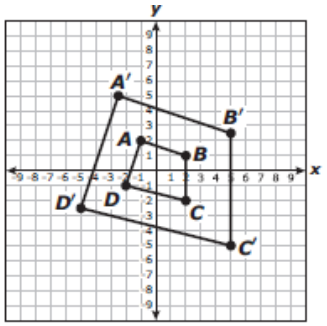
PRACTICE: LESSON 10.2 – TRANSLATIONS W/ ALGEBRAIC RULE Name: _____

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

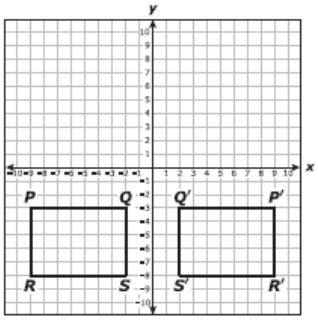
Directions: Use your notes from Lesson 10.1 and Lesson 10.2 to answer the following questions.

1. Which rule is the **ONLY** rule that multiplies? _____
2. Which rule is the **ONLY** rule that adds or subtracts? _____
3. Are the angles and side lengths congruent for **translations**? Circle one: **YES** **NO** **SOMETIMES**
4. What is a dilation called that gets bigger? _____
5. What transformation is described by the rule $(x, y) \rightarrow (-y, x)$? _____
6. What transformation is described by the rule $(x, y) \rightarrow (x, -y)$? _____
7. What transformation is described by the rule $(x, y) \rightarrow (5.5x, 5.5y)$? _____
8. What transformation is described by the rule $(x, y) \rightarrow (x + 1, y - 1)$? _____

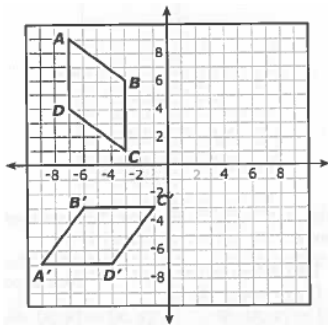
Problems 9 through 12: What transformation is represented by each graph?



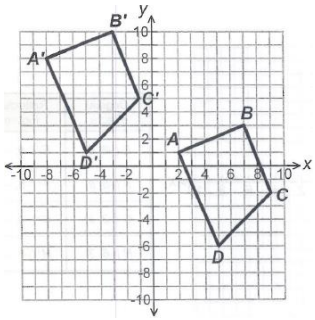
Answer: _____



Answer: _____



Answer: _____

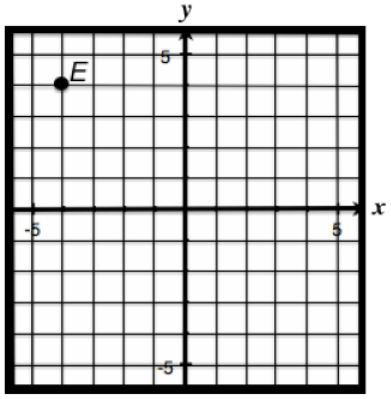


Answer: _____

Directions: **Translate** the shape, if required. Determine the rule for the **translation**.

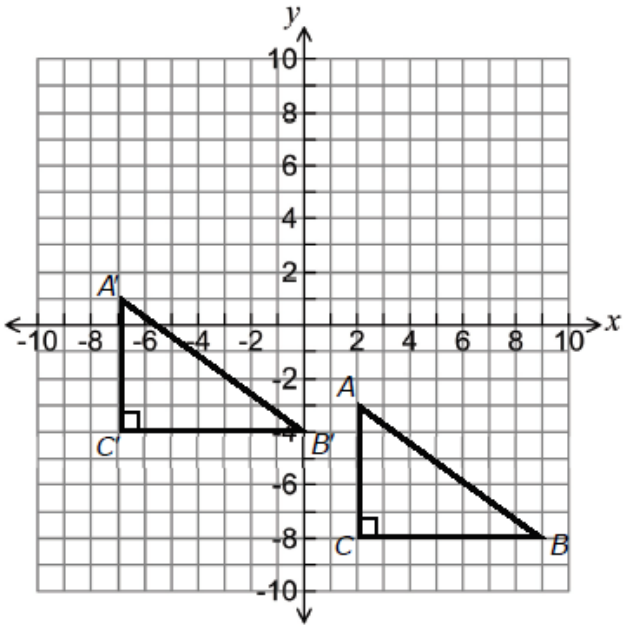
1. Point E has coordinates of (-4 , 4). **Translate** Point E three units right and 5 units down. What are the new coordinates for Point E'?

Point	(x , y) Coordinate
E	(-4 , 4)
E'	(,)



What is the rule for the **translation**? $(x, y) \rightarrow$ (_____ , _____)

2. Triangle ABC was **translated** to create Triangle A'B'C' as shown below.



Which of the following best describes the **translation**?

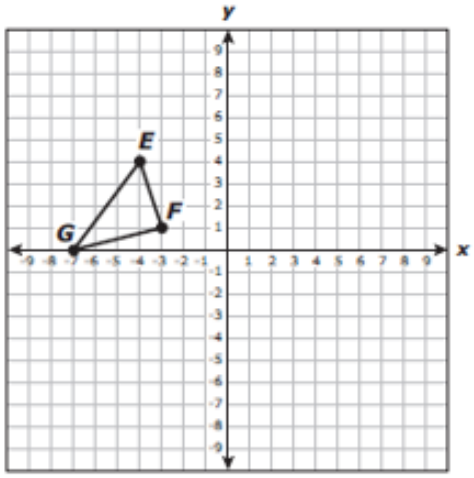
A. 9 units right and 4 units down
B. 9 units left and 4 units up
C. 2 units left and 4 units up
D. 2 units right and 4 units down

What is the rule for the **translation**?

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

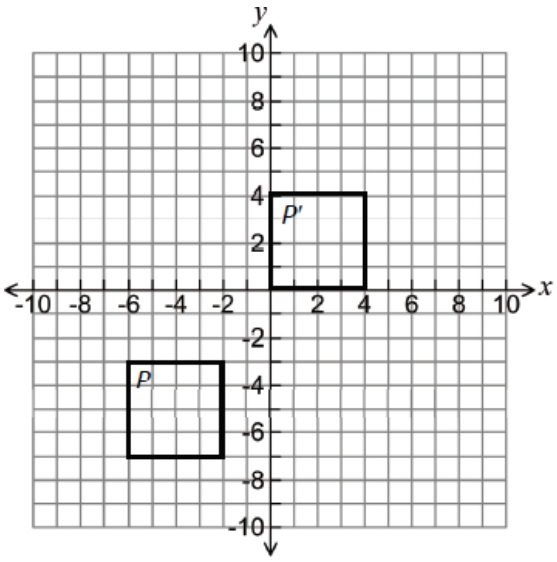
3. Triangle GEF has coordinates as shown below. What are the coordinates of Triangle GEF after a translation of 5 units horizontally and -3 units vertically. Fill in the table.

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



What is the rule for the **translation**? $(x, y) \rightarrow (\_\_\_\_\_, \_\_\_\_\_)$

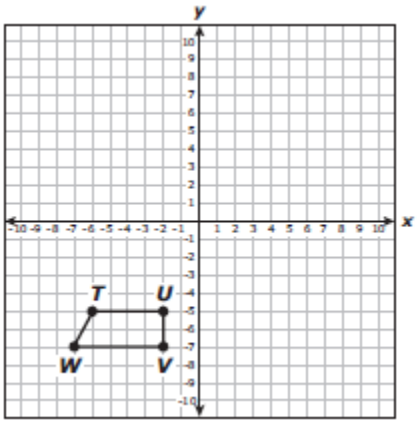
4. Square P was **translated** to create Square P' as shown.



What is the rule for the **translation**?

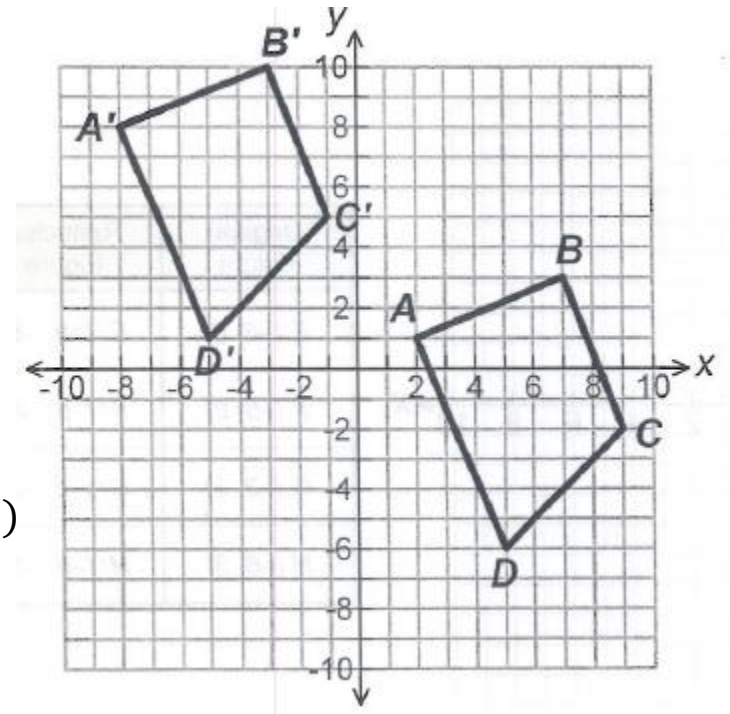
$(x, y) \rightarrow (\_\_\_\_\_, \_\_\_\_\_)$

5. Trapezoid TUVW is as shown. If the vertices were **translated** 5 units horizontally and 3 units vertically, what would be the rule?



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

6. Quadrilateral ABCD was **translated** to create Quadrilateral A'B'C'D' as shown.

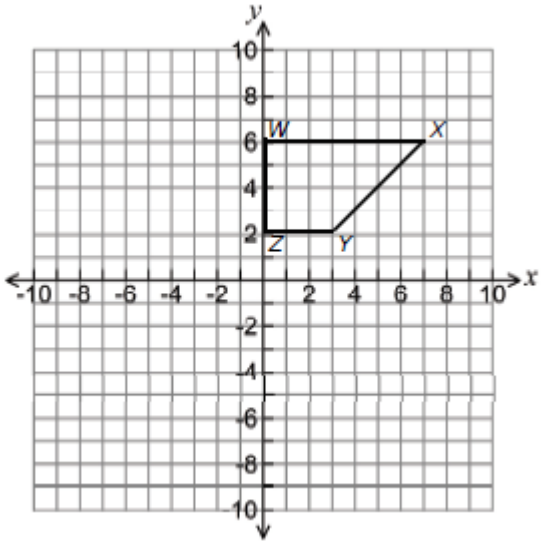


What is the rule for the **translation**?

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

7. Where will point X' be located if Quadrilateral WXYZ is **translated** 3 units to the right and 2 units down?

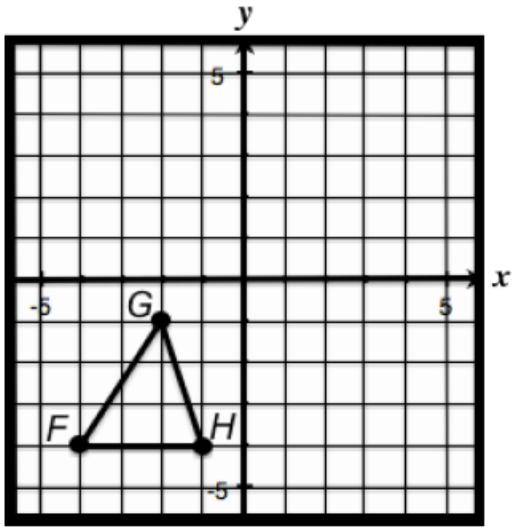
Point	(x, y) Coordinate
X	(7, 6)
X'	(,)



What is the rule for the **translation**?

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

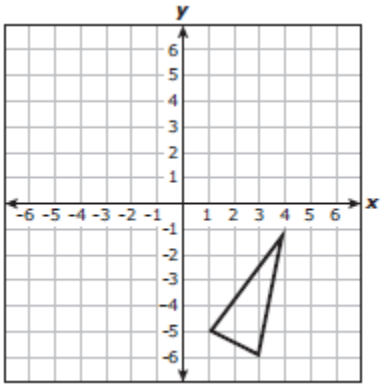
8. Triangle FGH was **translated** to create Triangle F'G'H'.
As shown, Vertex F was at (-4 , -4).



If Vertex F' is now at (2 , 0), which rule describes this **translation**?

A. $(x, y) \rightarrow (x - 4, y - 6)$
B. $(x, y) \rightarrow (x + 4, y + 6)$
C. $(x, y) \rightarrow (x - 6, y - 4)$
D. $(x, y) \rightarrow (x + 6, y + 4)$

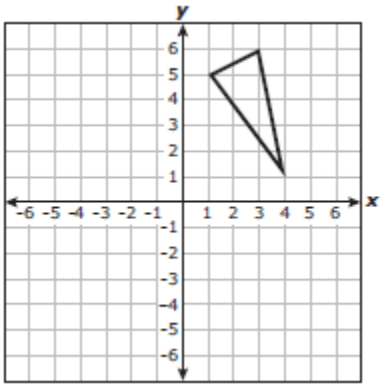
9. Translate the triangle -5 units horizontally and 7 units vertically.



What is the rule for the **translation**?

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

10. Translate the triangle 2 units to the right and 4 units down.



What is the rule for the **translation**?

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

11. Does the x-value or the y-value change when you **translate** horizontally? _____

12. Does the x-value or the y-value change when you **translate** vertically? _____

13. Do you add or subtract when you **translate** to the right? _____

14. Do you add or subtract when you **translate** down? _____

15. Are the sides and angles of **translations** congruent? **YES NO SOMETIMES**

16. Which transformation has the **ONLY** rule that multiplies? _____