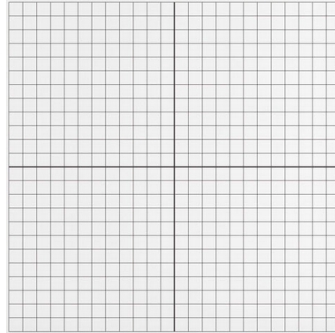


**TARGET 2.2A: Translations**

Directions: The vertices of  $\triangle PQR$  are  $P(-2, 3)$ ,  $Q(1, 2)$ , and  $R(3, -1)$ . Find the vertices of the image using the given translation rule. Then, graph the image using prime notation.

1)  $(x, y) \rightarrow (x + 4, y + 6)$

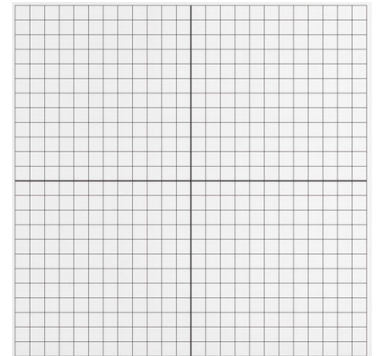


P' \_\_\_\_\_

Q' \_\_\_\_\_

R' \_\_\_\_\_

2)  $(x, y) \rightarrow (x + 9, y - 2)$



P' \_\_\_\_\_

Q' \_\_\_\_\_

R' \_\_\_\_\_

Directions: Find the length of the translation from  $A$  to  $A'$ . (Remember distance formula??)

3) Point  $A$  is at  $(-2, 1)$ . It is then translated 5 units horizontally and  $-6$  units vertically to  $A'$ .

4) Point  $A$  is at  $(-10, -11)$ . It is then translated  $-4$  units horizontally and 2 units vertically to  $A'$ .

Directions: Answer the following questions about a figure that is translated given the following rule.

Select all that apply.

5)  $(x, y) \rightarrow (x + 2, y)$

6)  $(x, y) \rightarrow (x - 1, y - 2)$

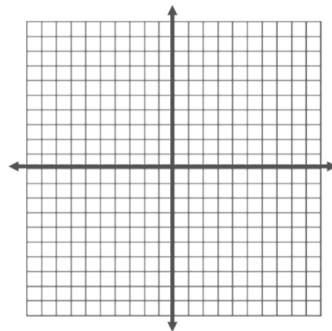
7)  $(x, y) \rightarrow (x, y + 4)$

- (a) Translation is a rigid motion
- (b) Translation is a non-rigid motion
- (c) Figure is moved left
- (d) Figure is moved right
- (e) Figure is moved up

- (a) Translation is a rigid motion
- (b) Translation is a non-rigid motion
- (c) Figure is moved left
- (d) Figure is moved right
- (e) Figure is moved down

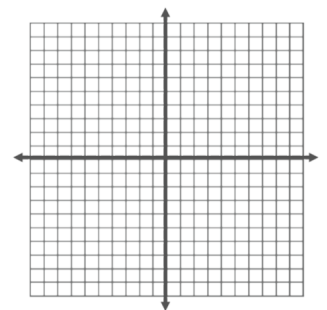
- (a) Translation is a rigid motion
- (b) Translation is a non-rigid motion
- (c) Figure is moved left
- (d) Figure is moved up
- (e) Figure is moved down

8) Rotate  $\overline{LM}$   $90^\circ$  clockwise about the origin. The coordinates are  $L(-6, 1)$  and  $M(-2, 4)$ . Which of the following statements are true?



- (a)  $L'$  will be located in quadrant I
- (b)  $L'$  will be located in quadrant II
- (c)  $M'$  will be located in quadrant I
- (d) The slope of  $\overline{L'M'}$  is positive
- (e) The slope of  $\overline{L'M'}$  is negative

9) Rotate  $\overline{AB}$   $270^\circ$  counter counter-clockwise about the origin. The coordinates are  $A(-2, -5)$  and  $B(7, -1)$ . Which of the following statements are true?

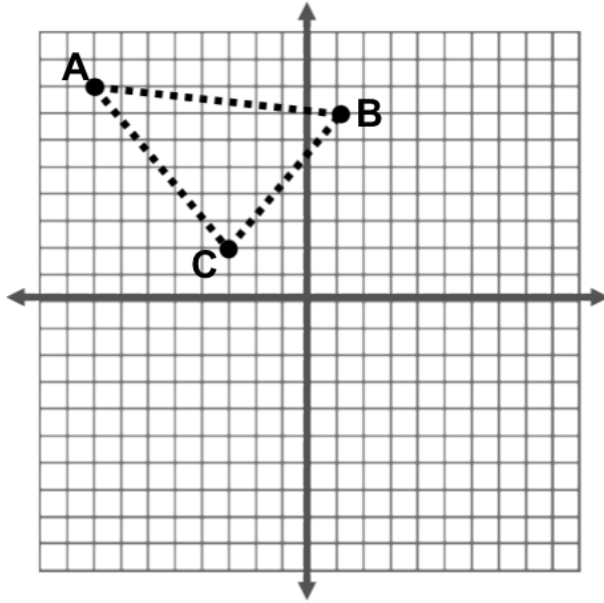


- (a)  $A'$  will be located in quadrant III
- (b)  $A'$  will be located in quadrant IV
- (c)  $B'$  will be located in quadrant III
- (d) The slope of  $\overline{A'B'}$  is positive
- (e) The slope of  $\overline{A'B'}$  is negative

**TARGET 2.2B: Rotations**

Directions: Sketch the resulting triangle after the indicated rotation about the origin. Then list the new vertices.

10)



a) Rotation  $180^\circ$

$A'(\underline{\quad}, \underline{\quad})$   $B'(\underline{\quad}, \underline{\quad})$   $C'(\underline{\quad}, \underline{\quad})$

b)  $90^\circ$  clockwise

$A'(\underline{\quad}, \underline{\quad})$   $B'(\underline{\quad}, \underline{\quad})$   $C'(\underline{\quad}, \underline{\quad})$

c)  $90^\circ$  counterclockwise

$A'(\underline{\quad}, \underline{\quad})$   $B'(\underline{\quad}, \underline{\quad})$   $C'(\underline{\quad}, \underline{\quad})$

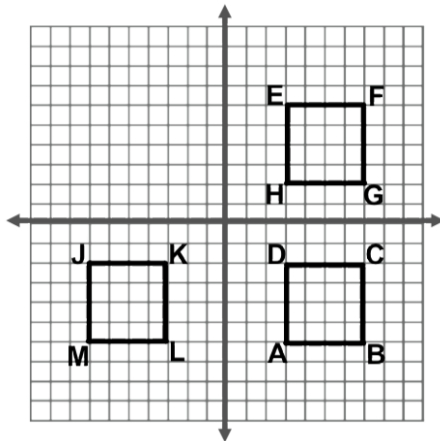
d)  $270^\circ$  counterclockwise

$A'(\underline{\quad}, \underline{\quad})$   $B'(\underline{\quad}, \underline{\quad})$   $C'(\underline{\quad}, \underline{\quad})$

## TARGET 2.2C: Reflections

Directions: ABCD is shown in the diagram below. Use the diagram to find the image of the indicated line segment.

11)

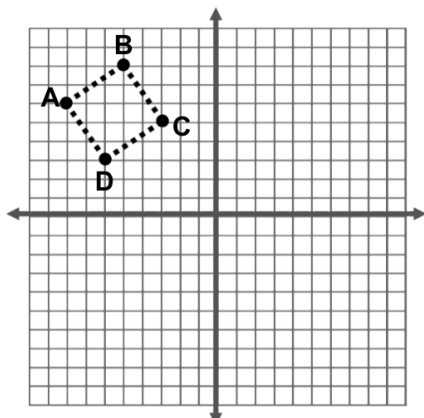


a) Line segment  $\overline{AB}$  is reflected over the x-axis. The image of  $\overline{AB}$  will be:

b) Line segment  $\overline{CD}$  is reflected over the y-axis. The image of  $\overline{CD}$  will be:

c) Line segment  $\overline{CD}$  is reflected over the x-axis. The image of  $\overline{CD}$  will be:

12) Reflect the figure shown across the line  $x = -1$ . Then label the vertices of the image below.



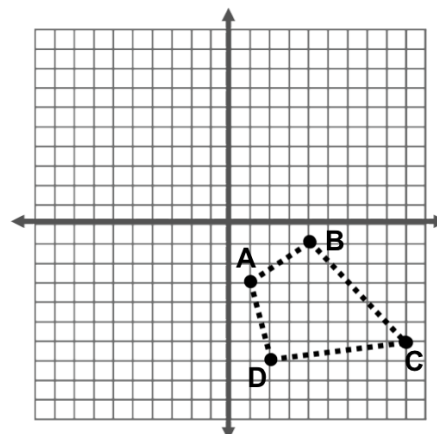
$A'(\underline{\quad}, \underline{\quad})$

$B'(\underline{\quad}, \underline{\quad})$

$C'(\underline{\quad}, \underline{\quad})$

$D'(\underline{\quad}, \underline{\quad})$

13) Reflect the figure shown across the y-axis. Then label the vertices of the image below.



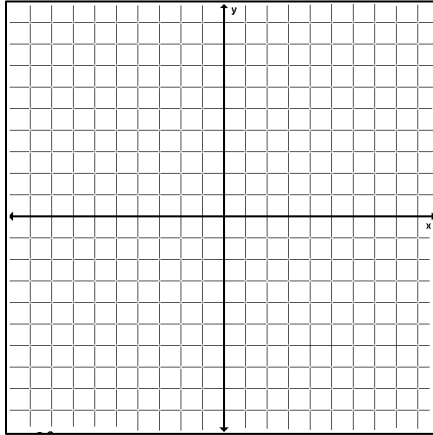
$A'(\underline{\quad}, \underline{\quad})$

$B'(\underline{\quad}, \underline{\quad})$

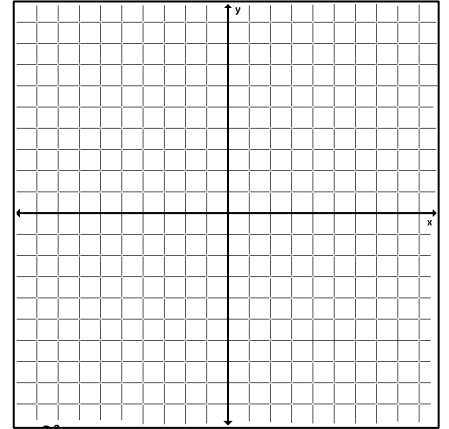
$C'(\underline{\quad}, \underline{\quad})$

$D'(\underline{\quad}, \underline{\quad})$

14) A line segment has endpoints A (7, -1) and B (-5, 2). The line segment is reflected over  $x = 1$ . Find the sum of the x- and y-coordinates of A' and B'.



15) A line segment has endpoints A (3,0) and B (-1, 1). The line segment is reflected over  $y = 3$ . Find the sum of the x- and y-coordinates of A' and B'.



A (7, -1)	B(-5, 2)
A' ( , )	B' ( , )
Sum of A' =	Sum of B' =

A (3, 0)	B(-1, 1)
A' ( , )	B' ( , )
Product of A' =	Product of B' =

## Unit 2.2 Review Worksheet Answers

- $P' (2,9)$   $Q' (5,8)$   $R' (7,5)$
- $P' (7,1)$   $Q' (10,0)$   $R' (12,-3)$
- $c = \sqrt{61}$
- $c = 2\sqrt{5}$
- A, D
- A, C, E
- A, E
- A, C, E
- C, E
- $A'(-8,8)$ ,  $B'(-1,-7)$ ,  $C'(3,-2)$
  - $A'(8,8)$ ,  $B'(7,-1)$ ,  $C'(2,3)$
  - $A'(-8,-8)$ ,  $B'(-7,1)$ ,  $C'(-2,-3)$
  - $A'(8,8)$ ,  $B'(7,-1)$ ,  $C'(2,3)$
- $\overline{EF}$
  - $\overline{JK}$
  - $\overline{GH}$
- $A'(6,6)$ ,  $B'(3,8)$ ,  $C'(1,5)$ ,  $D'(4,3)$
- $A'(-1,-3)$ ,  $B'(-4,-1)$ ,  $C'(-9,-6)$ ,  $D'(-2,-7)$
- SUM A' = -6, SUM B' = 9
- SUM A' = 9, SUM B' = 4