

Please use patty paper and/or graph paper when needed

Name: Key Period: \_\_\_\_\_

## MODULE 1- TOPIC 1 TRANSFORMATIONS REVIEW

1. Determine which transformation represents each scenario below: Translation, Rotation, or Reflection.

- A. Looking into a lake and seeing your image in the lake. Reflection  
B. A gymnast doing a cartwheel. Rotation  
C. A person rides up an elevator, gets off and walks left towards his office. Translation

2. Given coordinates of point A (-9, -3), what would A' be if translated using the following rule,  $(x + 3, y - 7)$ .

A' (-6, -10) right 3, down 7

3. Using the pre- image A, match the transformations that occurred to get to the other polygons D, E, and F. Some of the transformations will not be used.

No Reflection over the x-axis

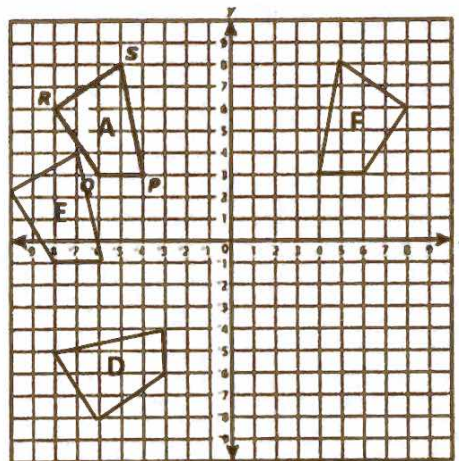
YES Reflection over the y-axis (FIG F)

YES Rotate 90° counter clockwise (FIG. D)

No Rotate 90° clockwise

No Translate 4 units left and down 2 units.

YES Translate 4 units down and left 2 units. (FIG. E)



4. Sammy drew a triangle with coordinates (5, 1), (8, 4) and (2, 3). Then she drew another triangle with coordinates (5, -1), (8, -4) and (2, -3). What transformation was used?

x-coordinate stayed the same, y-coordinate is opposite  $\Rightarrow$  REFLECTION OVER X-AXIS

5. Complete each statement. Use #'s/right/left to fill in the blanks.

A 90° clockwise rotation is 1 turn to the right.

A 90° counter clockwise rotation is 1 turn to the left.

A 180° rotation is 2 turns.

A 270° clockwise rotation is 3 turns to the right.

A 270° counter clockwise rotation is 3 turns to the left.

A rule to find the coordinates easily without graphing for a 180° rotation is  $(-x, -y)$ . So if the point  $(-2, 5)$  was rotated 180°, the coordinates of the image would be  $(2, -5)$ .

6. Describe in words what the following rules are for the following translations.

A.  $(x, y - 5)$

translate down 5

B.  $(x + 5, y)$

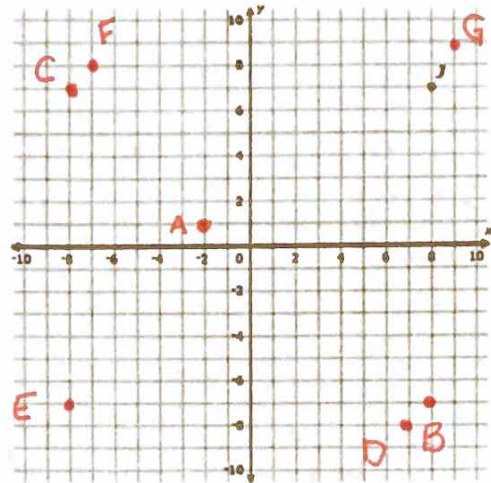
translate right 5

C.  $(x - 1, y + 7)$

translate left 1, up 7

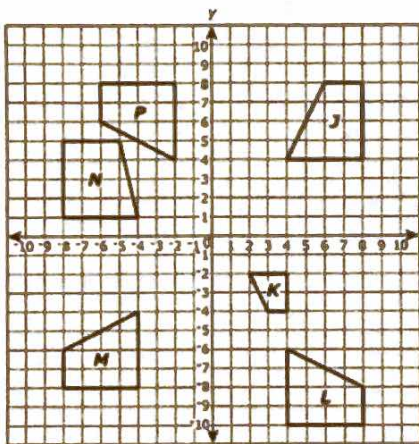
7. Given the following coordinate point  $J(8, 7)$ , graph the following:

- A. Translate using the rule  $(x - 10, y - 6)$  and label it A  $(-2, 1)$
- B. Reflect J over the x-axis and label it B.  $(8, -7)$
- C. Reflect J over the y-axis and label C.  $(-8, 7)$
- D. Rotate J  $90^\circ$  clockwise and label it D.  $(7, 8)$
- E. Rotate J  $180^\circ$  and label it E.  $(-8, -7)$
- F. Rotate J  $90^\circ$  counter clockwise and label it F.  $(-7, 8)$
- G. Translate up 2 and right 1 and label it G.  $(9, 9)$

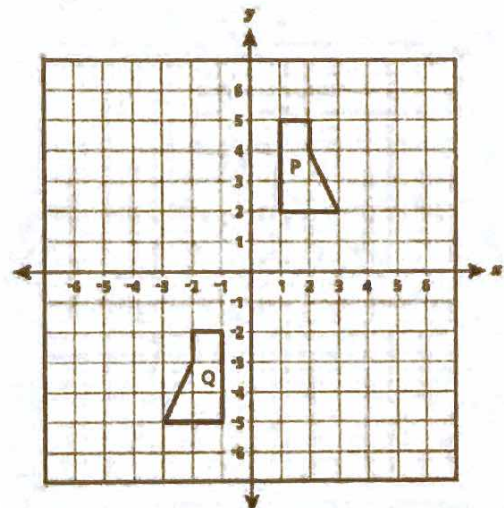


8. Which figure would be the image if pre-image M was reflected over the x-axis and then translated 2 units to the right? M P

Which figure would be the image if pre-image J was rotated  $90^\circ$  clockwise and then translated down 2 units? L

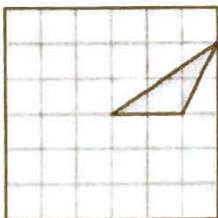


9. Which transformations were used to create image Q from image P?

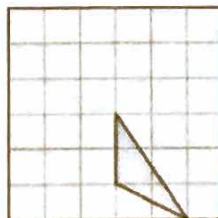


Rotate  $180^\circ$   
 Reflect over x-axis  
 Translate down 7

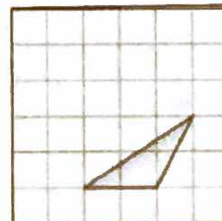
10. Given the picture below, use patty paper to determine if each is a reflection, rotation, or translation.



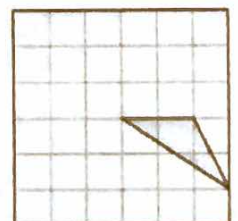
Rotation



Translation



Reflection



11. Connor drew a triangle with coordinates  $A(1, 1)$ ,  $B(3, 4)$  and  $C(3, 1)$ . Then he drew another triangle with coordinates  $A'(-3, 6)$ ,  $B'(-1, 9)$  and  $C'(-1, 6)$ . What transformation was used?

A  $(1, 1) \rightarrow (-3, 6)$   
 B  $(3, 4) \rightarrow (-1, 9)$   
 C  $(3, 1) \rightarrow (-1, 6)$

Translation  $(x - 4, y + 5)$

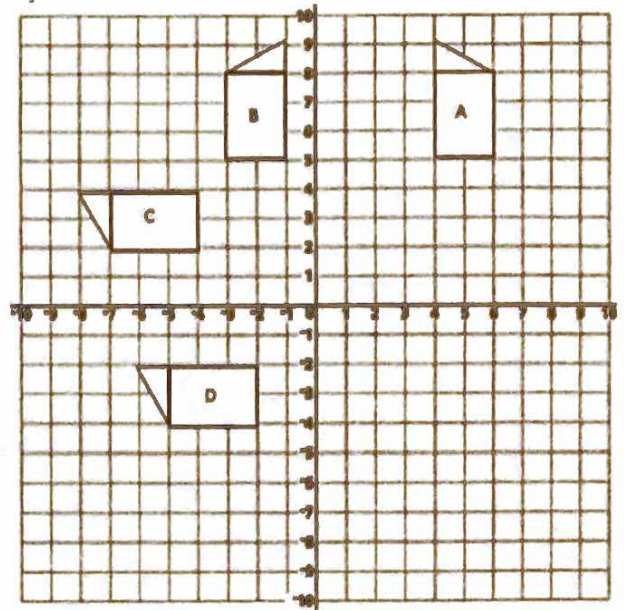
12-14: Using the image to the right, answer the following questions:

12. Using figure A, determine the transformation that occurred to get from A to image B.

- A. Reflection of the y-axis, slide left 3 units.
- B. Reflection over the x-axis, slide 3 units right.
- C. Reflection of the y-axis, slide right 3 units.
- D. Reflection over the x-axis, slide 3 units right.

13. Using figure B, determine the transformation that occurred to get from B to image C.

- A. Rotate  $90^\circ$  clockwise about the origin, translate down 1 and left 8 units
- B. Rotate  $90^\circ$  counter clockwise about the origin, translate right 1 unit and up 5 units.
- C. Reflect over the y-axis, Rotate  $90^\circ$  counter clockwise about the origin, and slide down one unit.



14. Using figure B, determine the transformation that occurred to get from B to image D.

Rotate  $90^\circ$  counterclockwise  
Translate right 3, down 1

15. For all rigid motions (including translations, rotations, and reflections), are the following statements True or False about the pre-image and the image?

- T Side lengths are congruent
- T Angle measures are congruent
- T The two figures will have the same size
- T The two figures will have the same shape
- F The two figures will be in the same location
- T The two figures are congruent
- T Corresponding line segments are congruent

16. Complete each statement. Use #'s/right/left to fill in the blanks.

A  $90^\circ$  clockwise rotation is the same as a 1 turn right.

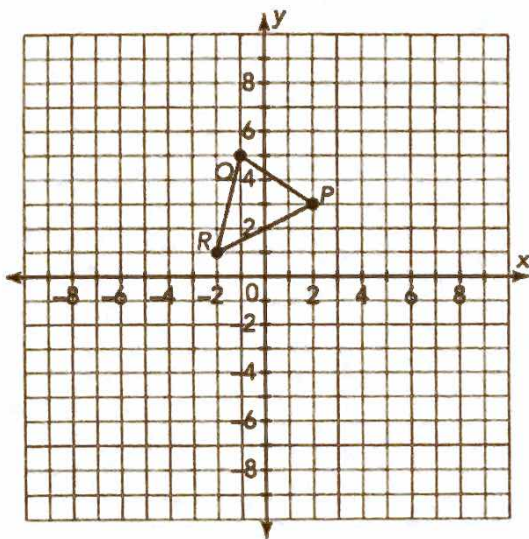
A  $90^\circ$  counter clockwise rotation is the same as a 1 turn left.

A  $180^\circ$  counter clock wise rotation is the same as 2 turns right/left.

A  $270^\circ$  clockwise rotation is the same as a 3 turns right.

A  $270^\circ$  counter clockwise rotation is is the same as a 3 turns left.

17. Given the triangle PQR below answers the following questions on the right.



- A. If triangle PQR is translated 2 units to the right to form P'Q'R', how are the values in the ordered pairs affected by the translation?

$(x+2, y)$  add 2 to x-value  
y-value stays the same

- B. Write the rule for P'Q'R' (x, y).

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

- C. If triangle PQR is translated 4 units up to form P''Q''R'', how are the values in the ordered pairs affected by the translation?

add 4 to all y-values

- D. Write the rule for P''Q''R'' (x, y).

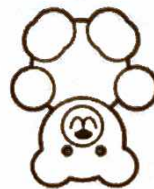
$(x, y) \rightarrow (x, y+4)$

18. Which of the pictures are congruent to the picture shown?  
Justify your response.



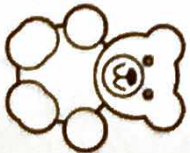
Picture 1

rotation 180°  
same size/  
shape



Picture 3

rotation 90°  
same size/shape

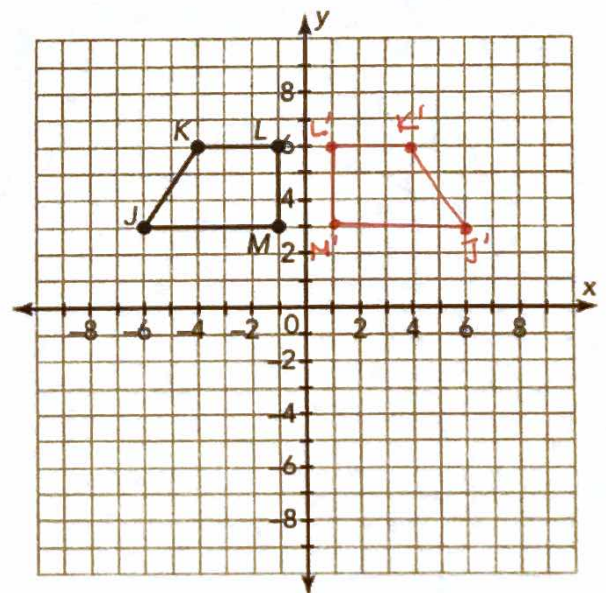


Picture 2



Picture 4

19. A.) Reflect trapezoid JKLM over the y-axis.



B.) If trapezoid JKLM is reflected over the y-axis, how are the values of the ordered pairs affected by the translation?

$(-x, y)$

x-values opposite  
y-values stay the same