

Target 1: Identify and determine congruent parts given a rigid motion.

Directions: **Select all that apply** given the following information.

1) $\triangle MNO \cong \triangle XYZ$

- (a) $\overline{NO} \cong \overline{YZ}$
- (b) $\angle M \cong \angle X$
- (c) $\triangle ONM \cong \triangle XZY$
- (d) $\overline{NM} \cong \overline{YX}$
- (e) $\overline{OM} \cong \overline{XY}$

2) $\triangle ABC \cong \triangle JKL$

- (a) $\overline{BC} \cong \overline{LK}$
- (b) $\angle B \cong \angle L$
- (c) $\triangle BCA \cong \triangle KJL$
- (d) $\overline{CA} \cong \overline{JK}$
- (e) $\angle C \cong \angle L$

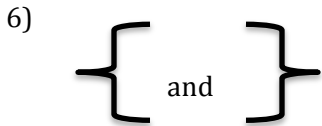
Directions: List three real life examples that would relate to the given rigid motion.

3) Transformation

4) Rotation

5) Reflection

Directions: Determine if the following are examples of rigid motion. If not, explain why.



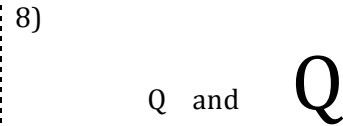
Rigid Motion? YES or NO

If no, explain why: _____



Rigid Motion? YES or NO

If no, explain why: _____

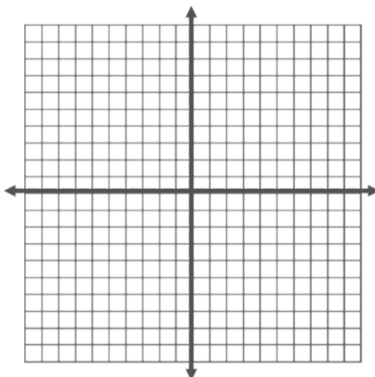


Rigid Motion? YES or NO

If no, explain why: _____

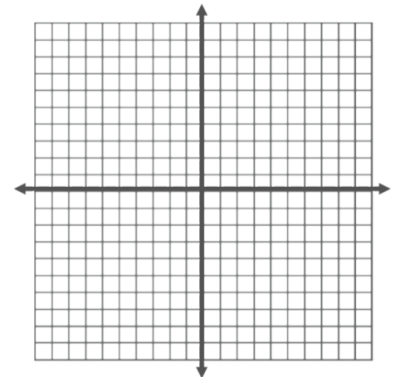
9) $\triangle LMN$ has coordinates $L(-2,4)$, $M(-4,1)$, and $N(-3,5)$ and $\triangle XYZ$ has coordinates $X(0,0)$, $Y(-2,-3)$, and $Z(-1,1)$. Which of the following statements are true? Select all that apply!

- (a) The triangles are rigid motions of each other
- (b) The triangles represent a reflection
- (c) The triangles represent a translation
- (d) $\angle L \cong \angle Z$
- (e) $\overline{MN} \cong \overline{YZ}$



10) $\triangle ABC$ has coordinates $A(-6,-1)$, $B(-2,-1)$, and $C(-4,-4)$ and $\triangle XYZ$ has coordinates $X(1,-6)$, $Y(1,-2)$, and $Z(4,-4)$. Which of the following statements are true? Select all that apply!

- (a) The triangles are rigid motions of each other
- (b) The triangles represent a rotation
- (c) The triangles represent a reflection
- (d) $\angle B \cong \angle Y$
- (e) $\overline{AC} \cong \overline{YZ}$



Target 2: Perform and identify rigid transformations of points, segments, and figures.

11) Directions: You and a friend are walking around Chicago. Each location is shown on the map. Determine what the translation would be given you are traveling from the first location to the second location (in blocks).



a) #1 → #2 Rule: $(x, y) \rightarrow (x______, y______)$

b) #2 → #3 Rule: $(x, y) \rightarrow (x______, y______)$

c) #3 → #4 Rule: $(x, y) \rightarrow (x______, y______)$

d) #3 → #1 Rule: $(x, y) \rightarrow (x______, y______)$

12) When a figure is translated $(x, y) \rightarrow (x + 10, y)$ which of the following applies? Select ALL that apply.

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

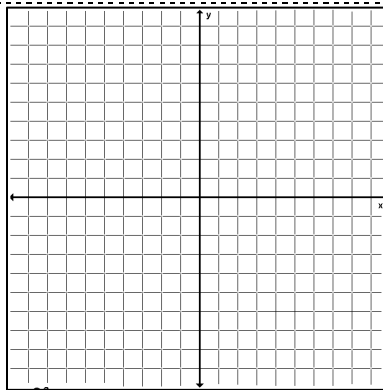
13) When a figure is translated $(x, y) \rightarrow (x - 1, y - 7)$ which of the following applies? Select ALL that apply.

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

14) A point $K(5, -7)$ is being rotated clockwise about the origin 90° . What are the coordinates of the image of K ?

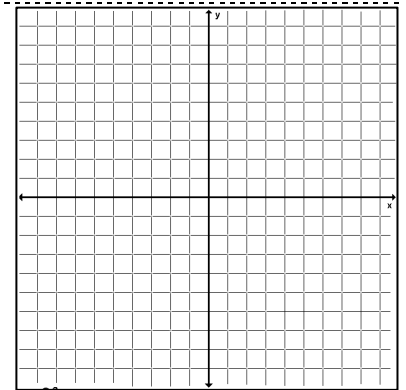
15) A point $M(8, 1)$ is being rotated counterclockwise about the origin 180° . What are the coordinates of the image of M ?

16) Rotate \overline{ML} 90° counterclockwise about the origin. The coordinates are $M(-4, 2)$ and $L(-2, 7)$. Which of the following statements are true?



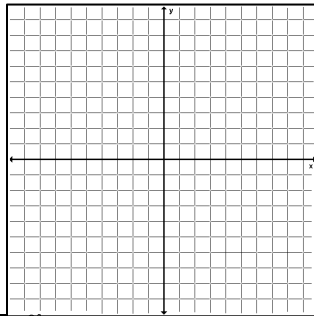
- (a) M' will be located in quadrant III
- (b) L' will be located in quadrant I
- (c) L' will be located in quadrant III
- (d) The slope of $\overline{M'L'}$ is negative
- (e) The slope of $\overline{M'L'}$ is positive

17) Rotate \overline{AB} 270° clockwise about the origin. The coordinates are $A(-3, 6)$ and $B(-2, 1)$. Which of the following statements are true?



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

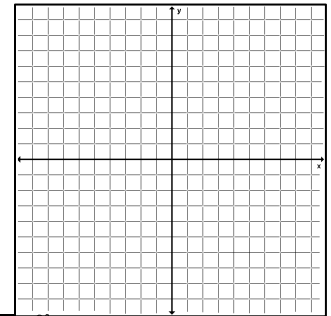
18) A line segment has endpoints A (5, -1) and B (-6, -2). The line segment is reflected over $x = 1$. Which statements are true? Select all that apply.



A (5, -1)	B(-6, -2)
A' (,)	B' (,)
Sum of A' =	Sum of B' =

- (a) Sum of $A' = -2$
- (b) Sum of $A' = 4$
- (c) Sum of $A' = -4$
- (d) Sum of $B' = 6$
- (e) Sum of $B' = 10$

19) A line segment has endpoints A (5,0) and B (2, 6). The line segment is reflected over $y = 3$. Which statements are true? Select all that apply.



A (5, 0)	B(2, 6)
A' (,)	B' (,)
Sum of A' =	Sum of B' =

- (a) Sum of $A' = -1$
- (b) Sum of $A' = 11$
- (c) Sum of $A' = 17$
- (d) Sum of $B' = 0$
- (e) Sum of $B' = 2$

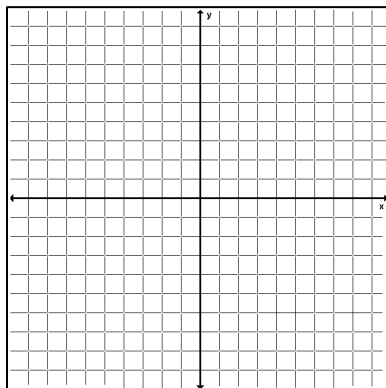
Target 3: Perform multiple transformations to determine coordinates and location of image.

Directions: Complete the compositions of functions for the given problems.

20) $H(-3,4)$

- Rotate 180° ccw about the origin
- Then, reflect over $y = -2$

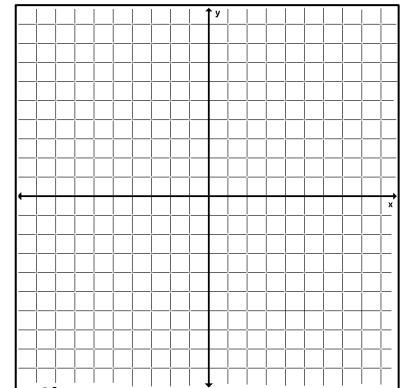
What is the location of point H'' ?



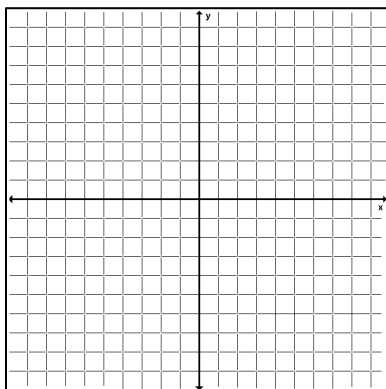
21) $G(6,7)$

- Translate up 3 units and left 5 units
- Then, reflect over $x = 4$

What is the location of point G'' ?



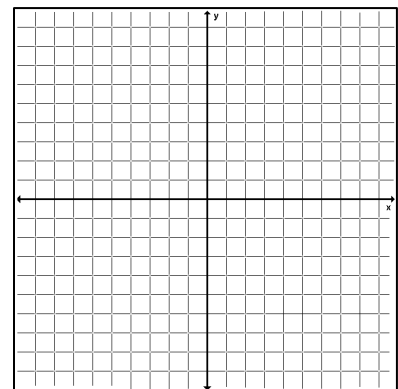
22) Line segment \overline{AB} has the coordinates of A(4,0) and B(6, -5). The line segment is translated up 6 units and right 1 unit. Then the line segment is reflected over the x-axis. Find the coordinates of B'' . Then add the coordinates.



B'' x-coordinate: _____ B'' y-coordinate: _____

Sum: _____

23) Line segment \overline{MN} has the coordinates of M(-2,1) and N(-4, -3). The line segment is translated down 2 units and left 3 unit. Then the line segment is reflected over the y-axis. Find the coordinates of M'' . Then add the coordinates.

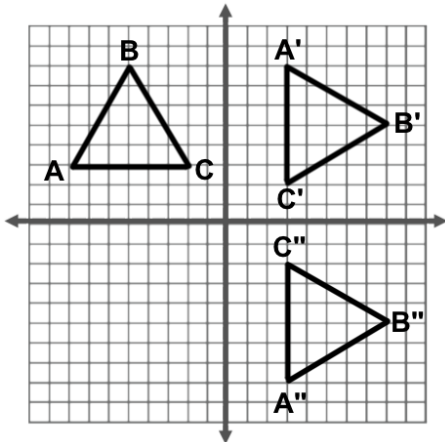


M'' x-coordinate: _____ M'' y-coordinate: _____

Sum: _____

Directions: Describe the composition of functions in the graph for each problem.

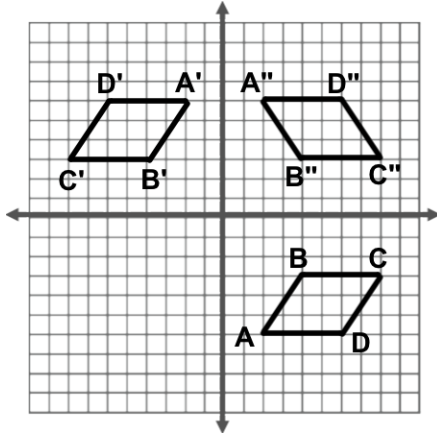
24)



First transformation:

Second transformation:

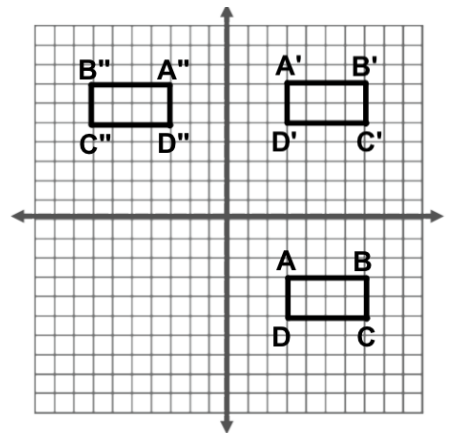
25)



First transformation:

Second transformation:

26)



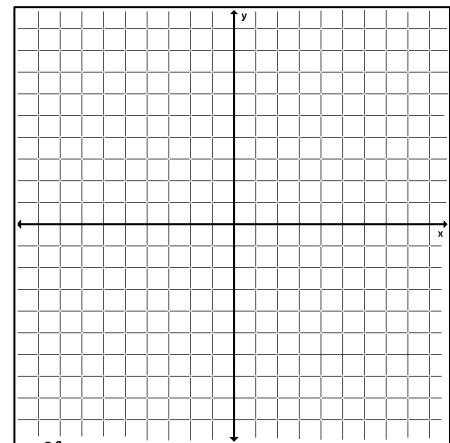
First transformation:

Second transformation:

27) Directions: Which of the following transformations will result in the same outcome when transforming $M(-3,4)$?

First transformation: Reflection over the x-axis

Second transformation: Rotation 90° clockwise about the origin



SELECT ALL THAT APPLY:

First Transformation

- (a) Reflection over the x-axis
- (b) Reflection over the y-axis
- (c) Reflection over the x-axis
- (d) Rotation 270° ccw about the origin
- (e) Rotation 90° ccw about the origin
- (f) Rotation 270° cw about the origin

Second Transformation

- Rotation 270° cw about the origin
- Rotation 270° ccw about the origin
- Rotation 90° ccw about the origin
- Reflection over the x-axis
- Reflection over the y-axis
- Reflection over the y-axis

28) Find three examples of real life situations that will use at least two transformations. Then describe why.

a) Example 1:

b) Example 2:

c) Example 3:

Unit 2 Review Answers

1. A, B, D
2. E
3. Answers may vary (examples: Hockey puck sliding down the ice, plane flying through the air, etc.)
4. Answers may vary (examples: ferris wheel, bike wheel, etc.)
5. Answers may vary (examples: images in a lake, images in a mirror, etc.)
6. YES (reflection)
7. YES (180° rotation)
8. NO – this is a dilation (the size changes so not a rigid motion)
9. A, C, E
10. A, B, D
11.
 - a. $(x, y) \rightarrow (x - 1, y + 2)$
 - b. $(x, y) \rightarrow (x + 3, y)$
 - c. $(x, y) \rightarrow (x + 1, y - 2)$
 - d. $(x, y) \rightarrow (x - 2, y - 3)$
12. A, D
13. A, C, E
14. $K'(-7, -5)$
15. $M'(8, -1)$
16. A, C, D
17. A, C, E
18. C, D
19. B, E
20. $H''(3, 0)$
21. $G''(7, 10)$
22. B'' x-coordinate: 7, B'' y-coordinate: -1, SUM = 6
23. M'' x-coordinate: -5, M'' y-coordinate: -1, SUM = -6
24. #1 – Rotation 90° CW about the origin
#2 – Reflection over the x-axis
25. #1 – 180° rotation CW/CCW about the origin
#2 – y-axis reflection
26. #1 - Translation $(x, y) \rightarrow (x, y + 10)$
#2 – Reflection over the y-axis
27. B, C, E
28.
 - a. Answers may vary
 - b. Answers may vary
 - c. Answers may vary