Geometry H
4.8 Practice WS

Name: _____
Date: _____ Period: _____

Learning Targets

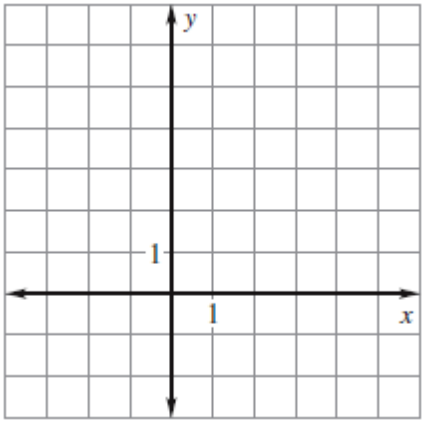
→I can create an image congruent to a given figure.
→I can use coordinate notation to describe a translation.
→I can draw a translation image.
→I can use coordinate notation to describe a reflection in the x-axis and y-axis.
→I can draw the image of a reflection in the x-axis and y-axis.

Coordinate notation for a translation: $(x, y) \rightarrow (x + a, y + b)$

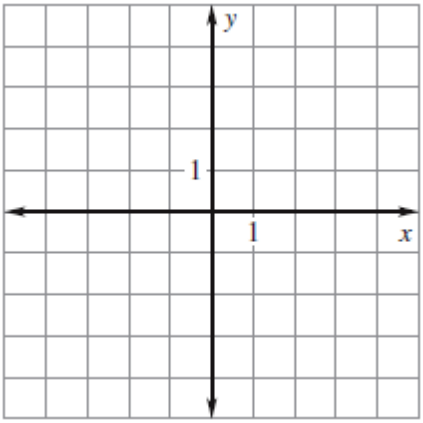
***a* is the number of units the object moves left or right.**

***b* is the number of units the object moves up or down.**

1. Figure ABC has vertices A(-3, 3), B(1, -1) and C(0, 5). Sketch ABC and draw its image after the translation $(x, y) \rightarrow (x + 4, y + 2)$.



2. Figure ABCD has vertices A(3, -4), B(4, -1), C(3, -2) and D(1, -3). Sketch ABCD and draw its image after the translation $(x, y) \rightarrow (x - 6, y + 5)$.



Use coordinate notation to describe the translation.

3. 5 units to the right, 3 units down.

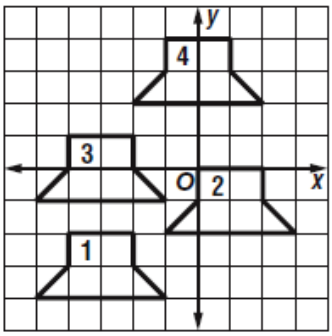
4. 9 units to the left, 7 units up.

Find the translation that moves the figure on the coordinate plane.

5. figure 1 → figure 2

6. figure 2 → figure 3

7. figure 3 → figure 4



Complete the statement using the description of the translation. In the description, points (2,3) and (4,2) are two vertices of a triangle.

8. If (2,3) translates to (10, -4), then (4,2) translates to _____.

9. If (2,3) translates to (-1, 8), then (4, 2) translates to _____.

Working backwards…A point on the image and the translation are given. Find the corresponding point on the original figure.

10. Point on image (2, -4); translation: $(x,y)\rightarrow(x-4,y+3)$

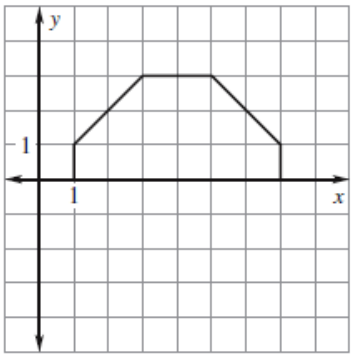
11. Point on image: (-5, -7); translation: $(x,y)\rightarrow(x,y-1)$

Coordinate notation for reflections:

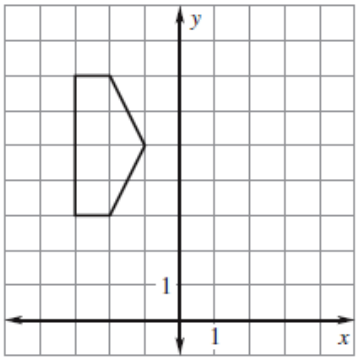
Reflection in x-axis: $(x,y)\rightarrow(x,-y)$ *Multiply y-coordinate by -1.

Reflection in y-axis: $(x,y)\rightarrow(-x,y)$ *Multiply x-coordinate by -1

12. Use a reflection in the x-axis to draw the other half of the figure.



13. Use a reflection in the y-axis to draw the other half of the figure.

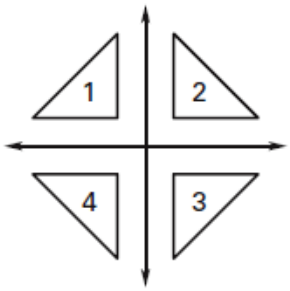


Use the diagram to name the image of $\Delta 1$ after the reflection:

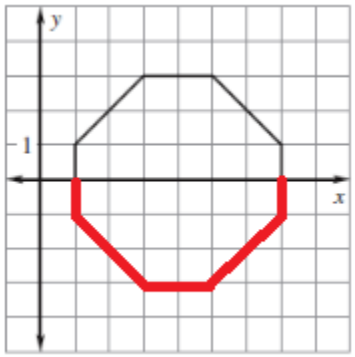
14. Reflection in the x-axis.

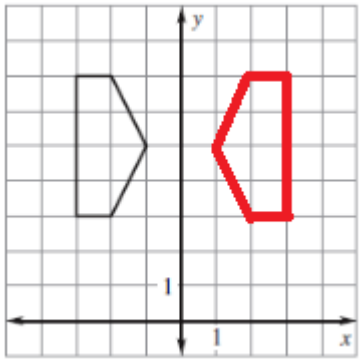
15. Reflection in the y-axis.

16. Reflection in the y-axis, followed by reflection in the x-axis.



Answer Key:

1. A’ (1, 5), B’ (5, 1), C’(4, 7)
2. A’ (-3, 1), B’ (-2, 4), C’ (-3, 3), D’(-5, 2)
3. (x, y) → (x + 5, y – 3)
4. (x, y) → (x – 9, y + 7)
5. (x, y) → (x + 4, y + 2)
6. (x, y) → (x – 4, y + 1)
7. (x, y) → (x + 3, y + 3)
8. (12, -5)
9. (1, 7)
10. (6, -7)
11. (-5, -6)
12. 

13. 

14. Figure 4
15. Figure 2
16. Figure 3