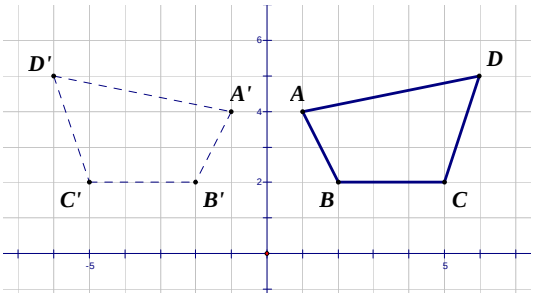
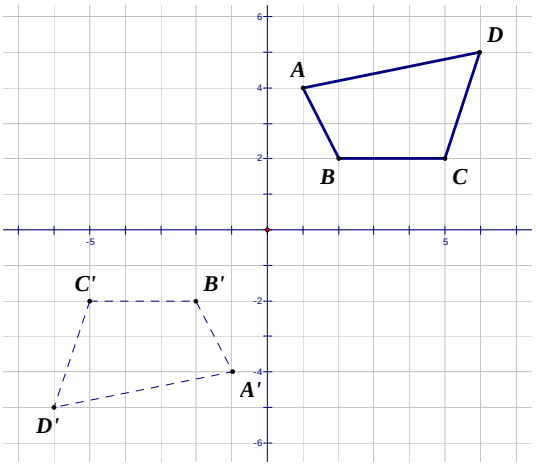
Geometry 1 – Unit Seven: Transformations, Practice

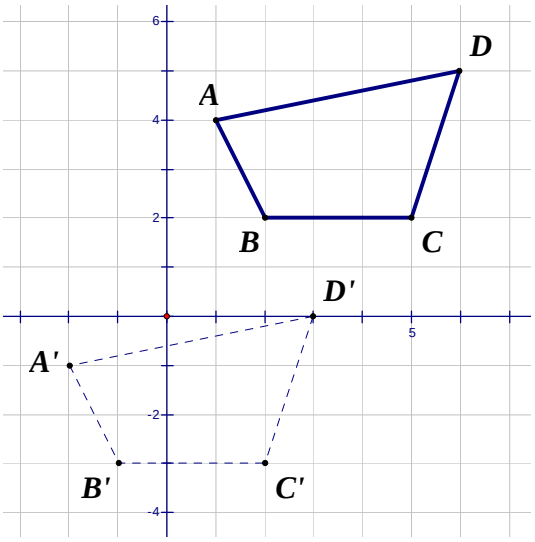
1. The diagram below represents what type of transformation?



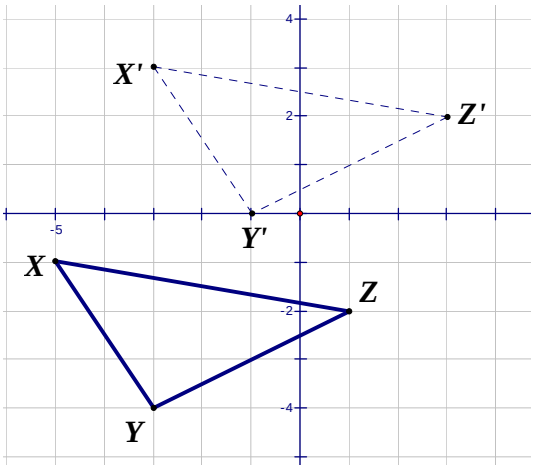
2. The diagram below represents what type of transformation?



3. The diagram below represents what type of transformation?



4. Write a rule for the translation pictured below.



5. Points E (3, 1), F (–2, 0), and G (1, –3) are the vertices of ΔEFG. Draw the image and list the coordinates of $\Delta E'F'G'$ after the translation $(x, y) \rightarrow (x+5, y-7)$.

6. Given the translation: $(x, y) \rightarrow (x+4, y-6)$

If point Q has the coordinates (–4, 0), find the coordinates of point Q'.

7. Given the translation: $(x, y) \rightarrow (x+4, y-6)$

If point R' has the coordinates (1, –2), find the coordinates of point R.

8. Points J (–2, –2), K (–1, –5), L (3, –4), and M (4, –1) are the vertices of quadrilateral $JKLM$. Draw the image and list the coordinates of quadrilateral $J'K'L'M$ after the figure is reflected about the x-axis.

9. Points P (1, 1), Q (3, –3), and R (2, –5) are the vertices of ΔPQR. Draw the image and list the coordinates of $\Delta P'Q'R'$ after the figure is reflected about the y-axis.

Use the following information to answer questions #10 – #14.

Imagine a clock face. The x-axis passes through the numbers 3 and 9. The y-axis passes through the numbers 12 and 6.

10. When it is 5:00 PM, the hour hand points at the number 5. If the hour hand is reflected about the x-axis, what number will it point at?

11. When it is 5:00 PM, the hour hand points at the number 5. If the hour hand is reflected about the y-axis, what number will it point at?

12. When it is 5:00 PM, the hour hand points at the number 5. If the hour hand is rotated 180º, what number will it point at?

13. When it is 5:00 PM, the hour hand points at the number 5. If the hour hand is rotated 90º clockwise, what number will it point at?

14. When it is 5:00 PM, the hour hand points at the number 5. If the hour hand is rotated 150º counterclockwise, what number will it point at?

15. Points X (1, 1), Y (3, 2), and Z (2, 5) are the vertices of ΔXYZ. Draw the image and list the coordinates of $\Delta X'Y'Z'$ after the figure is rotated 180º around the origin.

16. Points M (3, 1), N (4, 5), and O (1, 4) are the vertices of ΔMNO. Draw the image and list the coordinates of $\Delta M'N'O'$ after the figure is rotated 90º clockwise around the origin.

17. Draw an equilateral triangle. How many lines of symmetry does it have?

18. Which figures below have rotational symmetry?

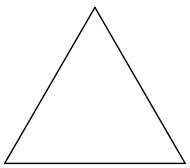


FIGURE #1

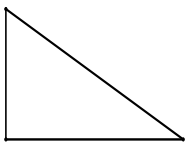


FIGURE #2

FIGURE #3

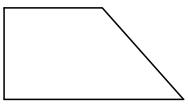


FIGURE #4

FIGURE #5

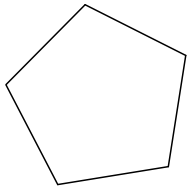


FIGURE #6

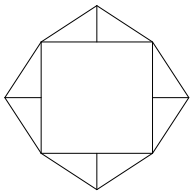


FIGURE #7

**********ANSWERS**********

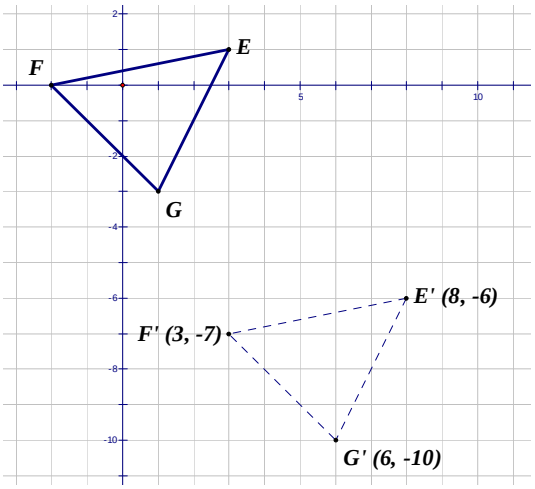
1. Reflection

2. Rotation

3. Slide translation

4. $(x,\ y) \rightarrow (x+2,\ y+4)$

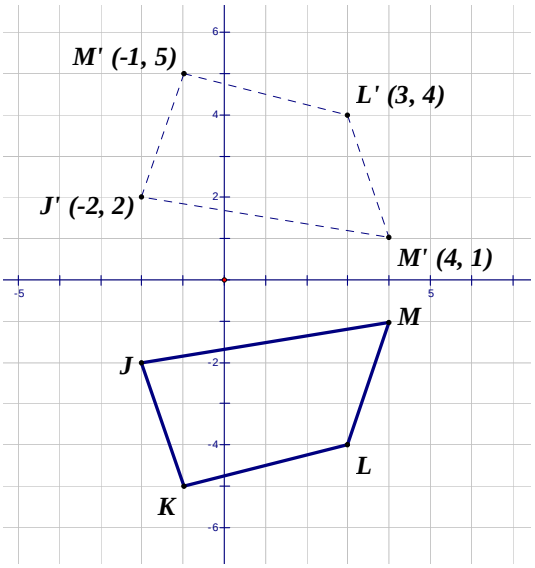
5.



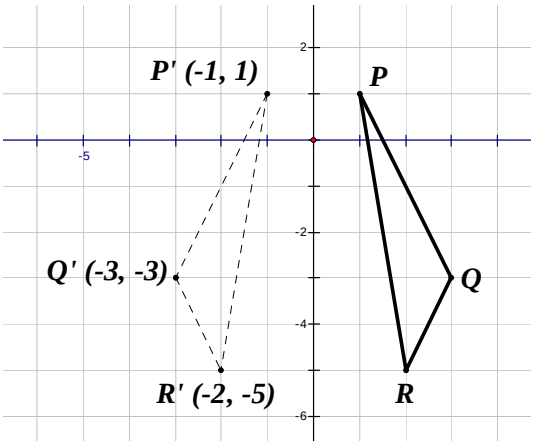
6. If $Q = (-4,\ 0),$ then $Q' = (0,\ -6).$

7. If $R' = (1,\ -2),$ then $R = (-3,\ 4).$

8.



9.



10. 1

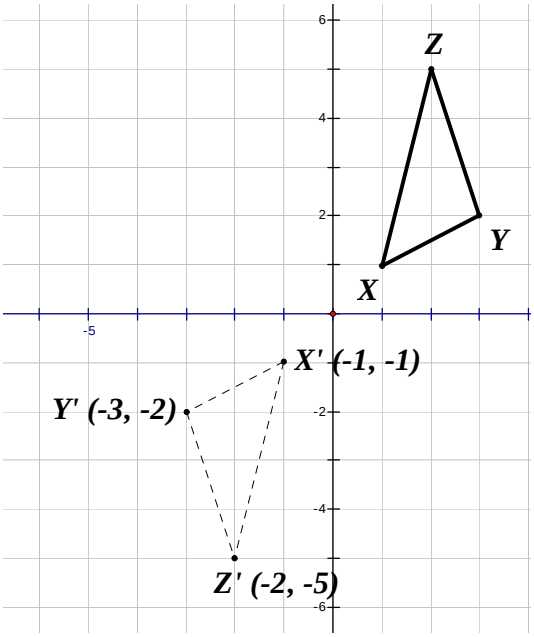
11. 7

12. 11

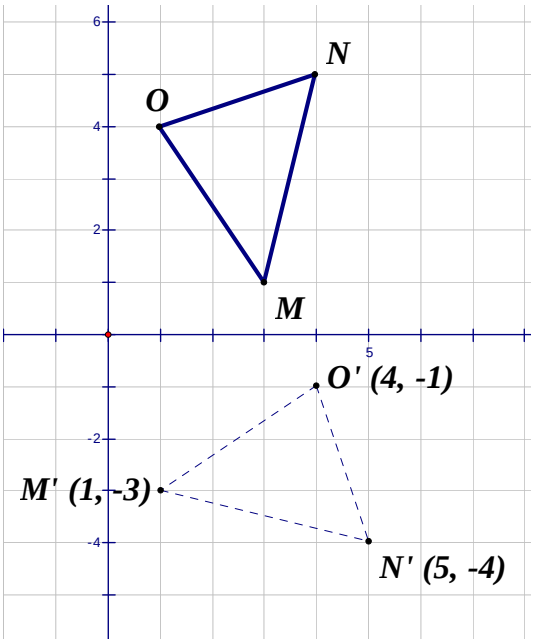
13. 8

14. 12

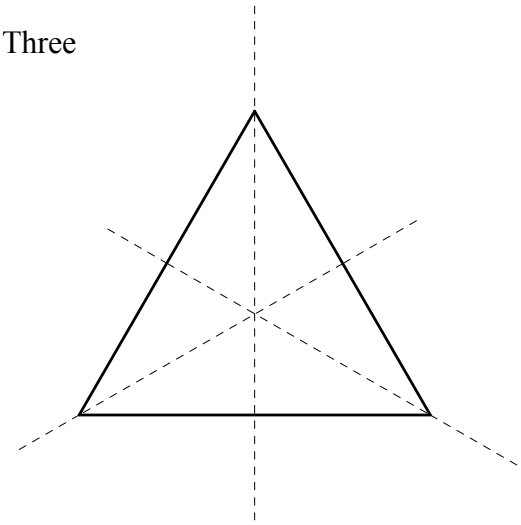
15.



16.



17. Three



18.
Figure #1 – Yes
Figure #2 – No
Figure #3 – Yes
Figure #4 – No
Figure #5 – Yes
Figure #6 – Yes
Figure #7 – Yes