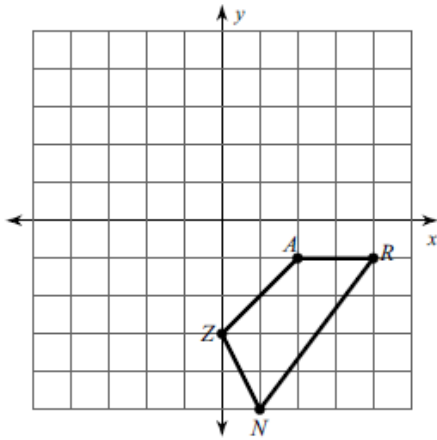
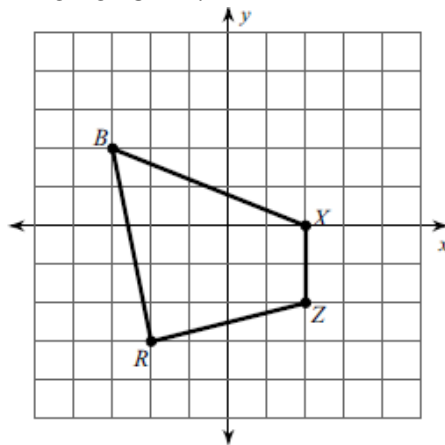


Graph the image of the figure using the transformation given.

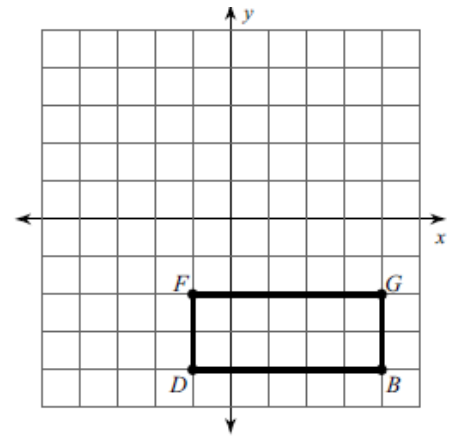
1. Rotate 180° about the origin



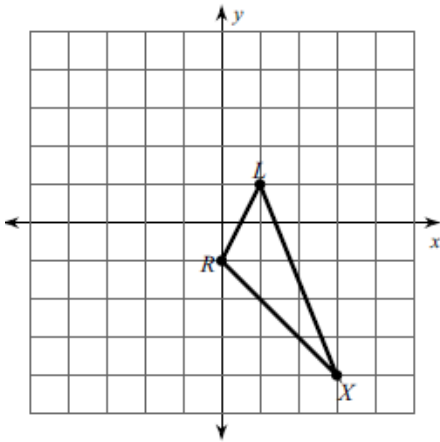
2. Translate the figure up 5 and left 2.



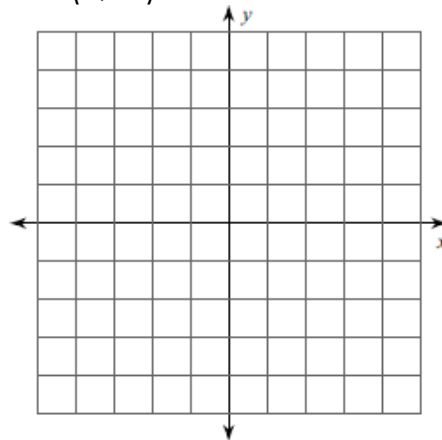
3. Reflection across $x = 1$



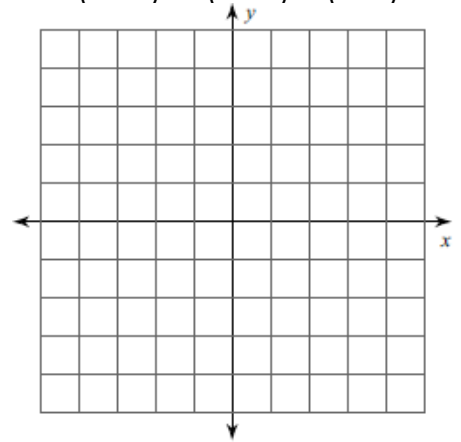
4. Reflection across $y = -2$



5. Reflection across the y -axis
 $N(-1, -2)$, $I(-1, -1)$, $G(4, -3)$,
 $F(4, -4)$



6. Rotate 270° counterclockwise
 $K(-5, 4)$, $D(-1, 5)$, $L(0, 3)$



Find the coordinates of the vertices of each figure after the given transformation.

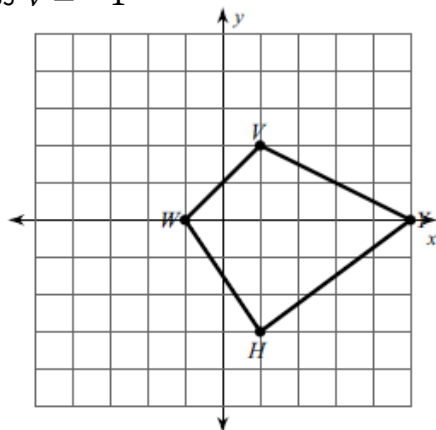
7. Reflection across $v = -1$

W' (____, ____)

V' (____, ____)

Y' (____, ____)

H' (____, ____)

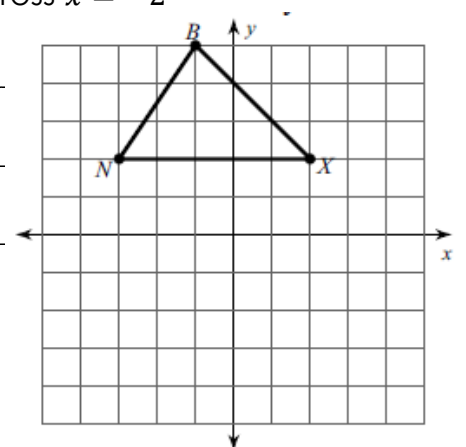


8. Reflection across $x = -2$

N' (____, ____)

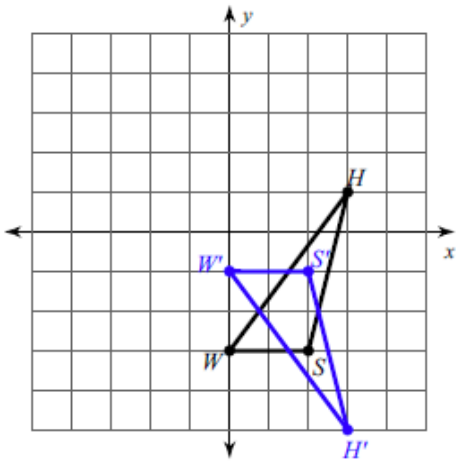
B' (____, ____)

X' (____, ____)

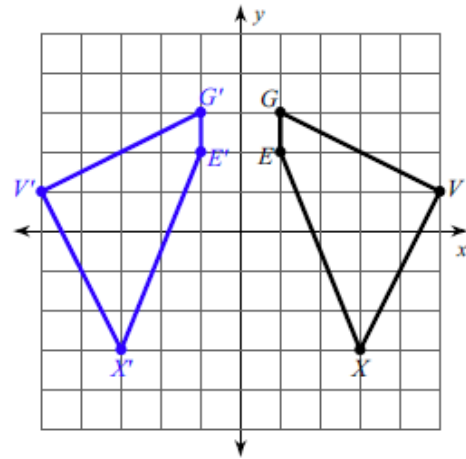


Identify the following transformations and write the rule.

9.

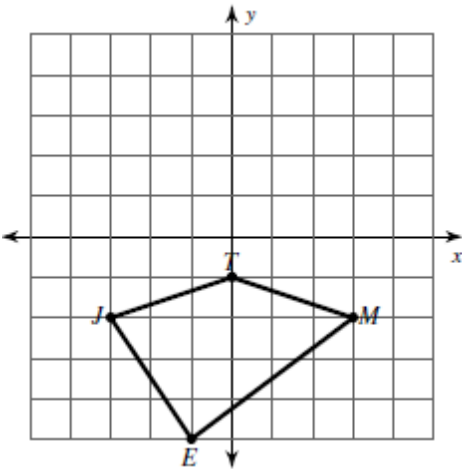


10.

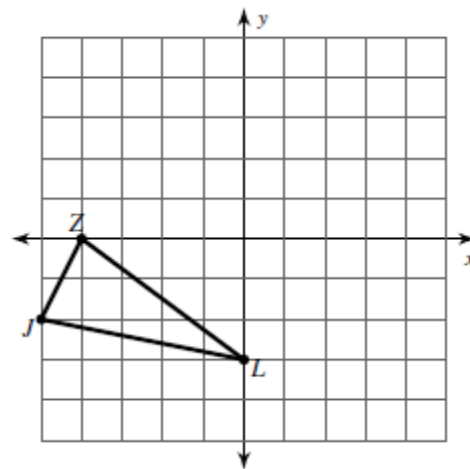


Graph the image of the figure using the transformation given and write the new points.

11. Translation: 2 units right and 4 units up



12. Rotation: 90° counterclockwise



Find the coordinates of the vertices of each figure after the given transformation.

13. Rotation: 180° about point $(3, -5)$
 $E(2, -2)$ $J(1, 2)$ $R(3, 3)$ $S(5, 2)$

14. Translation: 7 units right and 2 units down
 $J(-3, 1)$ $F(-2, 3)$ $N(-2, 0)$

15. Translation: 5 units left and 3 units up
 $S(-3, 3)$ $C(-1, 4)$ $W(-2, -1)$

16. Draw the lines of symmetry (mirror lines) for each picture below:

a)



b)



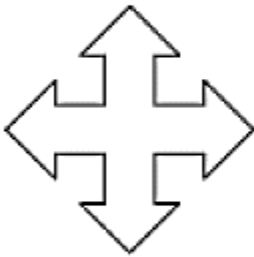
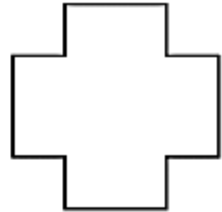
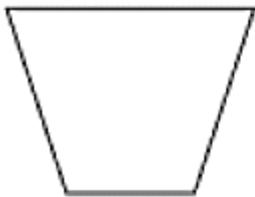
c)



d)

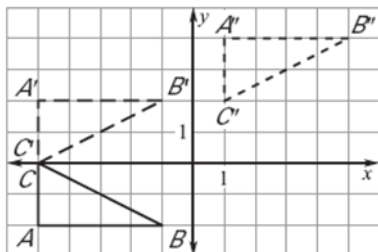


17. For each of the following identify the amount of degrees the figure needs to turn to be on top of itself:

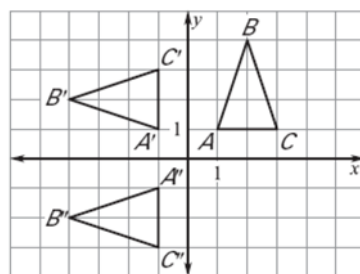


For the next part you will identify the two transformations that took place **Remember order matters:

18.

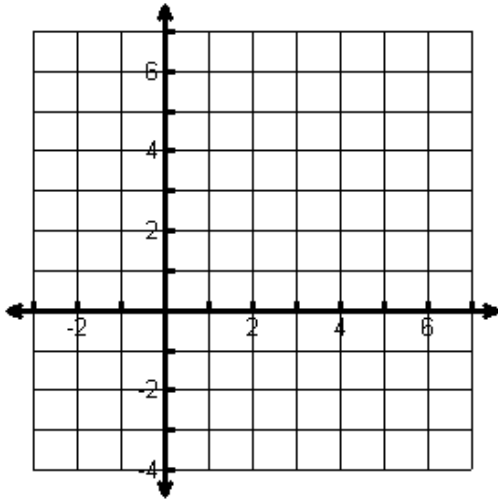


19.

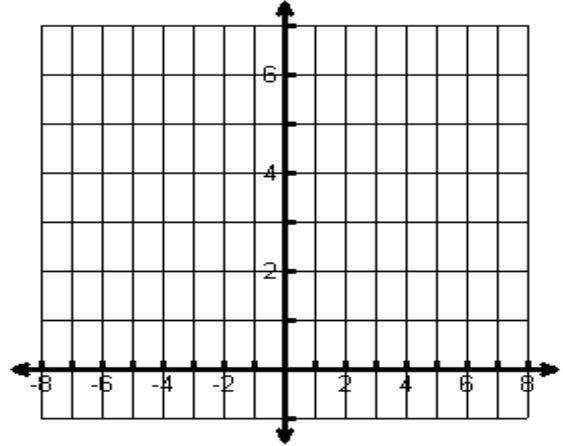


The vertices of $\triangle ABC$ are $A(2,4)$, $B(7,6)$, and $C(5,3)$. Graph the image of $\triangle ABC$ & each transformation.

20. Translation: $(x - 4, y - 3)$
 Reflection: across the x-axis



21. Reflection: across the y-axis
 Translation: $(x + 2, y)$



In the diagram, AB is the pre-image of a combination.

22. Which segment is a translation of AB ?
23. Which segment is a reflection of $A'B'$?
24. Name the line of reflection.
25. Write a rule to describe the translation.

