

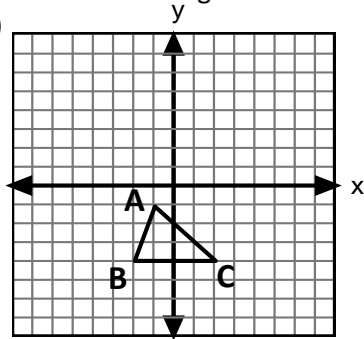
Show all work for full credit.

1. Which of the following is the best definition of rigid motion?

- [A] A figure that has both rotational and line symmetry
- [B] An image that is a reduction or enlargement of another figure
- [C] A transformation that preserves lengths and angles in an image.
- [D] A composition involving a translation and reflection.

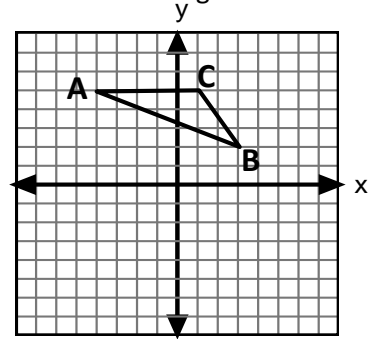
Translate the polygon shown with the given rule or vector. List the coordinates of the image vertices.

2.  $(x, y) \rightarrow (x + 2, y + 5)$



A' \_\_\_\_\_ B' \_\_\_\_\_ C' \_\_\_\_\_

3.  $\langle -3, -8 \rangle$



A' \_\_\_\_\_ B' \_\_\_\_\_ C' \_\_\_\_\_

Use the translation rule to give the image of each point.

4. Give the image of K(-3, 5) after  $(x, y) \rightarrow (x + 4, y - 7)$  \_\_\_\_\_

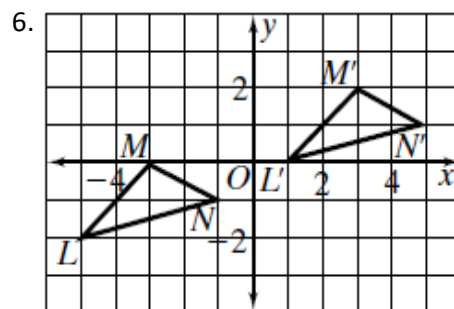
5. Give the image of H(6, -2) after applying the translation vector  $\langle -3, 6 \rangle$  \_\_\_\_\_

Write a translation rule for the translation shown.

6. (see graph at right) \_\_\_\_\_

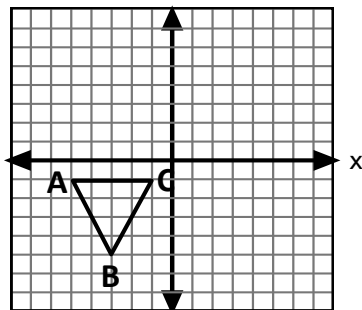
7. A(4, -1) to A'(-3, 5) \_\_\_\_\_

8. B(-3, -2) to B'(5, -6) \_\_\_\_\_



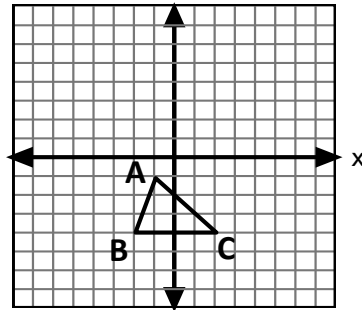
9. Reflect the polygon shown with the given line of reflection. List the coordinates of the image.

a. x-axis



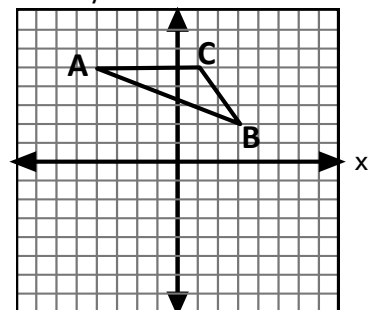
A' \_\_\_\_\_ B' \_\_\_\_\_ C' \_\_\_\_\_

b.  $x = -1$



A' \_\_\_\_\_ B' \_\_\_\_\_ C' \_\_\_\_\_

c.  $y = x$



A' \_\_\_\_\_ B' \_\_\_\_\_ C' \_\_\_\_\_

Reflect each point in the given line. Give the coordinates of the image.

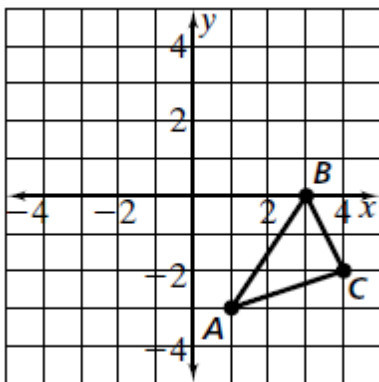
10.  $A(3, -2)$  in the  $y$ -axis \_\_\_\_\_

11.  $B(-1, 4)$  in  $y = -1$  \_\_\_\_\_

12. Graph the polygon's image after the glide reflection. Label the name of each new vertex.

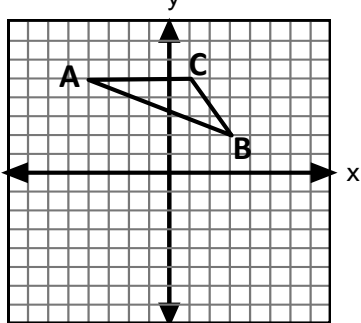
Translation:  $(x, y) \rightarrow (x, y + 5)$

Reflection:  $x = 1$



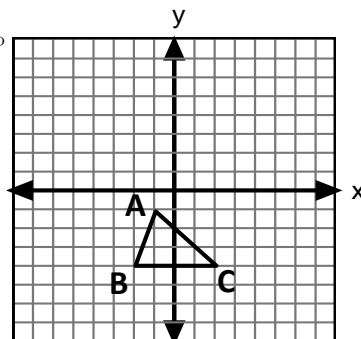
Graph the image of the polygon after a counterclockwise rotation of the given angle about the origin. List the coordinates of the image.

13.  $90^\circ$



$A'$  \_\_\_\_\_  $B'$  \_\_\_\_\_  $C'$  \_\_\_\_\_

14.  $180^\circ$



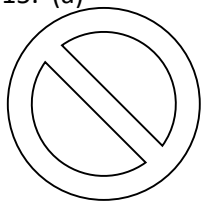
$A'$  \_\_\_\_\_  $B'$  \_\_\_\_\_  $C'$  \_\_\_\_\_

Each figure is given twice so that you may answer the following two questions:

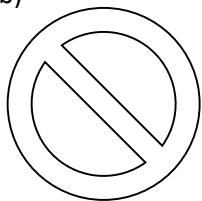
(a) Draw all lines of symmetry (if any exist). If no lines of symmetry exist, write, "None".

(b) Determine any rotations that map the figure onto itself. If there is no rotational symmetry, write, "None".

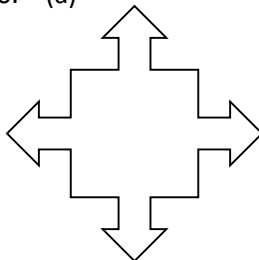
15. (a)



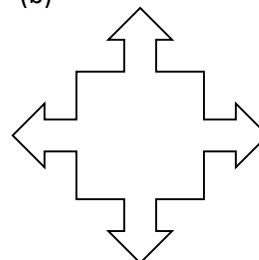
(b)



16. (a)



(b)



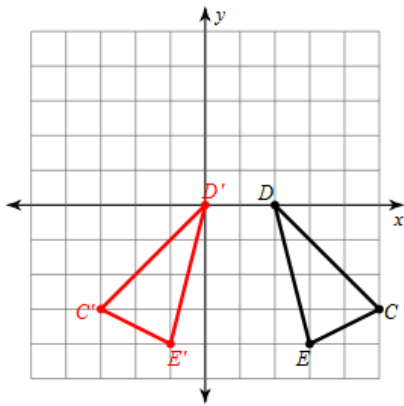
Rotate each point counterclockwise around the origin for the given angle. Give the coordinates of the image.

17.  $A(-1, 4)$   $180^\circ$  \_\_\_\_\_

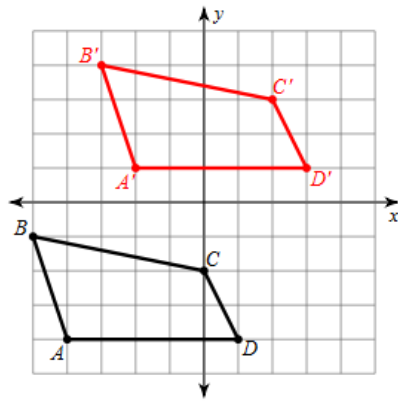
18.  $B(-2, -5)$   $270^\circ$  \_\_\_\_\_

Identify each transformation shown as a: translation, reflection, rotation, or dilation. Then give a specific transformation rule that matches the move shown.

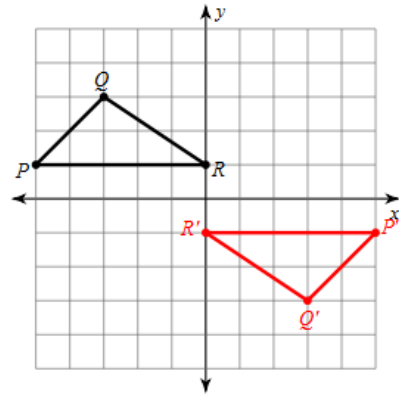
19.



20.

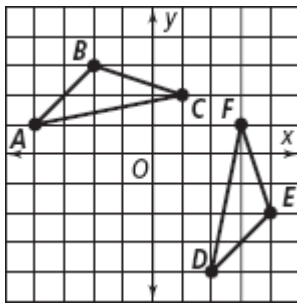


21.

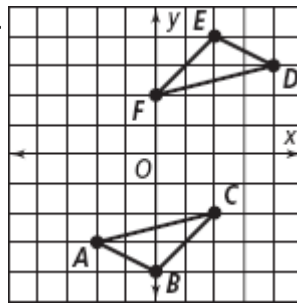


Give a specific congruence transformation that maps  $\triangle ABC$  onto  $\triangle DEF$ . Multiple answers are possible.

22.

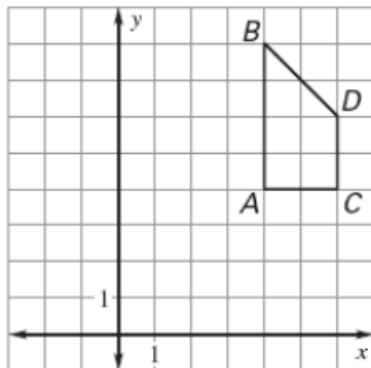


23.



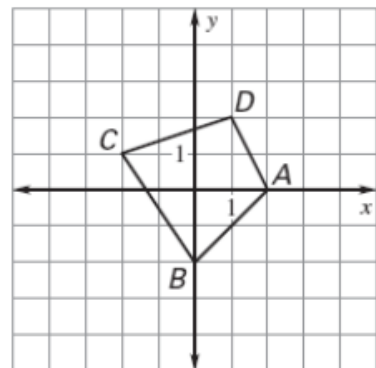
Graph the image of the polygon shown after the dilation described. List the coordinates of the image.

24. scale factor  $\frac{1}{2}$



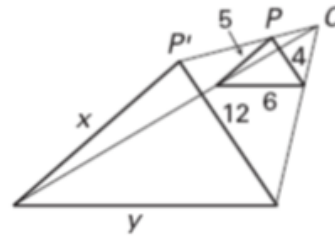
A' \_\_\_\_\_ B' \_\_\_\_\_ C' \_\_\_\_\_ D' \_\_\_\_\_

25.  $k = 1.5$



A' \_\_\_\_\_ B' \_\_\_\_\_ C' \_\_\_\_\_ D' \_\_\_\_\_

26. Use the diagram to:  
 (i) find the scale factor



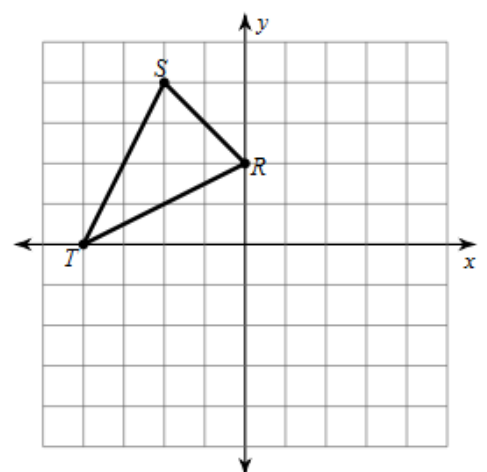
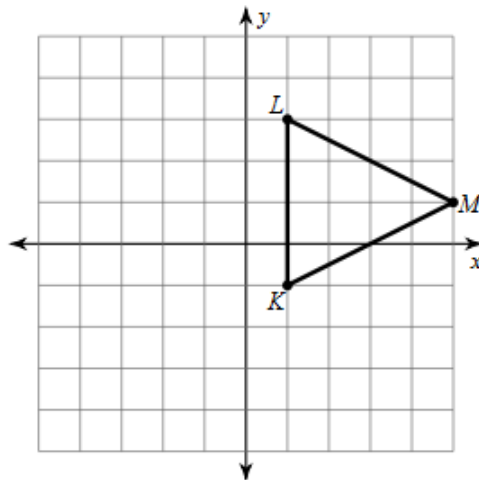
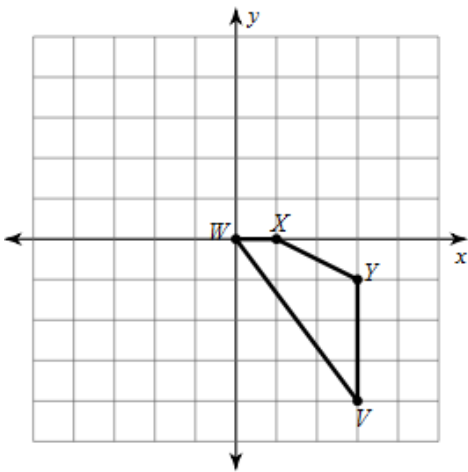
(ii) state whether the dilation is a reduction or enlargement.

Graph the image of the polygon after the composition. Label the name of each new vertex.

27. Rotation:  $180^\circ$  about the origin  
 Reflection: in the y-axis

28. Translation:  $(x, y) \rightarrow (x - 3, y + 1)$   
 Dilation:  $(x, y) \rightarrow (0.5x, 0.5y)$

29. Reflection: in the line  $x = -1$   
 Reflection: in the x-axis



30. Give a similarity transformation that maps the pre-image onto its image.

