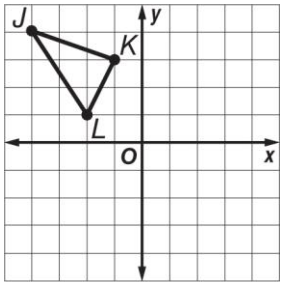
T4-10 Number _____ Name _____ Period _____

For Exercises 1 and 2 graph the image of the polygon after each rotation, label the image. Then give the coordinates of the vertices for the image.

1. 90° about the origin.

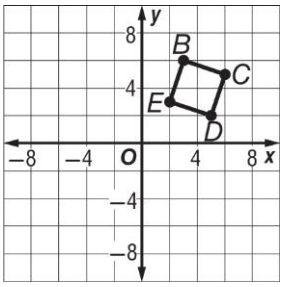


J' _____

K' _____

L' _____

2. 180° about the origin.



B' _____

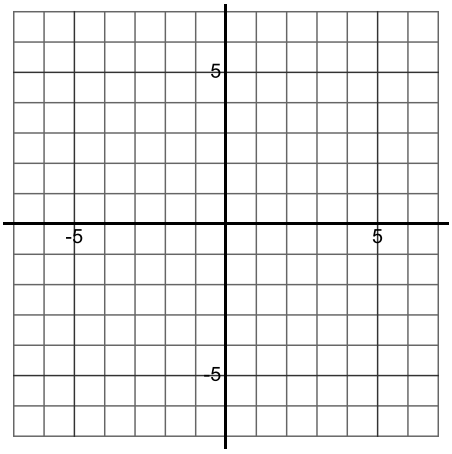
C' _____

D' _____

E' _____

The vertices of a parallelogram are A(−4, 1), B(−3, 4), C(−1, 4), and D(−2, 1). Rotate the parallelogram as described. Find and label the coordinates of the image.

3. 90° counterclockwise about the origin



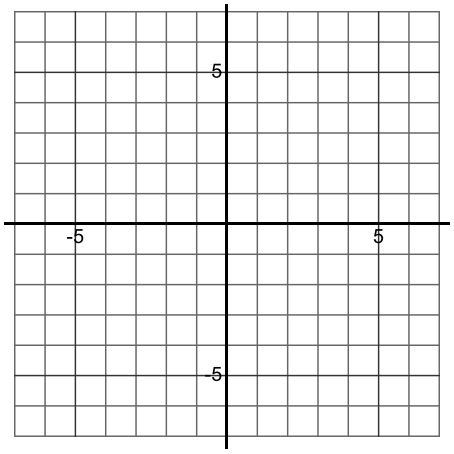
A' _____

B' _____

C' _____

D' _____

4. 270° clockwise about the origin



A' _____

B' _____

C' _____

D' _____

5. Identify the transformation shown.

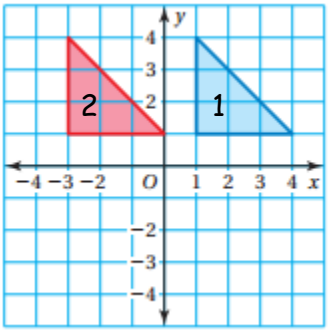
a.

b.

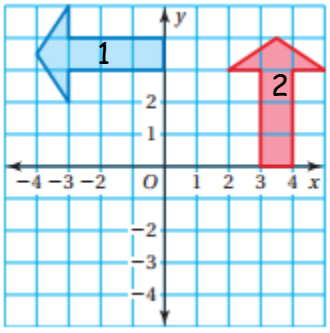
c.

Determine if the blue figure 1 is a rotation of the red figure 2 about the origin. If so, give the angle and direction of rotation.

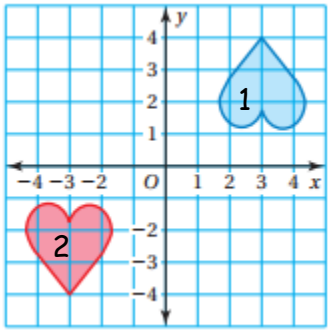
6.



7.



8.



Describe the transformation indicated by each rule.

14. $(x, y) \rightarrow (x-3, y+2)$

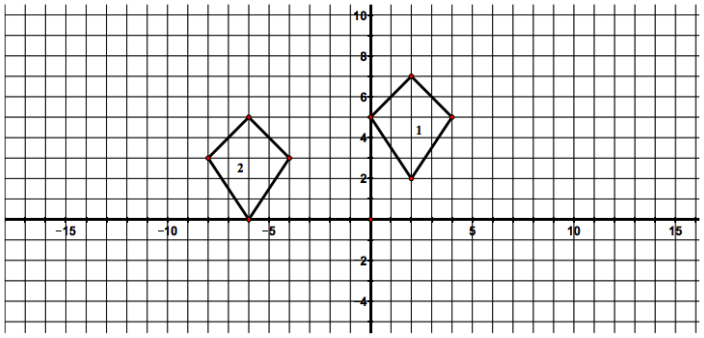
15. $(x, y) \rightarrow (x+7, y-4)$

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

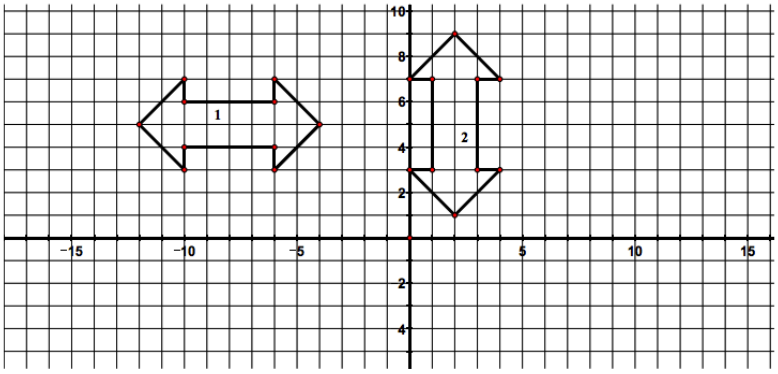
23. Determine which of these properties hold true for each type of transformation listed below.

Properties	**Reflection**	**Translation**	**Rotation**
Segments connecting the corresponding vertices of the image and pre-image are the same length.			
Segments connecting the corresponding vertices of the image and pre-image are parallel to each other.			
Corresponding segments in the image and pre-image are the same length.			
Corresponding angles in the image and pre-image have the same measure.			
Parallel lines in the pre-image remain parallel lines in the image.			
Corresponding segments in the image and pre-image have the same slope.			
Image has the same orientation as pre-image.			

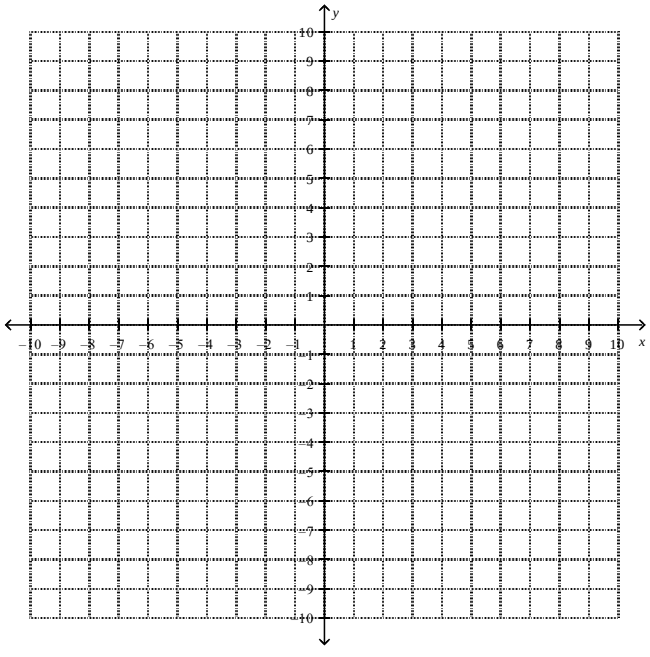
1) Describe a transformation or a series of transformations that would carry figure 1 onto figure 2.



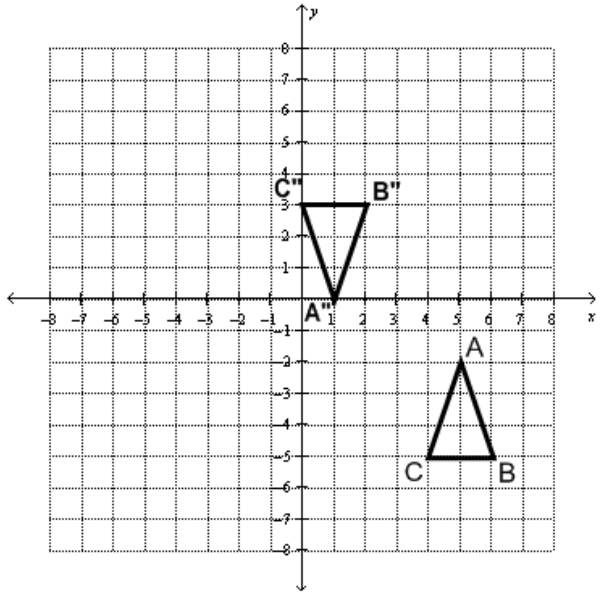
2) Describe a transformation or series of transformations that would carry figure 1 onto figure 2.



3) A triangle *ABC* with vertices at *A*(2, -2), *B*(2, 3), *C*(-4, -2) is reflected over the *x*-axis, rotated 90° clockwise about the origin, and then translated 3 units down and 2 units left. Graph both the original triangle and the *final* image after all transformations have been performed, labeling all coordinates. Then determine if the two triangles are congruent to each other.



4) Triangle *ABC* and triangle *A"B"C"* are plotted on the coordinate plane below.



Describe how you could move the Δ*ABC* to exactly match Δ *A"B"C"* using a series of two transformations.

_____

_____

_____

_____