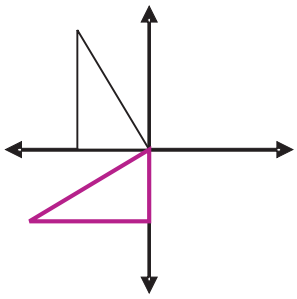
NAME_____

Module 11 **Transformation of Shapes**
Lesson 2 **Rotations**

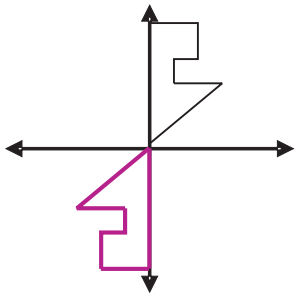
Independent Practice 11.2

Using the origin as the center of rotation, rotate the figure counterclockwise the given number of degrees.

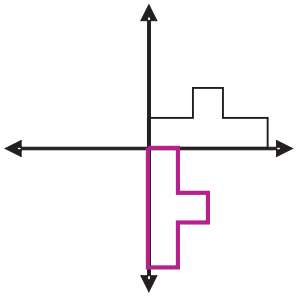
1. 90°



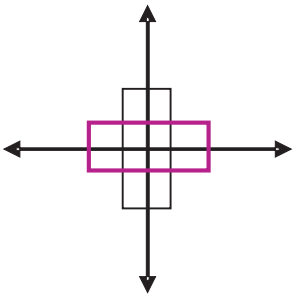
2. 180°



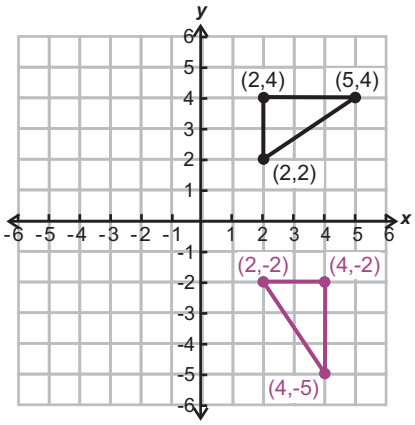
3. 270°



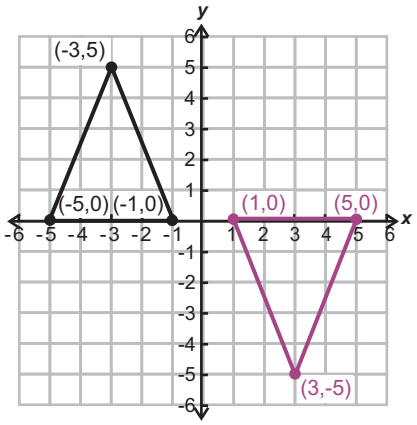
4. 90°



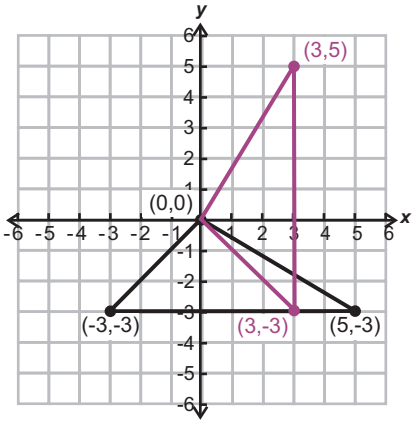
5. 270°



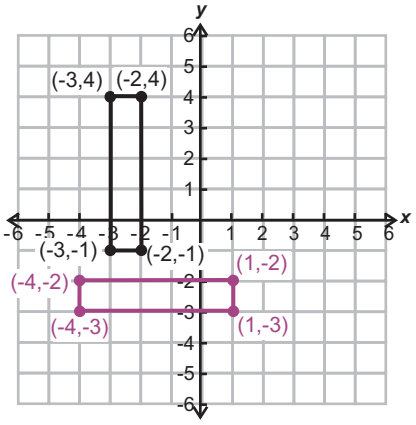
6. 180°



7. 90°



8. 90°

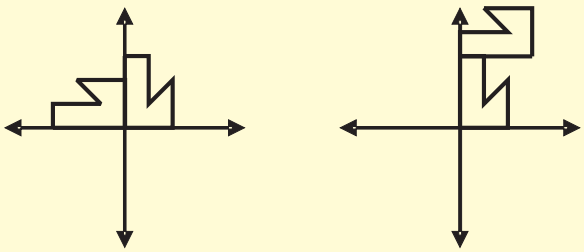


Journal

1. How is a rotation like a translation? How is it different?

2. Consider the point located at (4, 8). Explain how you know what the vertices will be when the point is rotated 90°, 180°, and 270° counterclockwise about the origin.

3. How are the two rotations below the same? How are they different?



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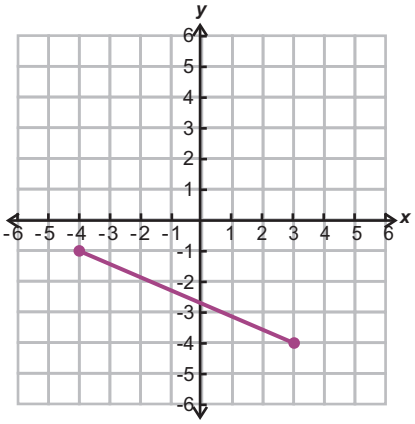
Module 11 Transformation of Shapes
Lesson 2 Rotations

Cumulative Review

1. Graph the line segment whose endpoints are (-4, -1) and (3, -4). Find the length of the segment to the nearest tenth of a unit.



7.6 units

2. Find the slope of the line segment in Problem 1.

$-\frac{3}{7}$

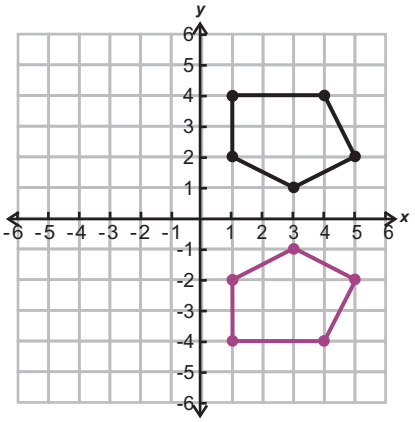
3. What is distance between points *A* and *B* on a number line if the coordinate of *A* is -14 and the coordinate of *B* is 29?

43 units

4. A quadrilateral with vertices at (-4, 5), (2, 1), (0, -6), and (-4, 0) is translated five units right and three units down. What are the coordinates of the translated vertices?

(1, 2), (7, -2), (5, -9), and (1, -3)

5. Reflect the figure across the *x*-axis. List the vertices of the reflected figure.



(1, -4), (4, -4), (5, -2)
(3, -1), (1, -2)

Possible Journal Answers

1. **A rotation is like a translation in that they are both transformations that do not change the shape and size of the figure. They are different because in a translation the orientation of the figure remains the same; whereas in a rotation, the orientation changes (assuming the angle of rotation is not 360°).**

2. **When a point rotates 90° about the origin, the *y*-coordinate becomes the opposite, and the *x*- and *y*-coordinates are switched. The point at (4, 8) rotates to (-8, 4). When a point rotates 180° about the origin, both the *x*- and *y*-coordinates of the new ordered pair are opposites of the coordinates, so the point at (4, 8) rotates to (-4, -8). When a point rotates 270° about the origin, the *x*-coordinate becomes the opposite, and the *x*- and *y*-coordinates are switched. The point at (4, 8) rotates to (8, -4).**

3. **The rotations are the same in that both are rotated 90° in the counterclockwise direction. They are different in that the center of rotation is not the same for each. In the first one, the origin is the center of rotation because the lower-left point of the figure remained fixed. In the second one, the upper-left point of the figure remained fixed, making that point its center of rotation.**