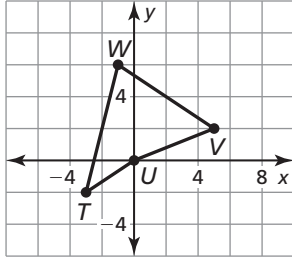Name _____ Date _____

4.3 Practice B

1. Graph the polygon and its image after a 90° counter-clockwise rotation about the origin.
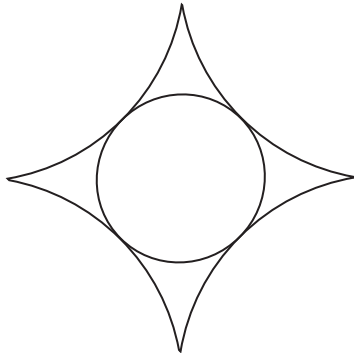

In Exercises 2 and 3, graph $\triangle CDE$ **with vertices** $C(-1, -3)$, $D(4, 2)$, **and** $E(-5, -1)$ **and its image after the composition.**
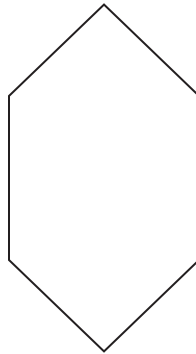
2. **Rotation:** 180° about the origin
   Translation: $(x, y) \rightarrow (x + 3, y + 1)$

3. **Reflection:** in the line $x = y$
   Rotation: 90° clockwise about the origin

In Exercises 4 and 5, determine whether the figure has rotational symmetry. If so, describe any rotations that map the figure onto itself.

4.

5.

6. Is it possible to have an object that does not have 360° of rotational symmetry? Explain your reasoning.

7. A figure that is rotated 60° is mapped back onto itself. Does the figure have rotational symmetry? Explain. How many times can you rotate the figure before it is back where it started?

8. Your friend claims that he can do a series of translations on any geometric object and get the same result as a rotation. Is your friend correct?

9. Your friend claims that she can do a series of reflections on any geometric object and get the same result as a rotation. Is your friend correct?

10. List the digits from 0–9 that have rotational symmetry, and state the angle of the symmetry.