Unit 7 Day 3 Polygon Symmetry Classwork Name: _____

1. *Fill in the names of each polygon based on the number of sides the polygon has.*

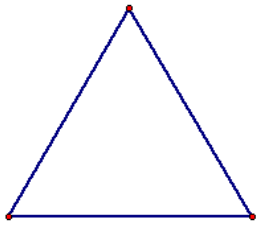
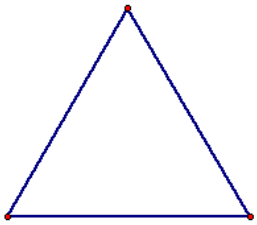
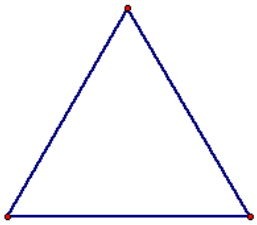
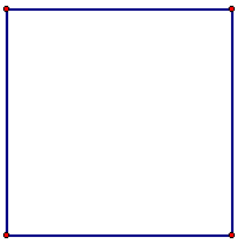
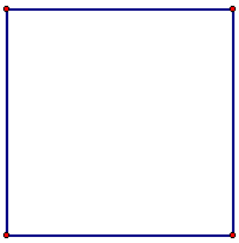
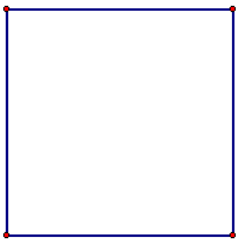
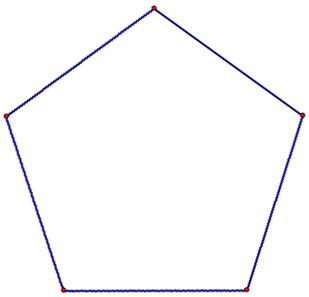
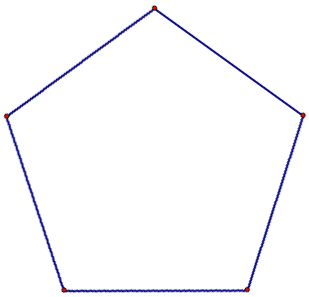
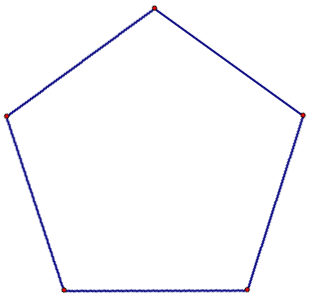
3 sides _____ 6 sides _____ 9 sides _____

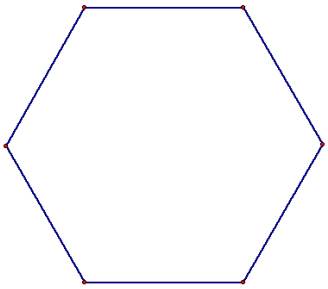
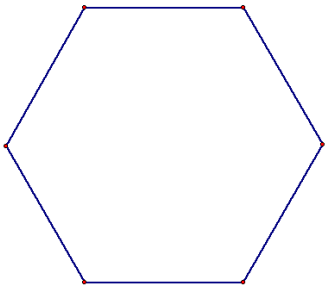
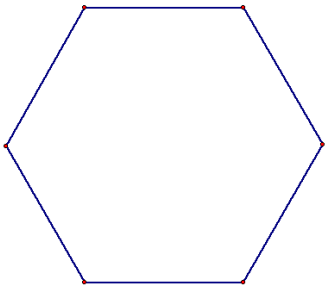
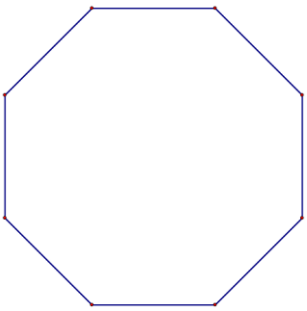
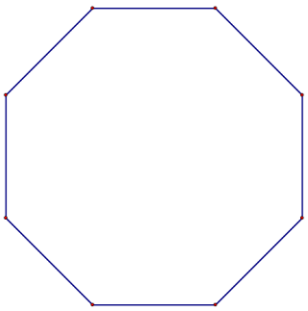
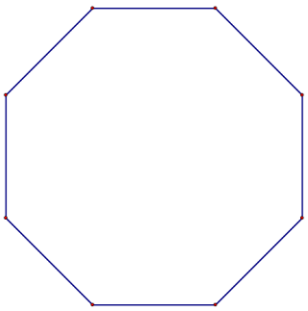
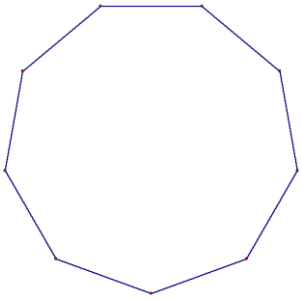
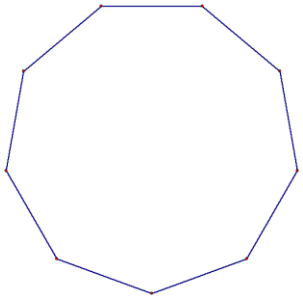
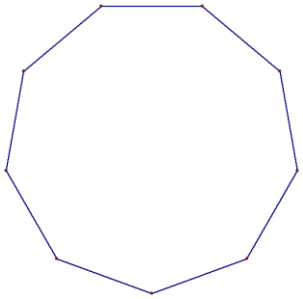
4 sides _____ 7 sides _____ 10 sides _____

5 sides _____ 8 sides _____

A **diagonal of a polygon** is any line segment that connects two vertices, but the segment is not a side of the polygon.

2. For each of the following regular polygons, describe the rotations and reflections that carry it onto itself: (be as specific as possible in your descriptions, such as specifying the angle of rotation)

	Lines of Symmetry	Center and Angles of Rotation	Diagonals
Equilateral Triangle	 How Many?	 Angles of Rotation:	 How Many?
Square	 How Many?	 Angles of Rotation:	 How Many?
Regular Pentagon	 How Many?	 Angles of Rotation:	 How Many?

Regular Hexagon	 How Many?	 Angles of Rotation:	 How Many?
Regular Octagon	 How Many?	 Angles of Rotation:	 How Many?
Regular Nonagon	 How Many?	 Angles of Rotation:	 How Many?

3. Are all lines of symmetry also diagonals? Explain.

4. Are all diagonals also lines of symmetry? Explain

5. What patterns do you notice about the angles of rotation and rotational symmetry in a regular polygon?

6. What patterns do you notice about the number and characteristics of the lines of symmetry in a regular polygon?