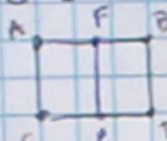
L6.8 March 3, 2016

Skills:



Use transformations justify why $\overline{AC} \cong \overline{BD}$ (Describe the transformation + how it helped you)

$\overline{AC}$ Reflected over $\overline{FE} = \overline{BD}$
or Rotate around center point and $\overline{AC}$ will land on top of $\overline{BD}$

Regular Polygon - all same side lengths + same angles

Diagonal - a segment connecting non-adjacent vertices

Lines of Reflection (LoR)
~ number of sides = # LoR

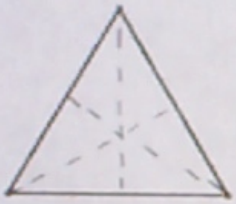
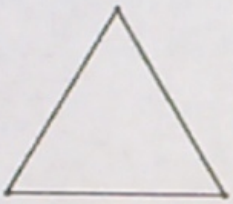
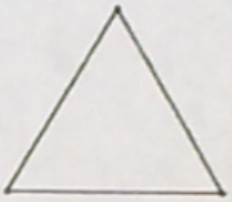
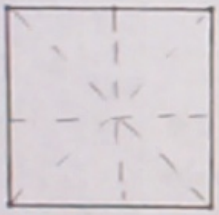
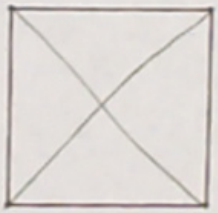
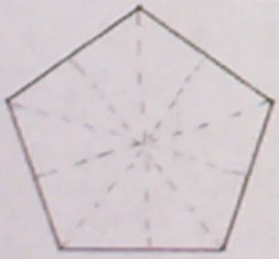
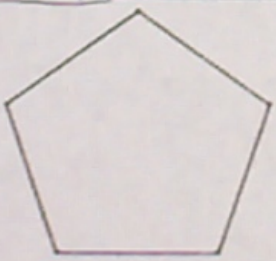
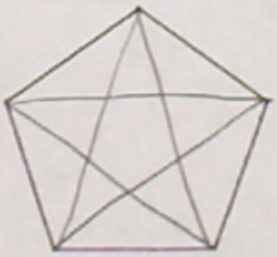
Rotations
angle = $\frac{360^\circ}{\#\text{ sides}}$

Symmetries of Regular Polygons

A Solidify Understanding Task

A line that reflects a figure onto itself is called a **line of symmetry**. A figure that can be carried onto itself by a rotation is said to have **rotational symmetry**. A **diagonal of a polygon** is any line segment that connects non-consecutive vertices of the polygon.

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 Reflection	Points and Degrees of Rotation	Diagonals
Equilateral Triangle	 How Many? 3	 Amount Rotated: 180° around Center & 360°	 How Many? 0
Square	 How Many? 4	 Amount Rotated: 90°, 180°, 270°, 360° Multiples of 90°	 How Many? 2
Regular Pentagon	 How Many? 5	 Amount Rotated: Multiple of 72°	 How Many? 5

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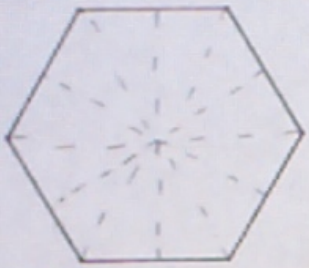
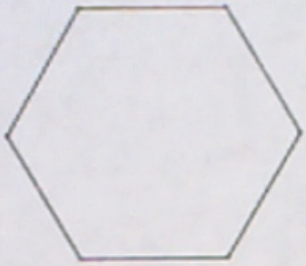
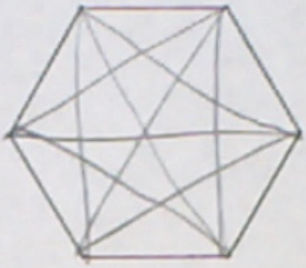
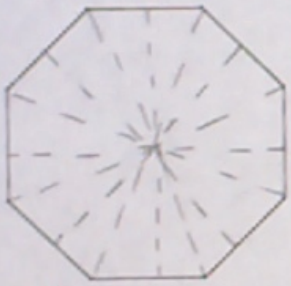
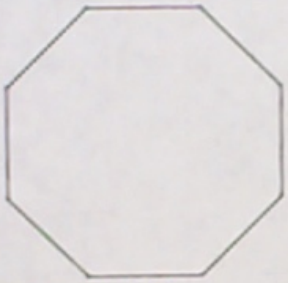
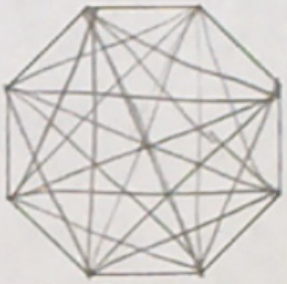
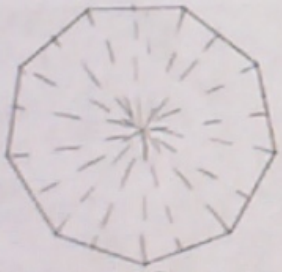
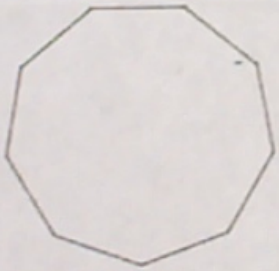
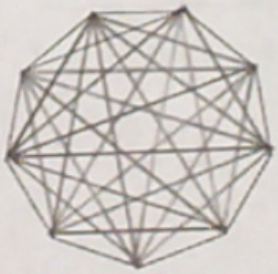
angles = $\frac{360^\circ}{\#\text{ of sides}}$

Regular Hexagon	 How Many? 6	 Amount Rotated:	 How Many? 6
Regular Octagon	 How Many? 8	 Amount Rotated:	 How Many? 20
Regular Nonagon	 How Many? 9	 Amount Rotated:	 How Many? 27

What patterns do you notice in terms of the number of the lines of symmetry in a regular polygon?

Number of sides = # LOR

What patterns do you notice in terms of the angles of rotation when describing the rotational symmetry in a regular polygon?

$\frac{360}{\#\text{ sides}}$ = angles