Polygons Notes

Polygon
- simple shape
- closed
- formed by 3 or more line segments
- no overlap
- no curves

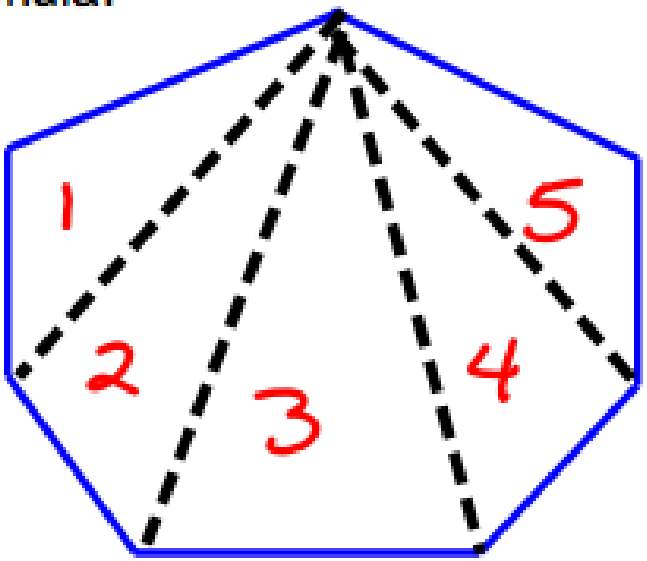
Regular Polygon
- a polygon with all sides and angles congruent (same).

N-gon: a polygon with *n* sides is called an *n*-gon. Example: a 13-sided figure can be called a 13-gon.

Formula for the Sum of the Interior Angles of a Polygon

Sum of the Interior Angles = (n - 2) 180 ; where n = number of sides

1) Find the sum of the interior angles of the polygon. Use diagonals and the sum formula.



$$\text{Sum} = (n-2)\cdot 180$$

$$= (7-2)\cdot 180$$

$$= 5\cdot 180$$

$$= 900^\circ$$

2) Find the measure of an interior angle of a regular 11-gon.
Hint: need to find the sum of all of the angles first.

$$\text{Sum} = (n-2)\cdot 180$$
$$= (11-2)\cdot 180$$
$$= 9 \cdot 180$$
$$= 1620^\circ$$

$1620 \div 11 = 147.3^\circ$

3) Identify the polygon given the sum of the interior angle measures.

Sum = 1800^0 ; What is the name of this polygon?

$$Sum = (n-2) \cdot 180$$

$$\frac{1800}{180} = \frac{(n-2) \cdot 180}{180}$$

$$10 = n - 2$$

$$+2 \qquad +2$$

$$12 = n$$

The polygon is a 12-gon or dodecagon.