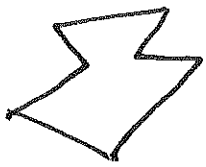
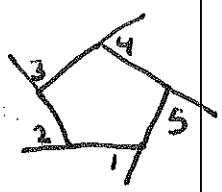
Cornell Notes **Main Ideas/Questions**	Name:_____ Class/Period:_____ Date:_____ **Topic/ Objective: 3-5 The Polygon Angle-Sum Theorem**
	Definitions: Polygon: A closed plane figure with at least three sides that are segments Example:  Regular Polygon: Both equilateral and equiangular Convex: Has no diagonal with points outside the polygon Example:  Concave: Has at least one diagonal with points outside the polygon Example:  **Theorems:** Polygon Angle-Sum Theorem: The sum of the measures of the angles of an n-gon is (n-2)180. Exterior Angle-Sum Theorem: The sum of the measures of the exterior angles of a polygon, one at each vertex, is 360°. For the pentagon: $m\angle 1 + m\angle 2 + m\angle 3 + m\angle 4 + m\angle 5 = 360°$ Drawing:  Other Formulas: One exterior angle of a regular polygon measures $\frac{360}{n}$ One interior angle of a regular polygon measures $\frac{(n-2)180}{n}$

Cornell Notes

Main Ideas/Questions

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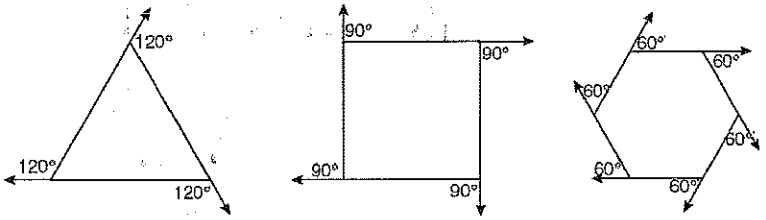
Example:
The measure of a set of exterior angles is shown for each of 3 regular polygons below.



1) Find the sum of all exterior angles for the polygons above. Write a conjecture for the sum of all exterior angles of all polygons.

360°

A Starting Point

- For each figure on **A Starting Point-The Figures**, count the number of sides and name it according to the number of sides.
- Draw all possible diagonals from vertex *A*.
- Determine the maximum number of non-overlapping triangles within each figure created by drawing those diagonals.

Figure Number	Number of Sides in the Polygon	Name of Polygon	Number of Diagonals from Vertex *A*	Number of Non-overlapping Triangles
1	Triangle ↔ 3		0	1
2	Quadrilateral ↔ 4		1	2
3	Pentagon ↔ 5		2	3
4	Hexagon ↔ 6		3	4
5	Heptagon ↔ 7		4	5
6	Octagon ↔ 8		5	6

Sum of Interior angles

(3-2)180

(4-2)180

(n-2)180

Communicating About Mathematics
What is the relationship between the number of sides and the number of diagonals? Justify your answer.