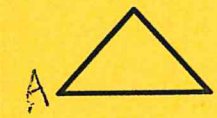
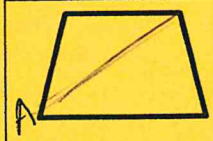
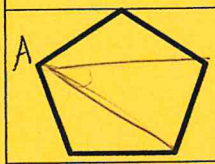
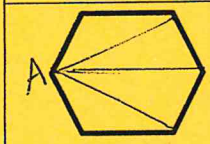
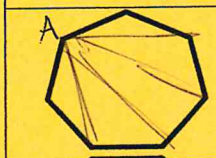
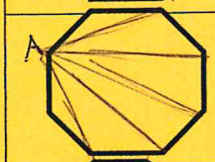
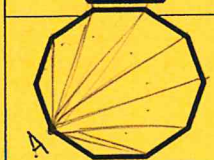
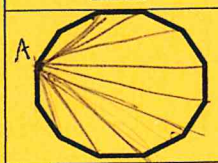
Investigation: Polygon Angle Sums

one angle in regular polygon w/ n sides: $\frac{180(n-2)}{n}$

Complete the table below:

First sketch all possible diagonals from vertex A in each polygon in the 1st column. Write the correct word to classify the polygon by its number of sides in 2nd column. Then fill in the other columns for each polygon. The most important line is the last one, where you come up with a rule for the sum of the interior angles of a polygon with "n" sides and use it to find the sum of the angles in a 20-sided polygon.

Sketch	Classify	# of sides	# of diagonals from A	# of triangles (@ 180° per triangle)	Total degrees of interior angles
	triangle	3	0	1	180°
	quadrilateral	4	1	2	360°
	pentagon	5	2	3	540°
	hexagon	6	3	4 · 180 =	720°
	heptagon	7	4	5	900°
	octagon	8	5	6	1080°
	decagon	10	7	8	1440°
	dodecagon	~~12~~	9	10	1800°
	n-gon	~~n~~	n-3	n-2	180(n-2) SUM

Use chart on p 54 of textbook to assist with classification. Below: Find the sum of the angles of a polygon with 20 sides: (show work) ~~20(~~ $180(20-2) = 180 \cdot 18 = 3240°$