Investigation: Polygon Angle Sums

Complete the table below:  
First sketch all possible diagonals from vertex A in each polygon in the 1st column. Write the correct word to cloassify 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 derive 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. (Make A the lower left corner of each polygon.)

Now find the sum of the angles of a polygon with 20 sides: (show work)

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| --- | --- | --- | --- | --- | --- |
| Sketch | Classify | # of sides | # of diagonals from A | # of triangles  (@ 180°per triangle) | Total degrees of interior angles |
|  |  |  |  |  |  |
|  | Quadrilateral |  |  |  |  |
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|  |  |  |  |  |  |
|  | n-gon |  |  |  |  |