

Sum of the Interior Angles of a Polygon Worksheet.

Directions: Do all work in PENCIL. On the other worksheet there are 6 polygons. Divide each polygon (except for the triangle, of course) into separate triangles by drawing as many diagonals as possible from one vertex to each of the other vertices. There should be no overlapping diagonals in your drawing. The diagonals for the quadrilateral and pentagon have been drawn for you. Fill in the table below and answer the questions beneath.

Polygon	Number of sides	Number of triangles Formed	Sum of the interior angles of all the triangles
Triangle	3	1	180°
Quadrilateral	4	2	
Pentagon			
Hexagon			
Heptagon			
Octagon			

1. Look for patterns in the table. Describe what you found in your own words.

2. What rule or formula can you come up with that will allow you to calculate the sum of the interior angles of any n-gon (a polygon with “n” sides) ?

3. Using this rule, fill in the table below.

Polygon	Number of sides	Sum of the interior angles of the polygon
Nonagon	9	
Decagon	10	
Hendecagon	11	
Dodecagon	12	
Pentadecagon	15	