SUM OF INTERIOR ANGLES OF A REGULAR POLYGON

Student Investigation Worksheet

TASK 1: INVESTIGATE AND RECORD

For each polygon:
(1) select the type of polygon or the number of sides;
(2) choose one vertex;
(3) draw diagonals to every nonadjacent vertex to form a triangle;
(4) count the number of triangles formed;
(5) calculate the angle sum using 180° per triangle;
(6) Record your answer in the table below and click "Check my results" to verify your answer.

Name of Polygon	Number of Sides (n)	Number of Triangles formed	Sum of Interior Angles
Triangle			
Quadrilateral			
Pentagon			
Hexagon			
Heptagon			
Octagon			
Nonagon			
Decagon			

TASK 2: IDENTITY THE PATTERN

What relationship exists between the number of sides and the number of triangles formed?

TASK 3: GENERALIZE

If a polygon has ***n sides***, write a general expression for:

Number of triangles formed = _____

Sum of interior angles = _____

TASK 4: APPLY AND JUSTIFY

Without using "Check my results," Determine the sum interior angles of a 20-sided polygon.