

Name: _____

Discover a relationship

Objective: Discover the relationship between the number of sides in a polygon and its angle sum using geometers sketch pad.

Directions: Draw each polygon (either on Geometers Sketch Pad or on paper). Complete the chart below as you work through each shape and determine the sum of the interior angles in each polygon.

Name of Polygon	Number of sides (n)	Number of triangles in the polygon	Number of degrees in one triangle	Sum of the interior angles
Triangle				
Quadrilateral				
Pentagon				
Hexagon				
Heptagon				
Octagon				

When you and your partner have finished filling in your table, compare with another group and answer the following questions:

1. Did you notice any patterns as you were completing your table? What patterns did you notice?

2. Describe the relationship between the number of triangles that can be formed in each polygon and the number of sides that polygon has.

3. Use this relationship you discovered to decide the sum of the interior angles for the following polygons:
 - a. 8 sided polygon
 - b. 10 sided polygon
 - c. 20 sided polygon