**ANGLES IN POLYGONS – ES**

**Directions: Answer the questions below on a separate sheet of paper to receive an ES for outcome #16.**

1) Provide a convincing argument (proof!) explaining why it is not possible to have more than three obtuse angles in a quadrilateral.

2) A student discovered another method for determining the sum of the measures of the angles of a polygon. She picks a point on the inside of the polygon, draws a segment to each vertex, counts the number of triangles, multiplies by 180, and then subtracts 360. Does her method work? Explain. (When writing your response, remember, quality over quantity!)

3)

a) What does represent?

b) Show that .

c) Useto explain what happens to the measures in the angles of regular n-gons as n becomes larger. What happens to the polygons as n gets larger?

4) Two rays bisect two consecutive angles of a regular polygon and intersect in the polygon’s interior. If the measure of the acute angle formed by the intersecting rays is 36°, how many sides does the polygon have?