Math 118 - Dr. Miller - Quiz #9: Polygon Computations and Terms - **Due Wednesday, 03/12/14**

1. A nonagon has the following vertex angle measurements: 3 of the angles are x^o, 3 are 45^o larger than than twice that, and one angle is half as big as one of those large angles. The remaining angles are all right angles. Find the value of x, to the nearest hundredth. Show work.

2. (a) A 600-gon has just 597 diagonals per vertex. Why must we subtract 3?

   (b) How many diagonals would a 600-gon have altogether, and why is division required?

   (c) How many triangles would be created if you drew all the diagonals from just one vertex, and what does that mean the total interior angle measurement is?

3. Is it possible for a regular polygon to have interior angles that each measure 140^o? Justify your answer.

4. What is the largest 3-digit number of diagonals a polygon could have? Justify your answer with an explanation or computation.

5. Draw examples of the following, clearly and neatly marking ALL KEY ASPECTS.

   (a) a closed curve that isn't simple (b) an equilateral polygon that isn't equiangular

6. (a) Draw a nonconvex pentagon, clearly showing the correct number of sides. Explain in a sentence how you know that it is nonconvex.

   (b) If the pentagon were regular, how much would EACH of its interior angles measure?

7. Is it possible for a polygon to have an interior angle total of 97840^o? Justify your answer.