MY UNIT IS A CIRCLE

Name: _____

Part 1: Circle Thinking

Before you begin, check to make sure you have marked your circle appropriately.

1. How many full times did the radius fit around the circumference? Was there an incomplete radius section at the end of circle loop? Why do you think that?

2. Look only at the first 180° of your circle. How many full times did the radius fit within the first 180°? Estimate the amount of the radius part for the full 180° as a fraction, then as a comparable decimal.

3. What common mathematical constant is close to your estimation?

4. Consider the first 90° of the circle. Based on your answers for questions 2 and 3 (which is the distance to 180°), write the distance that would correspond with 90° as a fraction.

5. Based on your answers from questions 2-4, write the distance for every 30° and 45° increment around the entire circle. Write these values as fractions, using the constant from question 3.

Part 2: Circular Triangle Thinking

1. Now that the basic special right triangles are on your circle, list all observations you have. Use as much academic math language as possible.

2. If the diameter is defined as 2, what is the length of each hypotenuse?

3. Does the value by the outside vertex of each triangle (which you found in part 1, question 5) represent the hypotenuse length, the leg lengths, or the arc length? Provide a justification of how you know.

4. Based on your answers to questions 2 and 3, provide how to find the hypotenuse length, leg lengths, and arc lengths (starting from your zero point) for any triangle you drew in the circle.

5. Using your answers to questions 2-4, construct the ordered pairs for each circumference vertex of each triangle in your circle.