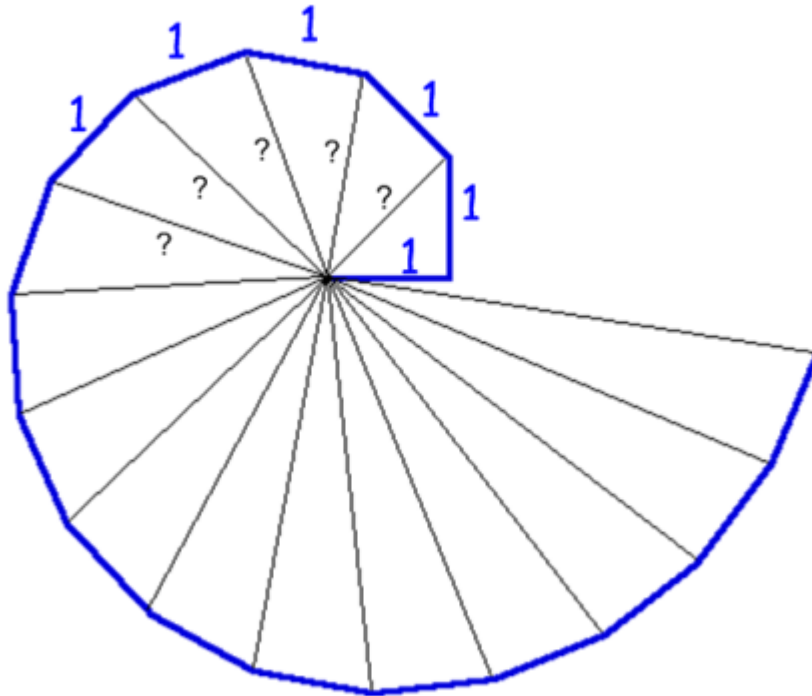Name:_____ Pd. _____

Wheel of Theodorus Project

Due Date: _____

You will need to read this whole sheet first so you know what the project entails. Make sure you read each step carefully and follow instructions carefully… not following directions could make a crazy picture! ;)

Goal: Using the Pythagorean Theorem and Approximating non-perfect Square Roots

1-Use any given length (less than 2 inches) for your first triangle in the center and list it as 1 unit.

2. Determine the hypotenuse for the triangle. That hypotenuse becomes the new leg for your second triangle, and so on. The other leg will always be 1 unit, as shown above.

3. If the hypotenuse is a non perfect square, you must show each approximation without a calculator.

4. Continue making at least 25 triangles, attempting to keep them right triangles throughout.

5. When you get to the stage where your right triangles will overlap previous right triangles, draw your hypotenuse towards the center of the spiral but do not mark over the previous drawing. (As shown in the examples on the next page.)

How you will be graded:

- **15 points** for finding hypotenuse- determined with work shown. (Pythagorean Theorem -- $a^2+b^2=c^2$)

- **15 points** for finding perfect squares and/or irrational approximation to the nearest tenth. $\sqrt{x} < \sqrt{?} < \sqrt{x}$

- **6 points** for precision of drawing (straight lines, proper measurements, etc.)

- **2 points** for neatness and creativity

- **2 points** for work and picture on separate pages

You will need to turn in two separate pages, one with your picture, and one with your work for each Pythagorean Theorem used for the 25 triangles, **as well as**, any approximations of non-perfect square roots.

Attempt to be creative, students will vote for the most creative pictures using

THE WHEEL OF THEODORUS.

examples: