1. Draw the Cartesian axes, and a unit circle. Choose an angle θ in QI and draw its reference triangle. Call one inch, one unit.

2. Measure the angle θ you have drawn and record it here, in degrees.

3. Verify that sinθ is the height of your reference triangle. You may have to convert to fractions of an inch.

4. Verify that cosθ is the width of your reference triangle. You may have to convert to fractions of an inch.

5. Verify the identity sin2θ + cos2θ = 1. Explain why this is true for any angle.

6. Manipulate the identity just given, by solving for sin2θ and cos2θ, each in turn.

7. Return to the original form of the identity and divide every term by cos2θ. Use the definition of certain reciprocal and quotient trigonometric identities to simplify your equation to the second **Pythagorean Identity**.

8. Divide the original identity from #5 by sin2θ and derive the last (very infrequent) Pythagorean Identity.

9. Solve the original and derivation from #7 for 1. Describe two things 1 is equal to.

10. Describe in your own words what you think the point of this problem set it.