Name: _____ Date: _____

Investigate Related Angles

1. a) Open *The Geometer's Sketchpad*®, turn on the grid, and sketch a unit circle.
   b) Plot a point on the unit circle. Then, measure the coordinates of the point.
   c) Join the point to the origin to form the terminal arm of an angle, θ.
   d) Slowly drag the point around the unit circle. Stop when you estimate you have reached a "friendly angle,"
      such as 45°. Compare the coordinates to the values of the trigonometric ratios of the angle.
   e) Repeat part d) for four friendly angles in other quadrants.
   f) Compare the coordinates of related angles.

2. a) Draw a circle with a larger radius than the circle you used in step 1.
   b) Plot a point on the circle, and join that point to the origin. Measure each coordinate of that point
      separately.
   c) Divide each of the coordinates by the radius of the circle.
   d) Slowly drag the point around the unit circle. Stop when you estimate you have reached a "friendly angle,"
      such as 45°. Compare the calculations in part c) to the values of the trigonometric ratios of the angle.
   e) Repeat part d) for four friendly angles in other quadrants.