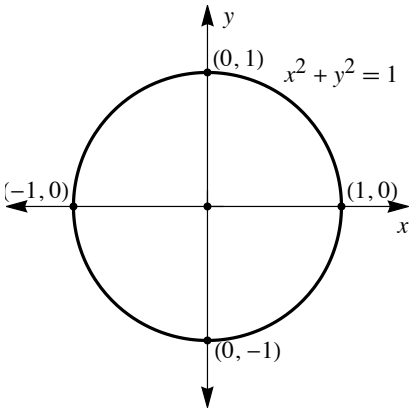
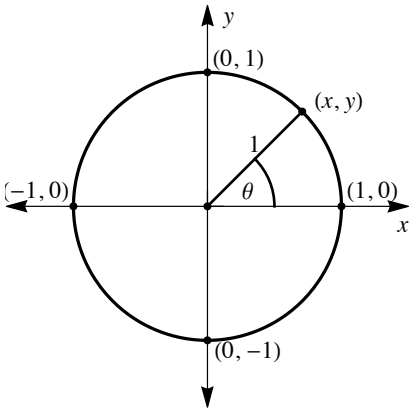
Trigonometry 2: The Unit Circle and Angles

In the previous handout, you were introduced to the most important circle in trigonometry: the **unit circle** which is centered at the origin of a coordinate plane, has a radius of 1, and has an equation $x^2 + y^2 = 1$:



In the plot above, there are only four points shown on the circle. In reality, there are an infinite number of points on the circle. To specify a point on the circle, we can draw a **radial line** that makes an angle, θ (theta), with the positive x axis:



At 0°, θ specifies the point (1, 0) on the unit circle; at 90°, θ specifies (0, 1) and so forth:

Angle, θ	Point on Circle
0°	(1, 0)
90°	(0, 1)
180°	(−1, 0)
270°	(0, −1)
360°	(1, 0)

For every possible real value of θ, there is exactly one corresponding point on the unit circle.