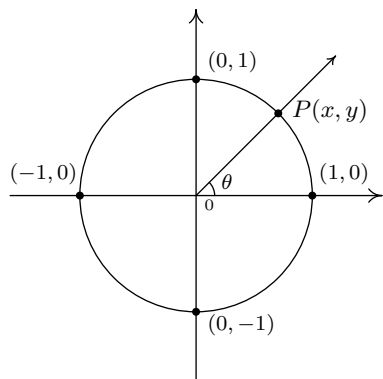


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# MATH 11022: Circular Functions

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**Definition.** Consider the unit circle  $x^2 + y^2 = 1$  ( $r = 1$ ). Then the terminal side of any angle  $\theta$  in standard position intersects the unit circle at a point  $P(x, y)$ . Hence, the six trigonometric functions of  $\theta$  are



$$\sin \theta = y \qquad \csc \theta = \frac{1}{y}$$

$$\cos \theta = x \qquad \sec \theta = \frac{1}{x}$$

$$\tan \theta = \frac{y}{x} \qquad \cot \theta = \frac{x}{y}$$

**Note.** With the above definition, the trigonometric functions are called **circular functions**. When discussing circular functions, the angle  $\theta$  is always measured in *radians*.

