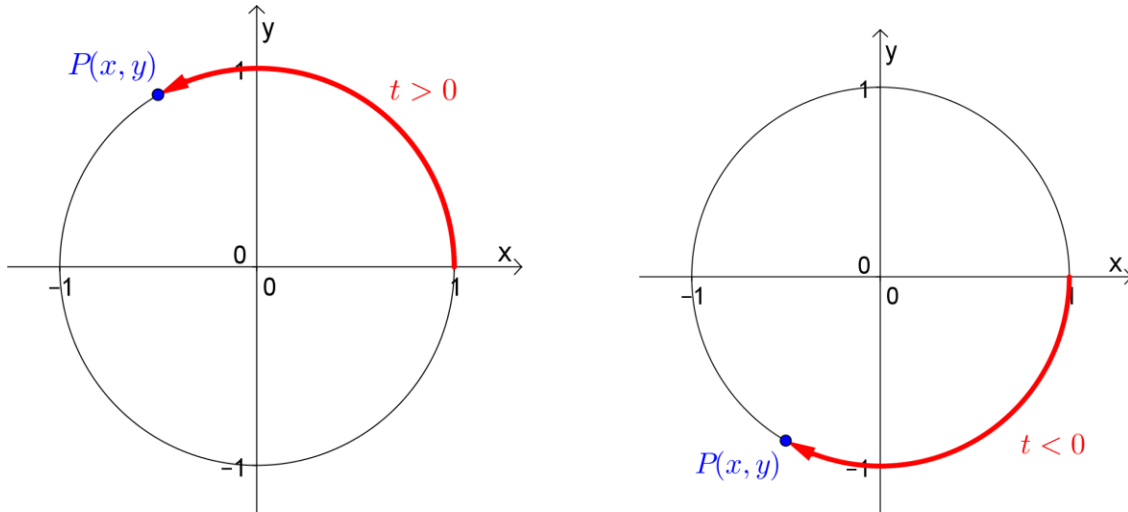


Trigonometric Functions

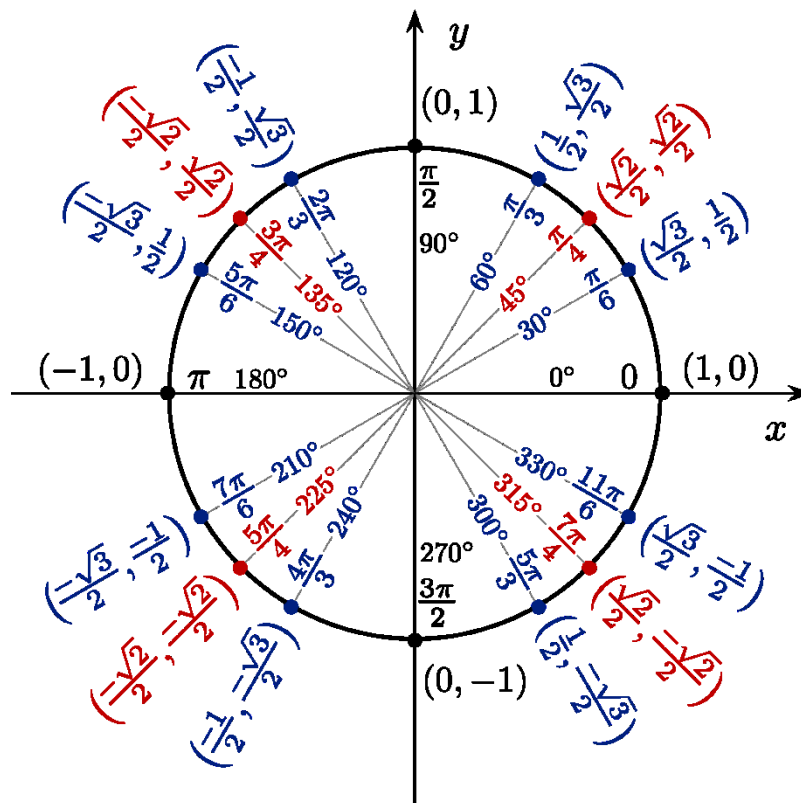
(covers Sullivan 6.2 and 6.3)

If you travel from $(1,0)$ along the unit circle a distance of t , then the point you arrive at $P(x, y)$ is called the terminal point.

If t is positive, you travel counterclockwise. If t is negative, you travel clockwise.



Common terminal points on the unit circle:



Trigonometric Functions

$$\sin t = y \quad \csc t = \frac{1}{y}$$

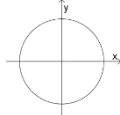
$$\cos t = x \quad \sec t = \frac{1}{x}$$

$$\tan t = \frac{y}{x} \quad \cot t = \frac{x}{y}$$

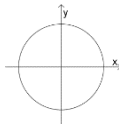
Ex 1.

Find the exact value without a calculator.

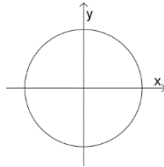
$$\cos \pi$$



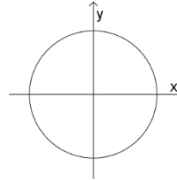
$$\sin 0$$



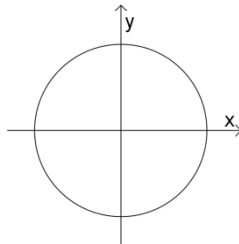
$$\sec \frac{5\pi}{6}$$



$$\tan \left(-\frac{\pi}{3} \right)$$



$$\sin \frac{19\pi}{4}$$



Here are a few helpful trig identities:

$$\tan t = \frac{\sin t}{\cos t}$$

$$\cot t = \frac{\cos t}{\sin t}$$

$$\csc t = \frac{1}{\sin t}$$

$$\sec t = \frac{1}{\cos t}$$

$$\cot t = \frac{1}{\tan t}$$