

## FORMULAS

IF POINT  $(x, y)$  IS ON  
UNIT CIRCLE

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

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

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

$$1. \quad \left( -\frac{1}{4}, \frac{\sqrt{15}}{4} \right)$$

$x \qquad y$

$$x^2 + y^2 = 1$$

$$\cos \theta = x = -\frac{1}{4} \quad \sec \theta = \frac{4}{1} = -4$$

$$\sin \theta = y = \frac{\sqrt{15}}{4} \quad \csc \theta = \frac{4}{\sqrt{15}} = \frac{4 \cdot \sqrt{15}}{\sqrt{15} \cdot \sqrt{15}} = \frac{4\sqrt{15}}{15}$$

$$\begin{aligned} \tan \theta &= \frac{y}{x} & \cot \theta &= \frac{1}{\tan \theta} \\ &= \frac{\frac{\sqrt{15}}{4}}{-\frac{1}{4}} & &= \frac{-1 \cdot \sqrt{15}}{\sqrt{15} \cdot \sqrt{15}} \\ &= \frac{\sqrt{15}}{-1} & &= \frac{-\sqrt{15}}{15} \\ &= -\sqrt{15} & & \end{aligned}$$

$$2. \quad \left( \frac{-2\sqrt{2}}{3}, -\frac{1}{3} \right)$$

$x \qquad y$

$$\begin{aligned} \cos t = x = \frac{-2\sqrt{2}}{3} \quad \sec t &= \frac{3}{-2\sqrt{2}} = \frac{3\sqrt{2}}{-2\sqrt{2} \cdot \sqrt{2}} \\ &= \frac{3\sqrt{2}}{-2 \cdot 2} \\ &= \frac{-3\sqrt{2}}{4} \end{aligned}$$

$$\begin{aligned} \sin t = \frac{-1}{3} \quad \csc t &= \frac{3}{-1} \\ &= -3 \end{aligned}$$

$$\begin{aligned} \tan t = \frac{y}{x} = \frac{-\frac{1}{3}}{\frac{-2\sqrt{2}}{3}} \quad \cot t &= \frac{2\sqrt{2}}{1} \\ &= \frac{1}{2\sqrt{2}} & &= 2\sqrt{2} \\ &= \frac{1 \cdot \sqrt{2}}{2\sqrt{2} \cdot \sqrt{2}} \\ &= \frac{\sqrt{2}}{4} \end{aligned}$$