

Finding the Three Trig Functions from Radians

1. What are the three trig functions at $3\pi/4$?

$$\frac{3\pi}{4} \cdot \frac{180}{\pi} = \frac{540}{4} = 135^\circ \text{ Q II}$$

$$\sin = + \quad \cos = - \quad \tan = -$$

$$\sin = \frac{\sqrt{2}}{2}$$

$$\cos = -\frac{\sqrt{2}}{2}$$

$$\tan = \frac{y}{x} \text{ or } \frac{\sin}{\cos}$$

$$\frac{\frac{\sqrt{2}}{2}}{-\frac{\sqrt{2}}{2}} = -1 \quad \tan = -1$$

2. What are the three trig functions of $11\pi/6$?

$$\frac{11\pi}{6} \cdot \frac{180}{\pi} = 330^\circ \text{ Q IV}$$

$$\sin = - \quad \cos = + \quad \tan = -$$

$$\sin = -\frac{1}{2}$$

$$\cos = \frac{\sqrt{3}}{2}$$

$$\tan = \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{1 \cdot \sqrt{3}}{\sqrt{3} \cdot \sqrt{3}} = -\frac{\sqrt{3}}{3}$$

3. What are the three trig functions at $\pi/4$?

$$\frac{\pi}{4} \cdot \frac{180}{\pi} = \frac{180}{4} = 45^\circ \text{ Q I}$$

$$\sin = + \quad \cos = + \quad \tan = +$$

$$\sin = \frac{\sqrt{2}}{2}$$

$$\cos = \frac{\sqrt{2}}{2}$$

$$\tan = \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = 1$$

4. What are the three trig functions at $-3\pi/2$?

$$-\frac{3\pi}{2} \cdot \frac{180}{\pi} = -\frac{540}{2} = -270 + 360 = 90^\circ \text{ Q I}$$

$$\sin = 1 \quad \tan = \text{undefined}$$

$$\cos = 0$$

5. What are the three trig functions at $-2\pi/3$?

$$-\frac{2\pi}{3} \cdot \frac{180}{\pi} = -\frac{360}{3} = -120 + 360 = 240^\circ \text{ Q III}$$

$$\sin = -\frac{\sqrt{3}}{2}$$

$$\tan = \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \frac{\sqrt{3}}{1} = \sqrt{3}$$

$$\cos = -\frac{1}{2}$$

$$\frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \sqrt{3}$$