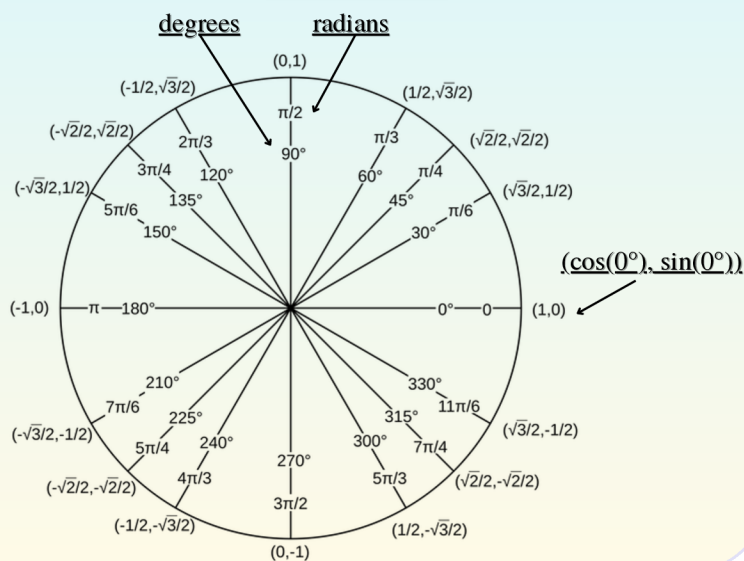


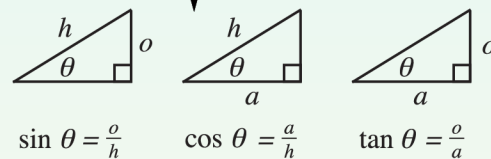
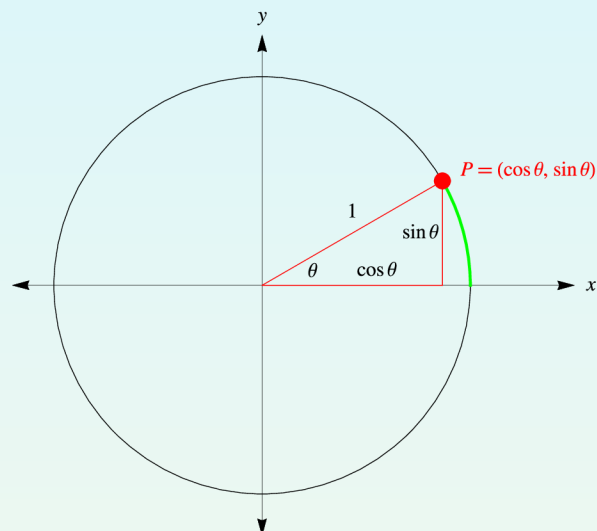
TRIGONOMETRY REVIEW

UNIT CIRCLE (0° to 360° or 0 rad to 2π rad)

$$1 \text{ rad} \approx 57.3^\circ$$



RIGHT TRIANGLE IN THE UNIT CIRCLE



USEFUL TRIGONOMETRY

RELATIONS

$$\tan \theta = \frac{\sin \theta}{\cos \theta}, \quad \cot \theta = \frac{\cos \theta}{\sin \theta},$$

$$\sec \theta = \frac{1}{\cos \theta}, \quad \csc \theta = \frac{1}{\sin \theta}.$$

$$\sin^2 \theta + \cos^2 \theta = 1. \quad \tan^2 \theta + 1 = \sec^2 \theta$$

$$1 + \cot^2 \theta = \csc^2 \theta.$$

$$\frac{d}{dx} \sin x = \cos x, \quad \frac{d}{dx} \cos x = -\sin x,$$

$$\frac{d}{dx} \tan x = \frac{\cos^2 x + \sin^2 x}{\cos^2 x} = 1 + \tan^2 x,$$

$$\frac{d^2}{dx^2} \sin x = \frac{d}{dx} \cos x = -\sin x$$

$$\frac{d^2}{dx^2} \cos x = -\frac{d}{dx} \sin x = -\cos x$$

Trigonometry relations for solving the

properties of the right triangle:

degrees (θ), and length of sides (h , o , a)

h : hypotenuse, o : opposite side relative to θ

a : adjacent side relative to θ

$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}} \quad \csc \theta = \frac{\text{hypotenuse}}{\text{opposite}}$$

$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}} \quad \sec \theta = \frac{\text{hypotenuse}}{\text{adjacent}}$$

$$\tan \theta = \frac{\text{opposite}}{\text{adjacent}} \quad \cot \theta = \frac{\text{adjacent}}{\text{opposite}}$$

HELPFUL TIPS

- TI-36X Pro Calculator is the standard for science and math courses.
- Ensure that your calculator is in degrees or radians by referring to your calculator's guidebook.
- Draw and define your right triangle in the unit circle to make sure that your sides are relative to the angle.