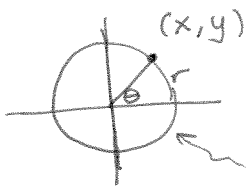


Circular Functions.



Degrees (θ) Radians

$$x = \cos \theta \qquad x = \cos r$$

$$y = \sin \theta \qquad y = \sin r$$

IN Calculator

(X) $y_1 = \cos x$ } In degrees or radians

(Y) $y_2 = \sin x$ }

Also...

$$\tan \theta = \frac{y}{x} \quad (\text{slope of Line})$$

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

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

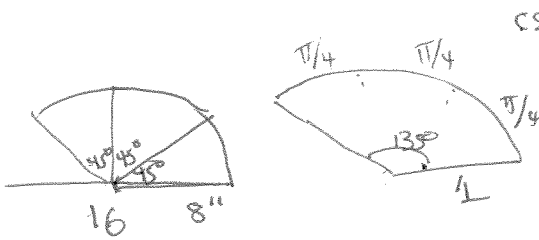
$$\cot \theta = \frac{\cos}{\sin}$$

Wrapping Function

$$W(\theta) = (x, y) = (\cos \theta, \sin \theta)$$

Reciprocal Functions

Notation $\sin^{-1}(x)$ (INVERSE NOT $1/\sin(\theta)$)



$\csc(\theta)$

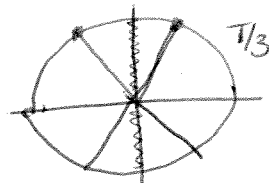
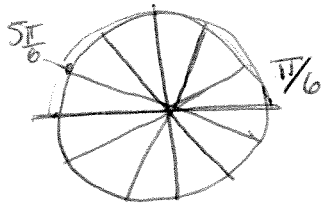
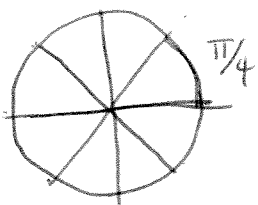
$$135^\circ \times \frac{\pi}{180^\circ} = \frac{3\pi}{4}$$

convert degrees to radians
x radius

$$\frac{3\pi}{4} \times 16 = 6\pi \approx 18.8$$

$$S(\text{arc}) = r \cdot \theta$$

↑ radius ↑ radians



| θ : | 0° | 30° | 45° | 60° | 90° |
|---------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| $\sin \theta$ | $\frac{\sqrt{0}}{2}$ | $\frac{\sqrt{1}}{2}$ | $\frac{\sqrt{2}}{2}$ | $\frac{\sqrt{3}}{2}$ | $\frac{\sqrt{4}}{2}$ |
| $\cos \theta$ | $\frac{\sqrt{4}}{2}$ | $\frac{\sqrt{3}}{2}$ | $\frac{\sqrt{2}}{2}$ | $\frac{\sqrt{1}}{2}$ | $\frac{\sqrt{0}}{2}$ |
| $\tan \theta$ | 0 | $\frac{1}{\sqrt{3}}$ | 1 | $\sqrt{3}$ | undefined |

$$.707... = \frac{\sqrt{2}}{2}$$

$$.83... = \frac{\sqrt{3}}{2}$$

$$1.73... = \sqrt{3}$$

$$.577... = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$