Angles and their measures-Cheat Sheet

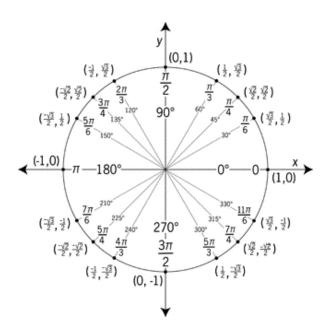
Changing from degrees to radians

Changing from radians to degrees

$$radians = degrees \cdot \frac{\pi}{180}$$

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UNIT CIRCLE - Radius is 1



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

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

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

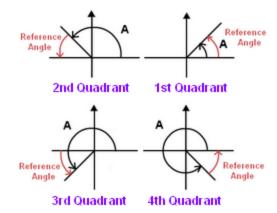
Reference Angles - the positive angle less than 90° formed by the terminal side of an angle and the x-axis. Must take into consideration the quadrant of the angle.

Quadrant 1: x

Quadrant 2: 180 - x or $\pi - x$

Quadrant 3: 180 + x or $\pi + x$

Quadrant 4: 360 - x or $2\pi - x$



Circular Functions: NOT a unit circle, center is (0, 0), radius is r.

For any angle in standard position with measure θ and a point P (x, y) on it terminal side and $x^2 + y^2 = r^2$

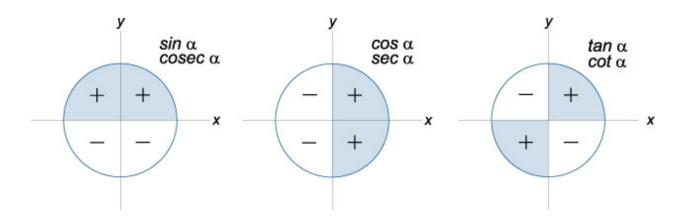
$$sin\theta = \frac{y}{r}$$
 $cos\theta = \frac{x}{r}$ $tan\theta = \frac{y}{x}$
 $csc\theta = \frac{r}{y}$ $sec\theta = \frac{r}{x}$ $cot\theta = \frac{x}{y}$

Arc Length and Area of Sectors

A = area, s = arc length, r = radius, θ = angle in radians or degrees

Central Angle	Arc Length	Area
θ in radians	$S = r\theta$	$A = \frac{1}{2} r^2 \cdot \theta$
θ in degrees	$S = \frac{\theta}{360} \cdot 2\pi r$	$A = \frac{\theta}{360} \cdot \pi \cdot r^2$

Signs of the six trig functions



Angular Velocity: How many degrees an object travels in a certain time.

Linear Velocity: The distance than an object travels in a given time.

Distance formula: Distance = rate \cdot time (d = r \cdot t)