To convert:

From degrees to radians: multiply by $\frac{\pi}{180^\circ}$

From radians to degrees: multiply by $\frac{180^\circ}{\pi}$

The Pythagorean Identities

$\sin^2\theta + \cos^2\theta = 1$

$\tan^2\theta + 1 = \sec^2\theta$

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

Sometimes that identity is hidden:

$1 - \sin^2\theta = \cos^2\theta$

$1 - \cos^2\theta = \sin^2\theta$

You are familiar with the following reciprocal identities:

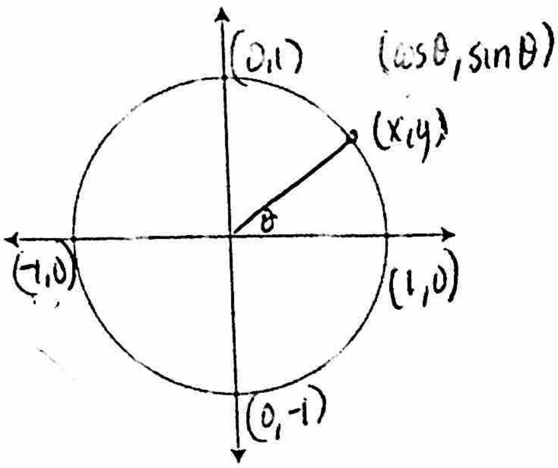
secant: $\sec\theta = \frac{1}{\cos\theta}, \cos\theta \neq 0$ — $\cos\theta = \frac{1}{\sec\theta}, \sec\theta \neq 0$

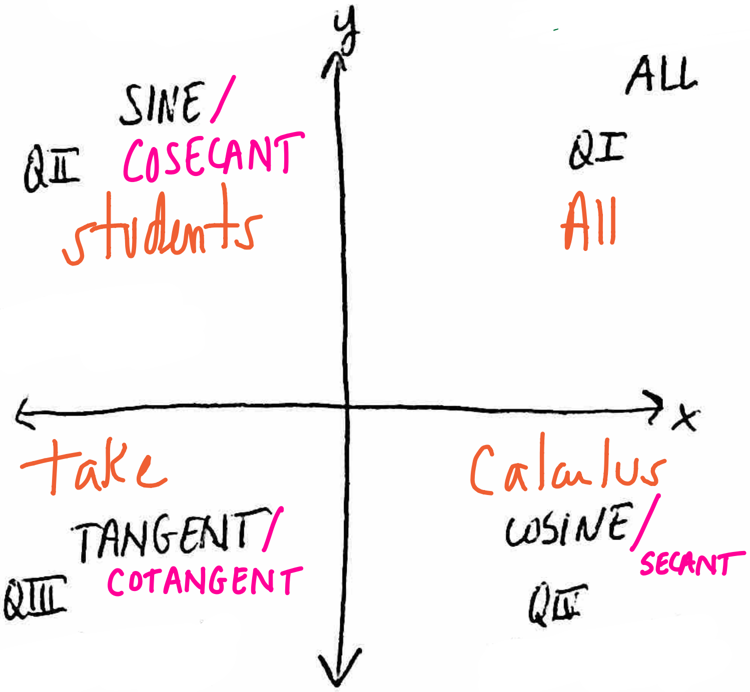
cosecant: $\csc\theta = \frac{1}{\sin\theta}, \sin\theta \neq 0$ — $\sin\theta = \frac{1}{\csc\theta}, \csc\theta \neq 0$

cotangent: $\cot\theta = \frac{1}{\tan\theta}, \tan\theta \neq 0$ — $\tan\theta = \frac{1}{\cot\theta}, \cot\theta \neq 0$

And the quotient identities:

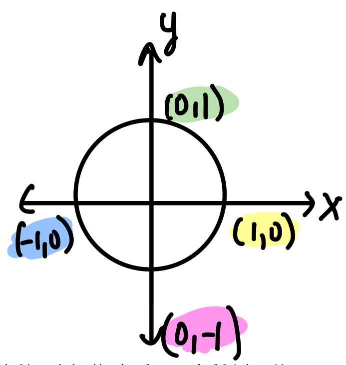
$$\tan\theta = \frac{\sin\theta}{\cos\theta}, \cos\theta \neq 0 \qquad \cot\theta = \frac{\cos\theta}{\sin\theta}, \sin\theta \neq 0$$





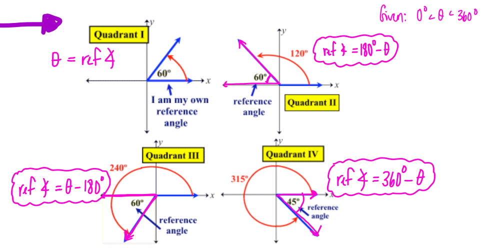
θ	30°	45°	60°
Radians	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$
Sin θ	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$
Cos θ	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$
Tan θ	$\frac{1}{\sqrt{3}}$ or $\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$

θ	0°	90°	180°	270°	360°
Radians	0	$\pi/2$	π	$\frac{3\pi}{2}$	2π
Sin θ	0	1	0	-1	0
Cos θ	1	0	-1	0	1
Tan θ	0	undefined	0	undefined	0



Given an angle θ in standard position, the ***reference angle*** of θ, is the positive acute angle formed by the terminal side of θ and the positive or negative portion of the x-axis.

Given: $0^\circ < \theta < 360^\circ$



Express as a function of a positive acute angle (reference angles)

Q uadrant?

Reference ∡

Sign

Evaluate / find the value of

Q

R

S

Table