0°

60°

30°

90°

45°

120°

135°

210°

150°

225°

180°

240°

270°

330°

300°

360°

315°

Quadrantal angles are:

$\frac{11\pi}{6}$

2π

... angles that lie on an axis.

$\frac{\pi}{3}$

0

$\frac{\pi}{2}$

$\frac{9}{\pi}$

$\frac{2\pi}{3}$

$\frac{9}{\pi}$

$\frac{7\pi}{6}$

$\frac{5\pi}{4}$

$\frac{4\pi}{3}$

$\frac{2}{3\pi}$

$\frac{3}{5\pi}$

$\frac{4}{7\pi}$

$\frac{4}{3\pi}$

$\frac{9}{5\pi}$

π

$\sin 30°$	$\sin 45°$	$\sin 60°$
$\sin \frac{\pi}{6}$	$\sin \frac{\pi}{4}$	$\sin \frac{\pi}{3}$
$\cos 60°$	$\cos 45°$	$\cos 30°$
$\cos \frac{\pi}{3}$	$\cos \frac{\pi}{4}$	$\cos \frac{\pi}{6}$
$\tan 30°$	$\tan 45°$	$\tan 60°$
$\tan \frac{\pi}{6}$	$\tan \frac{\pi}{4}$	$\tan \frac{\pi}{3}$

$\sqrt{3}/2$

$\sqrt{3}/2$

$\sqrt{2}/2$

$\sqrt{2}/2$

$1/2$

$1/2$

$\sqrt{3}/2$

$\sqrt{3}/2$

$\sqrt{2}/2$

$\sqrt{2}/2$

$1/2$

$1/2$

$\sqrt{3}$

$\sqrt{3}$

1

1

$\sqrt{3}/3$

$\sqrt{3}/3$

$\sin 0°$	$\cos 0°$	$\tan 0°$
$\sin 0$	$\cos 0$	$\tan 0$
$\sin 90°$	$\cos 90°$	$\tan 90°$
$\sin \pi/2$	$\cos \pi/2$	$\tan \pi/2$
$\sin 180°$	$\cos 180°$	$\tan 180°$
$\sin \pi$	$\cos \pi$	$\tan \pi$

0

0

1

1

0

0

undefined

undefined

0

0

1

1

0

0

-1

-1

0

0

$\sin 360°$ $\sin 2\pi$	$\cos 360°$ $\cos 2\pi$	$\tan 360°$ $\tan 2\pi$
$\sin 270°$ $\sin \frac{3\pi}{2}$	$\cos 270°$ $\cos \frac{3\pi}{2}$	$\tan 270°$ $\tan \frac{3\pi}{2}$
sin in Q I sin in Q II	cos in Q I cos in Q II	tan in Q I tan in Q II

0 0	1 1	0 0
undefined undefined	0 0	-1 -1
positive negative	positive negative	positive positive

sin in Q III

sin in Q IV

cos in QIII

cos in Q IV

tan in QIII

tan in Q IV

$\sin^{-1} 0$

$\sin \theta = 0$

$\cos^{-1} 0$

$\cos \theta = 0$

$\tan^{-1} 0$

$\tan \theta = 0$

$\sin^{-1} 1$

$\sin \theta = 1$

$\cos^{-1} 1$

$\cos \theta = 1$

$\tan^{-1} 1$

$\tan \theta = 1$

positive

negative

negative

negative

positive

negative

0°,360°,180°
0, π, 2π

90°,270°
$\pi/2, 3\pi/2$

0°,360°,180°
0, π, 2π

0°,360°,180°
0, π, 2π

$\pi/2, 3\pi/2$
90°,270°

0°,360°,180°
0, π, 2π

45°
$\pi/4$

0°,360°
0, 2π

90°
$\pi/2$

$\pi/4$
45°

0°,360°
0, 2π

$\pi/2$
90°

$\sin^{-1} -1$

$\sin\theta = -1$

$\cos^{-1} -1$

$\cos\theta = -1$

$\tan^{-1} \varnothing$

$\tan\theta$ is undefined

$\sin^{-1} \sqrt{2}/2$

$\sin\theta = \sqrt{2}/2$

$\cos^{-1} \sqrt{2}/2$

$\cos\theta = \sqrt{2}/2$

$\tan^{-1} \sqrt{3}/3$

$\tan\theta = \sqrt{3}/3$

$\sin^{-1} \sqrt{3}/2$

$\sin\theta = \sqrt{3}/2$

$\cos^{-1} \sqrt{3}/2$

$\cos\theta = \sqrt{3}/2$

$\sin^{-1} 1/2$

$\sin\theta = 1/2$

90°,270°

$\pi/2, 3\pi/2$

90°,270°

$\pi/2, 3\pi/2$

180°

π

180°

π

270°

$3\pi/2$

270°

$3\pi/2$

30°

$\pi/6$

30°

$\pi/6$

45°

$\pi/4$

45°

$\pi/4$

45°

$\pi/4$

45°

$\pi/4$

30°

$\pi/6$

30°

$\pi/6$

30°

$\pi/6$

30°

$\pi/6$

60°

$\pi/3$

60°

$\pi/3$

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

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

$\tan^{-1} \sqrt{3}$

$\tan\theta = \sqrt{3}$

$\tan\theta = \frac{?}{?}$

$\cot\theta = \frac{?}{?}$

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

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

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

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

$\tan\theta = \frac{1}{?}$

$\cot\theta = \frac{1}{?}$

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

$= \csc^2\theta - \cot^2\theta$

$1 - \sin^2\theta =$

$= 1 + \cot^2\theta$

$1 - \cos^2\theta =$

$= \csc^2\theta - 1$

60°

$\pi/3$

60°

$\pi/3$

60°

$\pi/3$

60°

$\pi/3$

$\sin\theta / \cos\theta$

$\cos\theta / \sin\theta$

$\sin\theta$

$\cos\theta$

$\csc\theta$

$\sec\theta$

$\tan\theta$

$\cot\theta$

1

1

$\cos^2\theta$

$\csc^2\theta$

$\sin^2\theta$

$\sec^2\theta$

$\sec^2\theta - \tan^2\theta =$

$\tan^2\theta + 1 =$

$= 1 - \theta^2\sec$

$\cos(\alpha + \beta)$

$\cos(\alpha - \beta)$

$\sin(\alpha + \beta)$

$\sin(\alpha - \beta)$

$\cos\alpha\cos\beta$
$-$
$\sin\alpha\sin\beta$

$\cos\alpha\cos\beta$
$+$
$\sin\alpha\sin\beta$

$\cos\alpha\cos\beta$
$-$
$\sin\alpha\sin\beta$

$\cos\alpha\cos\beta$
$+$
$\sin\alpha\sin\beta$

$\sin\alpha\cos\beta$
$+$
$\cos\alpha\sin\beta$

$\sin\alpha\cos\beta$
$-$
$\cos\alpha\sin\beta$

Converting degrees to radians ...

... degrees to radians Converting

	$\sec^2\theta$ $\tan^2\theta$	1
$\cos(\alpha+\beta)$ $\cos(\alpha-\beta)$	$\sin\alpha\cos\beta$ + $\cos\alpha\sin\beta$ $\sin\alpha\cos\beta$ - $\cos\alpha\sin\beta$	$\cos\alpha\cos\beta$ - $\sin\alpha\sin\beta$ $\cos\alpha\cos\beta$ + $\sin\alpha\sin\beta$
Multiply by π and divide by 180° Multiply by 180° and divide by π	$\sin(\alpha+\beta)$ $\sin(\alpha-\beta)$	$\cos(\alpha+\beta)$ $\cos(\alpha-\beta)$

$\sin(-\theta)$

$\csc(-\theta)$

$\cos(-\theta)$

$\sec(-\theta)$

$\tan(-\theta)$

$\cot(-\theta)$

$\sin(90^\circ - \theta)$

$\cos(90^\circ - \theta)$

$\sec(90^\circ - \theta)$

$\csc(90^\circ - \theta)$

$\tan(90^\circ - \theta)$

$\cot(90^\circ - \theta)$

To find a co-terminal angle, ...

Positive angles rotate ...

The arc length formula is ...

The sector area formula is ...

SohCahToa means ...

"All Students Throw Chalk" describes...

$-\sin\theta$

$-\csc\theta$

$\cos\theta$

$\sec\theta$

$-\tan\theta$

$-\cot\theta$

$\cos\theta$

$\sin\theta$

$\csc\theta$

$\sec\theta$

$\cot\theta$

$\tan\theta$

Counter-
clockwise

Add or subtract
full rotations
(360° or 2π)

$s = r\theta$

$A = \frac{1}{2}r^2\theta$

... where trig
functions are
positive

$\sin\theta$ is $^{opp}/_{hyp}$
$\cos\theta$ is $^{adj}/_{hyp}$
$\tan\theta$ is $^{opp}/_{adj}$