

One minute  $1' = \frac{1}{60}$  degree  
 One second  $1'' = \frac{1}{3600}$  degree

$360^\circ = 2\pi$  radians

1 degree =  $\frac{\pi}{180}$  radians

1 radian =  $\frac{180}{\pi}$  degrees

Length of an arc "S"

$S = R\theta$

Linear Speed

$V = \frac{S}{t}$  or  $V = R\omega$

Angular Speed

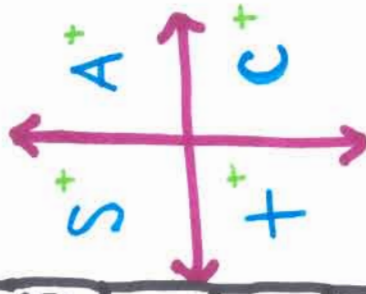
$\omega = \frac{\theta}{t}$

	$\theta = \frac{\pi}{6} = 30^\circ$	$\theta = \frac{\pi}{4} = 45^\circ$	$\theta = \frac{\pi}{3} = 60^\circ$
$\sin \theta$	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$
$\cos \theta$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$
$\tan \theta$	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$
$\cot \theta$	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$

Period:

- $\sin \theta - 2\pi$
- $\cos \theta - 2\pi$
- $\tan \theta - \pi$
- $\cot \theta - \pi$
- $\sec \theta - 2\pi$
- $\csc \theta - 2\pi$

	$\theta = 0 = 0$	$\theta = \frac{\pi}{2} = 90^\circ$	$\theta = \pi = 180^\circ$	$\theta = \frac{3\pi}{2} = 270^\circ$
$\sin \theta$	0	1	0	-1
$\cos \theta$	1	0	-1	0
$\tan \theta$	0	d.n.e.	0	d.n.e.
$\cot \theta$	d.n.e.	0	d.n.e.	0



Even:  $\cos \theta, \sec \theta$  \*  $\cos(-\theta) = \cos \theta$

Odd:  $\sin \theta, \csc \theta, \tan \theta, \cot \theta$  \*  $\sin \theta = -\sin \theta$

- $\sin(\sin^{-1}y) = y$   $-1 \leq y \leq 1$
- $\sin^{-1}(\sin x) = x$   $-\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$
- $\cos(\cos^{-1}y) = y$   $-1 \leq y \leq 1$
- $\cos^{-1}(\cos x) = x$   $0 \leq x \leq \pi$

- $\tan(\tan^{-1}y) = y$  for every  $y$
- $\tan^{-1}(\tan x) = x$   $-\frac{\pi}{2} < x < \frac{\pi}{2}$
- $\cot(\cot^{-1}y) = y$  for every  $y$
- $\cot^{-1}(\cot x) = x$   $0 < x < \pi$