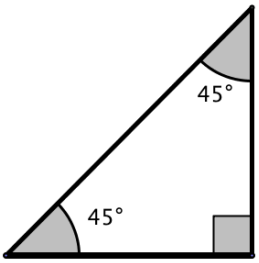
Pre-Calculus Trigonometry Reference Sheet Name_____

Basic Trig

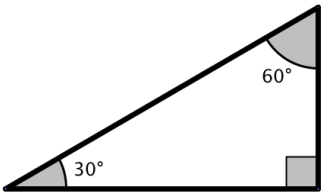
Special Right Triangles

45°-45°-90°:



_____=_____x_____

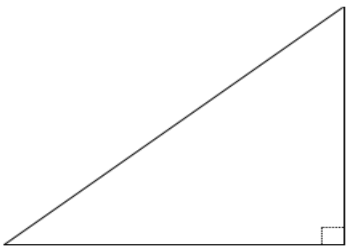
30°-60°-90°:



_____=_____x_____

_____=_____x_____

Trig Ratios: $\mathbf{S}\frac{\mathbf{O}}{\mathbf{H}}\ \mathbf{C}\frac{\mathbf{A}}{\mathbf{H}}\ \mathbf{T}\frac{\mathbf{O}}{\mathbf{A}}$



$sin\theta =$ ——— $csc\theta =$ ———

$cos\theta =$ ——— $sec\theta =$ ———

$tan\theta =$ ——— $cot\theta =$ ———

Reciprocal Identities

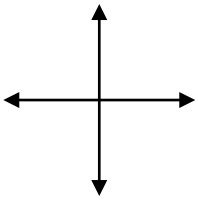
$sin\theta =$ ——— $csc\theta =$ ———

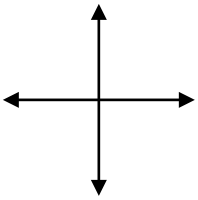
$cos\theta =$ ——— $sec\theta =$ ———

$tan\theta =$ ——— $cot\theta =$ ———

Angles in Standard Position

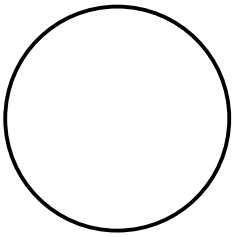
positive negative





Coterminal Angles:

One Radian:

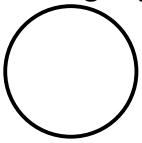


Radians/Degrees Conversions

1 degree = _____ radians

1 radian = _____ degrees

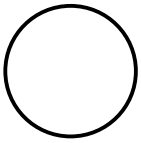
Arc Length (s):



_____ •

_____ •

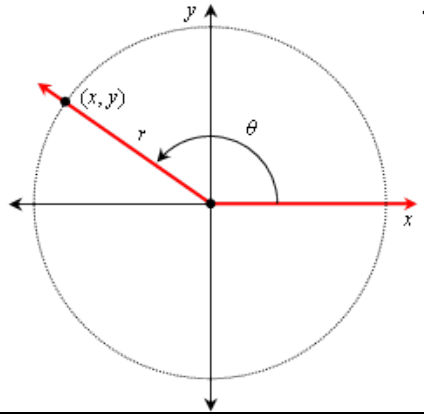
Sector Area (A):



_____ •

_____ •

Trig Functions of Any Angle



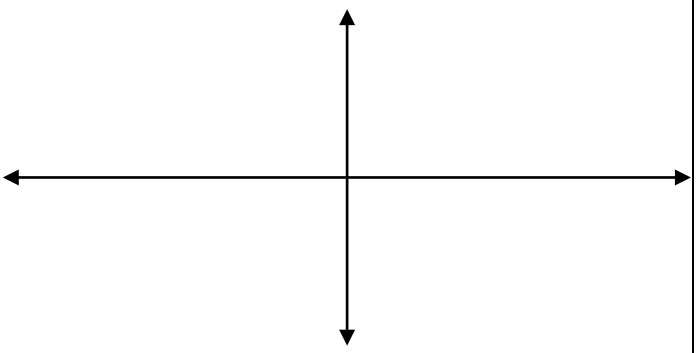
$sin\theta =$ _____ $csc\theta =$ _____

$cos\theta =$ _____ $sec\theta =$ _____

$tan\theta =$ _____ $cot\theta =$ _____

Reference Angle:

Signs of Trig Functions in Each Quadrant



Quotient Identities

$tan\theta =$ _____

$cot\theta =$ _____

Pythagorean Identities

_____

_____

_____

Alternatives

_____

_____

_____

_____

Co-function Rules for Complimentary Angles

$sin\theta =$ _____$(90° - \theta)$

$cos\theta =$ _____$(90° - \theta)$

$sec\theta =$ _____$(90° - \theta)$

$csc\theta =$ _____$(90° - \theta)$

$tan\theta =$ _____$(90° - \theta)$

$cot\theta =$ _____$(90° - \theta)$

Even-Odd Properties

Odd:

$\sin(-\theta) =$ _____

$\csc(-\theta) =$ _____

$\tan(-\theta) =$ _____

$\cot(-\theta) =$ _____

Even:

$\cos(-\theta) =$ _____

$\sec(-\theta) =$ _____

Periodic Properties

$\sin(\theta +$ _____$) = sin\theta$

$\csc(\theta +$ _____$) = csc\theta$

$\cos(\theta +$ _____$) = cos\theta$

$\sec(\theta +$ _____$) = sec\theta$

$\tan(\theta +$ _____$) = tan\theta$

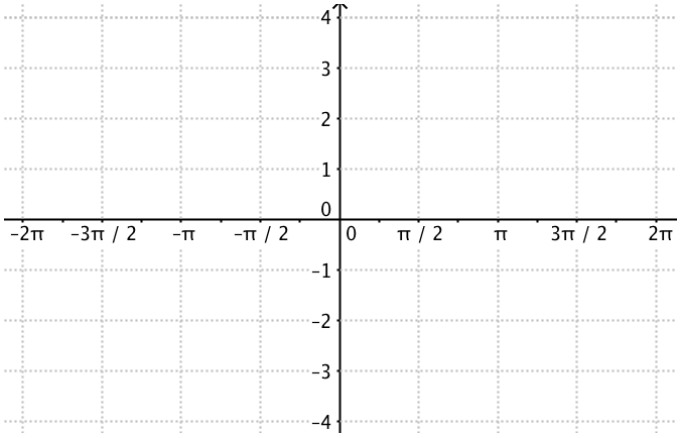
$\cot(\theta +$ _____$) = cot\theta$

Trig Graphs

Amplitude:	**Period:**
Phase Shift:	**Midline:**

$f(x) = sin(x)$

x	$f(x)$
0	
$\frac{\pi}{2}$	
π	
$\frac{3\pi}{2}$	
2π	



Domain:

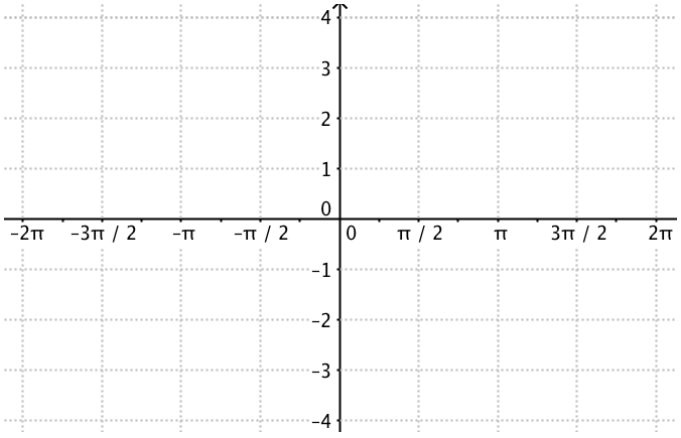
Range:

Amplitude:

Period:

$f(x) = cos(x)$

x	$f(x)$
0	
$\frac{\pi}{2}$	
π	
$\frac{3\pi}{2}$	
2π	



Domain:

Range:

Amplitude:

Period:

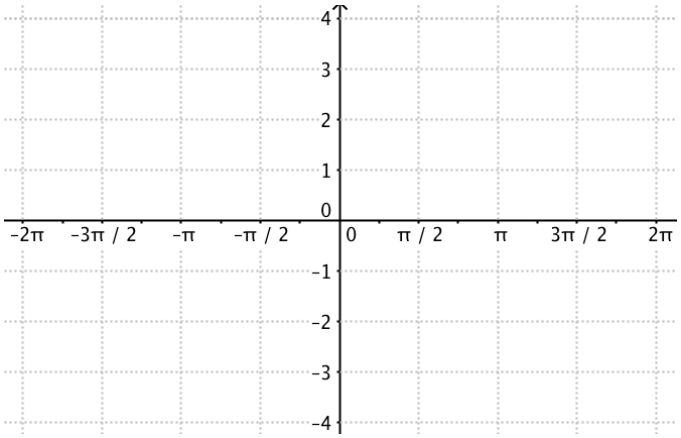
Transformations of Trig Graphs

$$y = a \cdot trig\big(\omega(x - h)\big) + k$$

a	ω
h	k

$f(x) = csc(x)$

x	$f(x)$
0	
$\frac{\pi}{2}$	
π	
$\frac{3\pi}{2}$	
2π	



Domain:

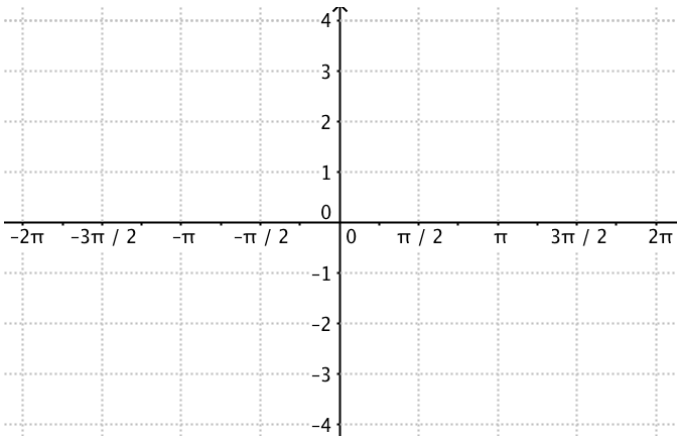
Range:

Asymptotes:

Period:

$f(x) = sec(x)$

x	$f(x)$
0	
$\frac{\pi}{2}$	
π	
$\frac{3\pi}{2}$	
2π	



Domain:

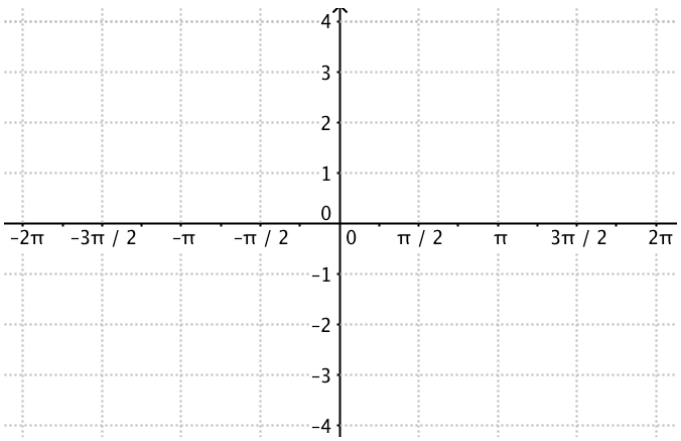
Range:

Asymptotes:

Period:

$f(x) = tan(x)$

x	$f(x)$
0	
$\frac{\pi}{4}$	
$\frac{\pi}{2}$	
$\frac{3\pi}{4}$	
π	



Domain:

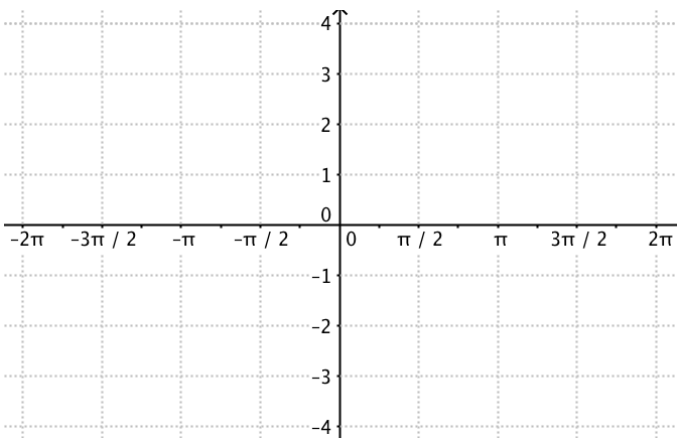
Range:

Asymptotes:

Period:

$f(x) = cot(x)$

x	$f(x)$
0	
$\frac{\pi}{4}$	
$\frac{\pi}{2}$	
$\frac{3\pi}{4}$	
π	



Domain:

Range:

Asymptotes:

Period:

More Identities

Sum and Difference Formulas

$cos(\alpha + \beta) =$ _____

$cos(\alpha - \beta) =$ _____

$sin(\alpha + \beta) =$ _____

$sin(\alpha - \beta) =$ _____

$tan(\alpha + \beta) =$ _____

$tan(\alpha - \beta) =$ _____

Double Angle Formulas

$sin(2\theta) =$ _____

$cos(2\theta) =$ _____

$cos(2\theta) =$ _____

$cos(2\theta) =$ _____

$tan(2\theta) =$ _____

Half Angle Formulas

$sin\left(\frac{\alpha}{2}\right) =$

$cos\left(\frac{\alpha}{2}\right) =$

$tan\left(\frac{\alpha}{2}\right) =$

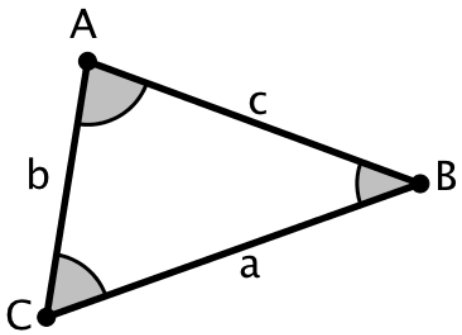
$tan\left(\frac{\alpha}{2}\right) =$

$tan\left(\frac{\alpha}{2}\right) =$

Inverse Trig

Function	Domain	Range
$y = sin^{-1}x$		
$y = cos^{-1}x$		
$y = tan^{-1}x$		
$y = csc^{-1}x$		
$y = sec^{-1}x$		
$y = cot^{-1}x$		

Non-Right Triangle Trig



Law of Sines

$$\_\_\_\_\_ = \_\_\_\_\_ = \_\_\_\_\_$$

Types of Triangles:

Law of Cosines

$c^2 =$ _____

$b^2 =$ _____

$a^2 =$ _____

Types of Triangles:

Area of a Triangle

$K =$ _____

$K =$ _____

$K =$ _____

Heron's Formula:

$K =$ _____

where $s =$ _____