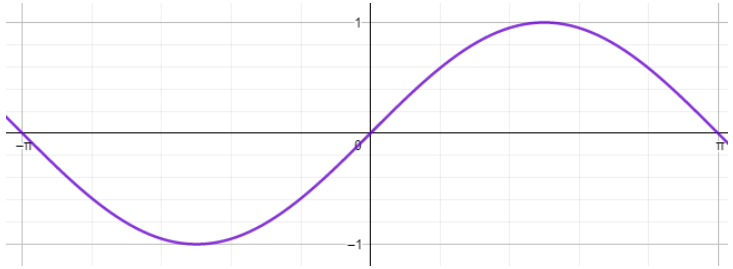
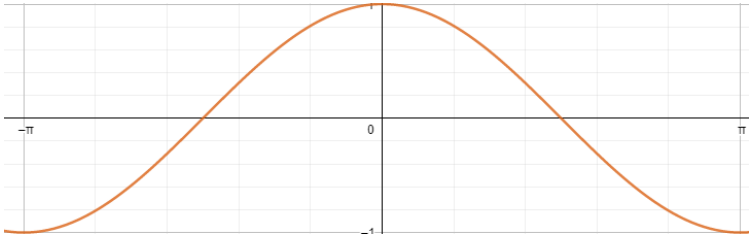
Trigonometric Functions Cheat Sheet

Sin(x):



Cos(x):



Properties:

Sin(x):

$D_{sin(x)}$= R

$R_{sin(x)}$= [-1,1]

Odd Function

f'(x)= cos(x)

Cos(x):

$D_{cos(x)}$= R

$R_{cos(x)}$= [-1,1]

Even function

f'(x)= -sinx

Tan(x):

Tan(x)= Sin(x)/Cos(x)

$D_{tan(x)}$= R except when

$x = \pi/2 + \pi n,\ n \in Z$

$R_{tan(x)}$= R

$f'(x) = \frac{1}{cos^2 x}$

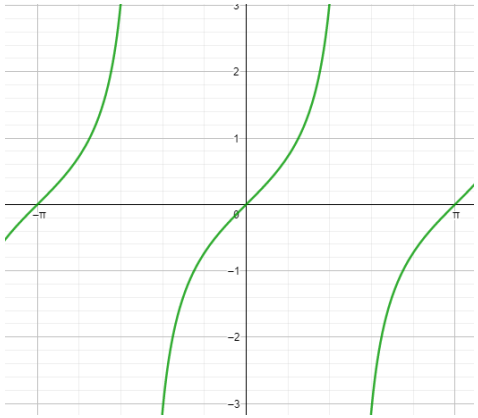
$$sin^2 x + cos^2 x = 1$$

$$\sin(x \pm y) = sinxcosy \pm cosxsiny$$

$$\cos(x \pm y) = cosxcosy \mp sinxsiny$$

x	0	π/6	π/4	π/3	π/2	2 π/3	3 π/4	5 π/6	π
Sin(x)	0	½	√2/2	√3/2	1	√3/2	√2/2	½	0
Cos(x)	1	√3/2	√2/2	½	0	-1/2	-√2/2	-√3/2	-1

Tan(x):



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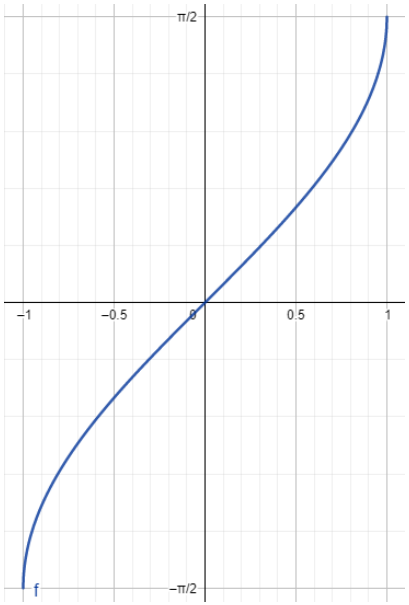
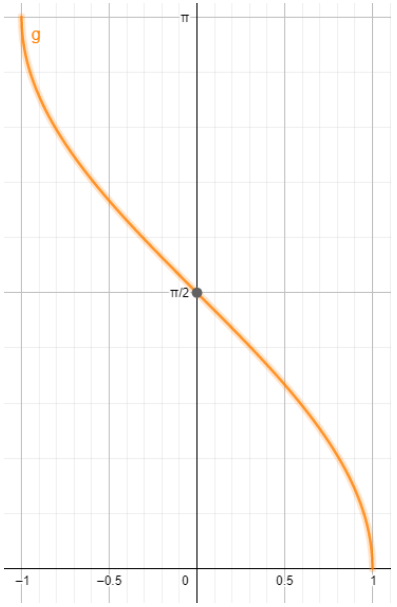
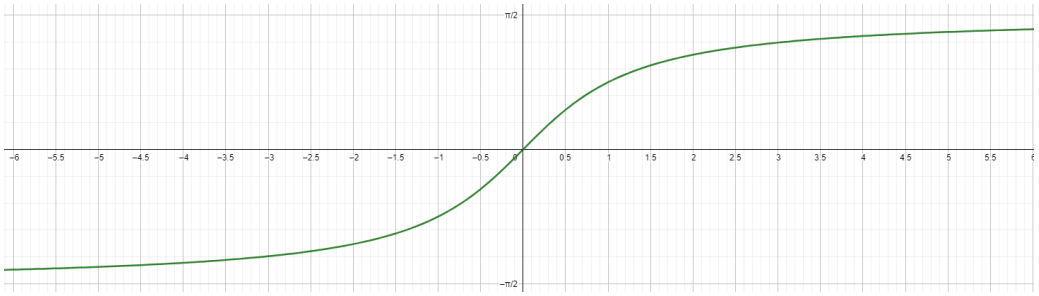
Arcsin(x):



Arccos(x):



Arctan(x):



How to Differentiate tan(x):

F(x)= tan(x) = $\frac{sinx}{cosx}$

g(x)= sin(x)	h(x)= cos(x)
g'(x)= cos(x)	h'(x)= -sin(x)

Using quotient rule: $= \frac{cosx * cosx - sinx * (-sinx)}{cos^2x}$

$= \frac{cos^2x + sin^2x}{cos^2x}$

$= \frac{1}{cos^2x}$

Properties:

Arcsin(x):

$D_{arcsin(x)}$= [-1,1]

$R_{arcsin(x)}$= [-π/2, π/2]

Odd function

$f'(x) = \frac{1}{\sqrt{1-x^2}}$

Arccos(x):

$D_{arccos(x)}$= [-1,1]

$R_{arccos(x)}$= [0, π]

Even function

$f'(x) = -\frac{1}{\sqrt{1-x^2}}$

Arctan(x):

$D_{arctan(x)}$= R

$R_{arctan(x)}$= (-π/2, π/2)

Odd function

$f'(x) = \frac{1}{1+x^2}$