Trig 6.8

Graph inverse trig functions
Find principal values of inverse trig functions

inverse

function

domain

arcsin inverse sin $\sin^{-1}$

whiteboards


FoxTrot
by Bill Amend
135°?
-1
60°?
√3
90°?
UNDEFINED
SO WHAT ARE YOU NERDS UP TO?
JUST WORKING ON OUR TANS.
WANNA SWITCH THINGS AROUND AND TRY SOME ARCTANS?
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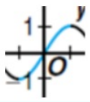
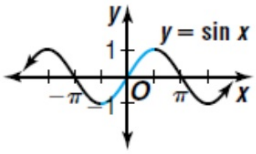
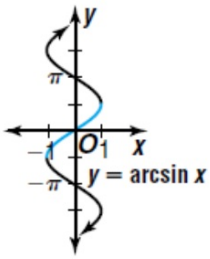
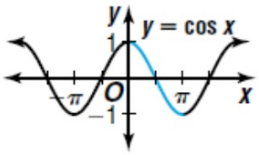
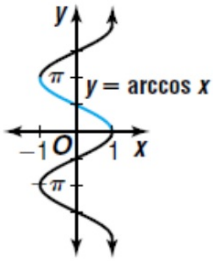
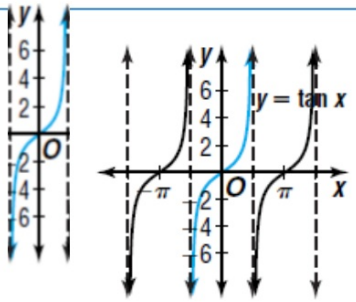
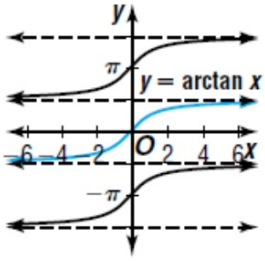
Reflection reverses orientation 

Relation	Ordered Pairs	Graph	Domain	Range
$y = \sin x$	$(x, \sin x)$		all real numbers	$-1 \leq y \leq 1$
$y = \arcsin x$	$(\sin x, x)$		$-1 \leq x \leq 1$	all real numbers

Relation	Ordered Pairs	Graph	Domain	Range
$y = \cos x$	$(x, \cos x)$		all real numbers	$-1 \leq y \leq 1$
$y = \arccos x$	$(\cos x, x)$		$-1 \leq x \leq 1$	all real numbers

$y = \tan x$	$(x, \tan x)$		all real numbers except $\frac{\pi}{2}n$, where n is an odd integer	all real numbers
$y = \arctan x$	$(\tan x, x)$		all real numbers	all real numbers except $\frac{\pi}{2}n$, where n is an odd integer

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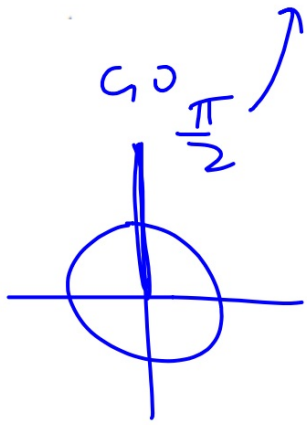
Arcsine Function	Given $y = \text{Sin } x$, the inverse Sine function is defined by the equation $y = \text{Sin}^{-1} x$ or $y = \text{Arcsin } x$.
Arccosine Function	Given $y = \text{Cos } x$, the inverse Cosine function is defined by the equation $y = \text{Cos}^{-1} x$ or $y = \text{Arccos } x$.
Arctangent Function	Given $y = \text{Tan } x$, the inverse Tangent function is defined by the equation $y = \text{Tan}^{-1} x$ or $y = \text{Arctan } x$.

Whiteboards

26. $\sin\left(2\,\mathrm{Cos}^{-1}\frac{\sqrt{2}}{2}\right)$

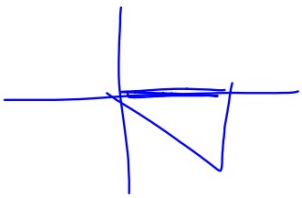
27. $\cos\left(\mathrm{Tan}^{-1}\sqrt{3}\right)$

28. $\cos\left(\text{Tan}^{-1}\,1 - \text{Sin}^{-1}\,1\right)$ $\frac{0}{2}$



29. $\cos\left(\text{Cos}^{-1}\,0 + \text{Sin}^{-1}\,\frac{1}{2}\right)$

$\cos(90 + 30)$



$\sin\left(\sin^{-1}1 - \cos^{-1}\frac{\sqrt{3}}{2}\right)$

$(90 - 30)$

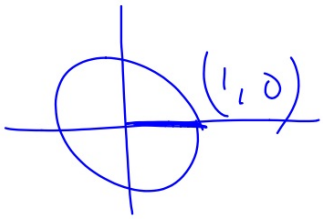
$-1\cos(-45)$

$\frac{a}{h}$ $\sin(60)$

$-1\cos\left(\sin^{-1}0 - \cos^{-1}\frac{\sqrt{2}}{2}\right)$

$0 - 45$

$$\tan\left(\cos^{-1}\frac{1}{2} - \sin^{-1}\frac{\sqrt{3}}{2}\right)$$



$$\cos\left(\sin^{-1}1 + \cos^{-1}\frac{1}{2}\right)$$

WB 3-8

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