

1. Fill in the chart using interval notation.

Function	Domain	Range
$y = \sin^{-1} x$	$[-1, 1]$	$[-\pi/2, \pi/2]$
$y = \cos^{-1} x$	$[-1, 1]$	$[0, \pi]$
$y = \tan^{-1} x$	$(-\infty, \infty)$	$(-\pi/2, \pi/2)$
$y = \csc^{-1} x$	$(-\infty, -1] \cup [1, \infty)$	$[-\pi/2, 0) \cup (0, \pi/2]$
$y = \sec^{-1} x$	$(-\infty, -1] \cup [1, \infty)$	$[0, \pi/2) \cup (\pi/2, \pi]$
$y = \cot^{-1} x$	$(-\infty, \infty)$	$(0, \pi)$

2. Find the exact value of each expression. **Remember answer must be in the range**

A) $\sin^{-1}(-1)$

$-\frac{\pi}{2}$

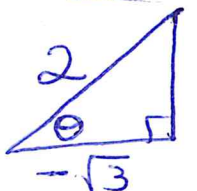
B) $\arctan(-\sqrt{3})$

$-\pi/3$

C) $\arccos\left(-\frac{\sqrt{2}}{2}\right)$

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

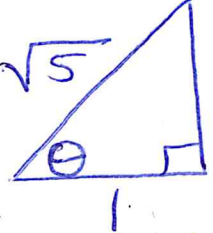
D) $\tan\left[\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)\right]$



$-\frac{1}{\sqrt{3}}$ or $-\frac{\sqrt{3}}{3}$

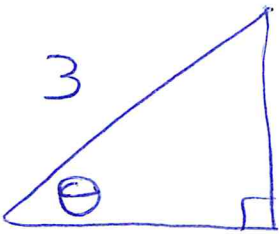
E) $\tan^{-1}\left(\tan\frac{2\pi}{3}\right) = -\frac{\pi}{3}$
 $\tan^{-1}(-\sqrt{3})$

F) $\csc\left[\tan^{-1}(-2)\right]$



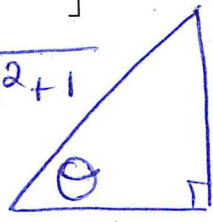
$-\frac{\sqrt{5}}{2}$

G) $\cot\left[\sin^{-1}\left(-\frac{\sqrt{2}}{3}\right)\right]$



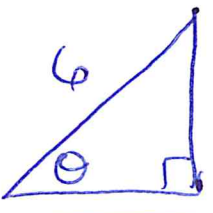
$-\frac{\sqrt{7}}{\sqrt{2}}$

H) $\sin\left[\tan^{-1} x\right]$



$\frac{x}{\sqrt{x^2+1}}$

I) $\cos\left[\sin^{-1}\left(\frac{x}{6}\right)\right]$



$\frac{\sqrt{36-x^2}}{6}$