

1. State the domain and range for each inverse trigonometric function.

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 in radians of each expression.

Answer must be in range.

A. $\arctan(-1) = -\pi/4$

B. $\sin^{-1}\left(-\frac{1}{2}\right) = -\pi/6$

C. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right) = 5\pi/6$

D. $\cot^{-1}(-\sqrt{3}) = \frac{5\pi}{6}$

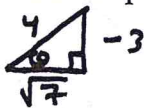
E. $\csc^{-1}(\sqrt{2}) = \pi/4$

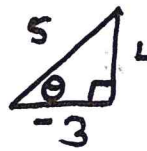
F. $\sec^{-1}(-2) = \frac{2\pi}{3}$

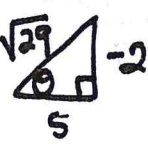
$\sin^{-1}\left(\frac{1}{\sqrt{2}}\right)$

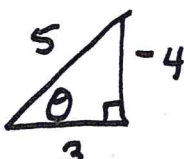
$\cos^{-1}\left(-\frac{1}{2}\right)$

3. Find the exact value of each expression.

A. $\sec\left[\arcsin\left(-\frac{3}{4}\right)\right]$  $\sec \theta = \frac{4\sqrt{7}}{7}$

B. $\sin\left[\arccos\left(-\frac{3}{5}\right)\right]$  $\sin \theta = \frac{4}{5}$

C. $\cos\left[\arctan\left(-\frac{2}{5}\right)\right]$  $\cos \theta = \frac{5\sqrt{29}}{29}$

D. $\tan\left[\csc^{-1}\left(-\frac{5}{4}\right)\right]$ 

E. $\sin^{-1}\left(\sin\left(\frac{7\pi}{6}\right)\right) = \sin^{-1}\left(-\frac{1}{2}\right) = -\pi/6$

$\tan \theta = -\frac{4}{3}$

4. Multiple Choice:

The domain of this trig function $y = \csc^{-1}(x)$ in

- A). degrees B) radians C) Either degrees or radians D) a ratio of two sides