

Name: _____

Inverse Trigonometric Functions

1) Evaluate each expression without using a calculator

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

2) $\tan\left(\cos^{-1}\left(-\frac{5}{13}\right)\right)$

3) $\tan\left(2\arcsin\frac{2}{5}\right)$

2) Write the following as an algebraic expression in x

1) $\sin(\tan^{-1}x)$

2) $\sec(\sin^{-1}x)$

3) Find the exact value of each real number y . Do not use a calculator

1) $y = \sin^{-1}0$

2) $y = \sin^{-1}(-1)$

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

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

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

6) $y = \sin^{-1}\left(-\frac{1}{2}\right)$

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

8) $y = \cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)$

9) $y = \cos^{-1}\left(\frac{\sqrt{2}}{2}\right)$

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

11) $y = \cos^{-1}(1)$

12) $y = \cos^{-1}1$

13) $y = \tan^{-1}\sqrt{3}$

14) $y = \tan^{-1}(-1)$

15) $y = \tan^{-1}(-\sqrt{3})$

16) $y = \csc^{-1}(-2)$

17) $y = \tan^{-1}\left(-\frac{\sqrt{3}}{3}\right)$

18) $y = \sec^{-1}\left(\frac{2\sqrt{3}}{3}\right)$

4) Give the exact value of each expression without using a calculator

1) $\tan\left(\arccos\frac{3}{4}\right)$

2) $\sin\left(\arccos\frac{1}{4}\right)$

3) $\cos\left(\arctan\frac{4}{3}\right)$

4) $\tan\left(\cos^{-1}\frac{1}{4}\right)$

5) $\sin\left(\tan^{-1}\frac{12}{5}\right)$

6) $\sec\left(\sin^{-1}\left(\frac{-1}{5}\right)\right)$

7) $\tan\left(\cos^{-1}\frac{1}{4}\right)$

8) $\cos\left(\sin^{-1}\frac{1}{4}\right)$

9) $\sin\left(\cos^{-1}\frac{1}{5}\right)$

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

11) $\csc\left(\csc^{-1}\sqrt{2}\right)$

12) $\sec\left(\sec^{-1}2\right)$

5) Write an algebraic expression that is equivalent to the expression.

1. $\tan\left(\arccos\frac{x}{2}\right)$

2. $\sec[\arcsin(x-1)]$