
Inverse Function Diagnostic Quiz

Take this quiz to see if you need Lectures 6 A & B (Inverse Trig Functions). Answers are on page 2.

Important: Pencil or pen only. **No calculators.**

This quiz concerns the six inverse trig functions $\sin^{-1}(x)$, $\tan^{-1}(x)$, $\sec^{-1}(x)$, $\cos^{-1}(x)$, $\cot^{-1}(x)$, $\csc^{-1}(x)$. These are also known as $\arcsin(x)$, $\arctan(x)$, $\operatorname{arcsec}(x)$, $\arccos(x)$, $\operatorname{arccot}(x)$, and $\operatorname{arccsc}(x)$, respectively.

1. $\tan^{-1}(1) =$

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

3. $\cos^{-1}(-1) =$

4. Sketch the graph of $\tan^{-1}(x)$

5. Simplify $\cos(\tan^{-1}(x))$

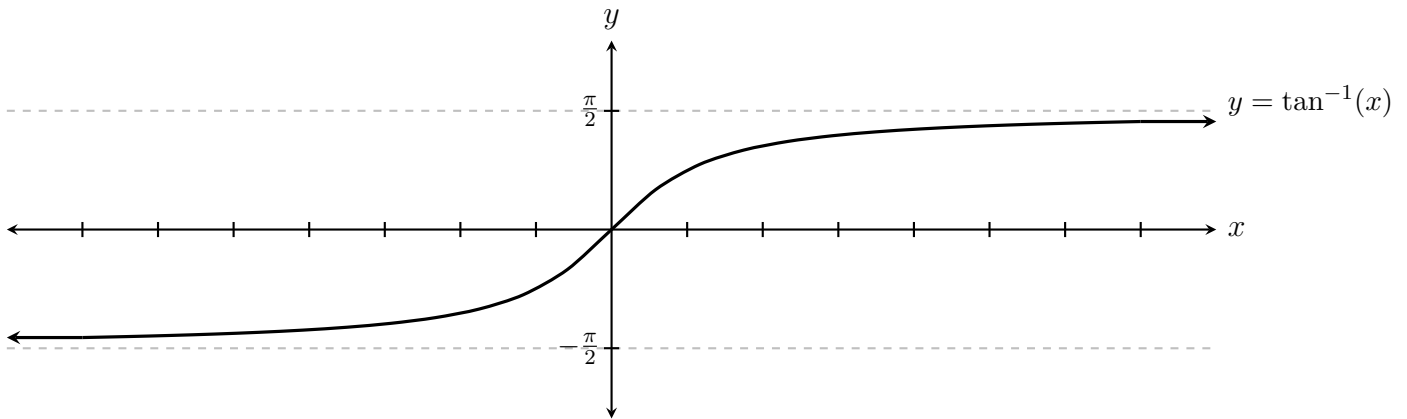
Here are the solutions. If your answers are not all correct, then you probably need Lectures 6A and 6B.

1. $\tan^{-1}(1) = \boxed{\frac{\pi}{4}}$

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

3. $\cos^{-1}(-1) = \boxed{\pi}$

4. Sketch the graph of $\tan^{-1}(x)$



5. Simplify $\cos(\tan^{-1}(x))$

Solution: From the diagram below, we get $\cos(\tan^{-1}(x)) = \frac{\text{ADJ}}{\text{HYP}} = \boxed{\frac{1}{\sqrt{1+x^2}}}$

