

Math 2215 - Calculus 1

Quiz #18 - 2016.11.21

Solutions

1. State the domain and range of $\sin^{-1}(x)$.

$$\sin^{-1}(x) : [-1, 1] \longrightarrow \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$$

2. State the domain and range of $\tan^{-1}(x)$.

$$\tan^{-1}(x) : (-\infty, \infty) \longrightarrow \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$$

3. Simplify the following expression so that not trigonometric functions are used: $\cot(\sin^{-1}(x))$.

If we set $\theta = \sin^{-1}(x)$, then $\sin(\theta) = x$. Setting the opposite side to x , and the hypotenuse to 1 gives the adjacent side to be $\sqrt{1-x^2}$. Thus $\cot(\theta) = \frac{\sqrt{1-x^2}}{x}$.