

The **inverse cosecant**, **inverse secant**, and **inverse cotangent** are defined as...

$$\theta = \csc^{-1} x \Rightarrow \csc \theta = x$$

$$|x| \geq 1 \quad -\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2} \quad \theta \neq 0$$

$$\csc \theta = \frac{1}{\sin \theta}$$

$$\theta = \sec^{-1} x \Rightarrow \sec \theta = x$$

$$|x| \geq 1 \quad 0 \leq \theta \leq \pi \quad \theta \neq \frac{\pi}{2}$$

$$\sec \theta = \frac{1}{\cos \theta}$$

$$\theta = \cot^{-1} x \Rightarrow \cot \theta = x$$

$$-\infty < x < \infty \quad 0 < \theta < \pi$$

$$\cot \theta = \frac{1}{\tan \theta}$$

Evaluate the following:

$$\theta = \csc^{-1} 2$$

$$\theta = \csc^{-1} -\sqrt{2}$$

Evaluate the following:

$$\theta = \sec^{-1} -2$$

$$\theta = \sec^{-1} \frac{2\sqrt{3}}{3}$$

Evaluate the following:

$$\theta = \cot^{-1} \sqrt{3}$$

$$\theta = \cot^{-1} -1$$

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$$\cot \theta = \frac{1}{\tan \theta}$$