

find the derivative of  $y = \csc^{-1}(\sec x)$

$$y' = \frac{-1}{|x|\sqrt{x^2-1}} \cdot \sec x \cdot \tan x$$

$$y' = \frac{-1}{|\sec x| \sqrt{\sec^2 x - 1}} \cdot \sec x \cdot \tan x$$

$$y' = \frac{-1}{|\sec x| \sqrt{\cancel{\tan^2 x}}} \times \sec x \cdot \cancel{\tan x}$$

$$y' = \frac{-\sec x}{|\sec x|}$$