4.4: Derivatives of Logarithmic Functions

Why do we know the function \( g(x) = \ln x \) is differentiable?

Other Bases:

Logarithmic Differentiation

1. 
2. 
3. 


Examples:

Compute and simplify \( \frac{d}{dx} (\ln(-x)) \).

DERIVATIVE DRILL Maplet

LOGARITHMIC DIFFERENTIATION Maplet
Compute and simplify \( \frac{d}{dx} (\ln |\csc x - \cot x|) \) and \( \frac{d}{dx} (|\sec x|) \)

**On Beyond Average:** Find \( \frac{dy}{dx} \) if \( x^y = y^x \).