

1 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 $\frac{d}{dx}(\ln(-x))$.

Given $f(x) = x \ln(x^2 + 1)$, find $f'(x)$

Find the derivative of $f(x) = \frac{(2x + 1)^5(x - 3)^3}{\sqrt{x^2 + 1}}$

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

$\csc x; \tan x$