4.4-Derivatives of Logarithmic Functions

Why do we know that the function $f(x) = \ln x$ is differentiable?

Other Bases:

Logarithmic Differentiation:

1.

2.

3.

Examples:

Compute and simplify: $\dfrac{d}{dx}(\ln(-x))$

Compute $\dfrac{d}{dx}(\ln|x^2+3x-5|)$ Compute f' if $f(x)=x^2\ln(3x)$.

In 4.1 we proved that, if $f(x)=a^x$, then $f'(x)=Ka^x$, where $K=f'(0)$. Use logarithmic differentiation to find K.

On Your Own: #3, 7, 9, 13, 19, 27, 35, 39, 51, 59