

DERIVATIVES OF LOGARITHMIC FUNCTIONS (§3.9)

If u is a differentiable function of x , then

$$\frac{d}{dx}[\ln u] = \frac{1}{u} \cdot \frac{du}{dx} \quad \dots \text{ or } \dots \quad \frac{d}{dx}[\ln u] = \frac{u'}{u}$$

For a logarithm with a base other than e , use the change of base formula and other logarithm rules to rewrite the logarithm using natural logarithms.