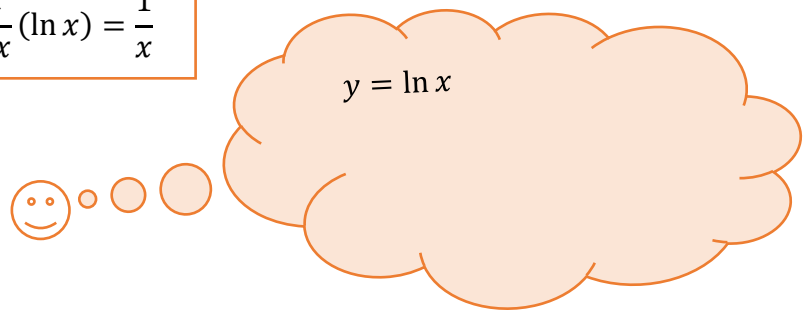
DATE:_____

Derivatives of Logarithmic Functions

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



Example 1:

Given $f(x) = 2\ln x$, find $f'(x)$.

Example 2:

Given $g(x) = \ln 2x$, find $g'(x)$.

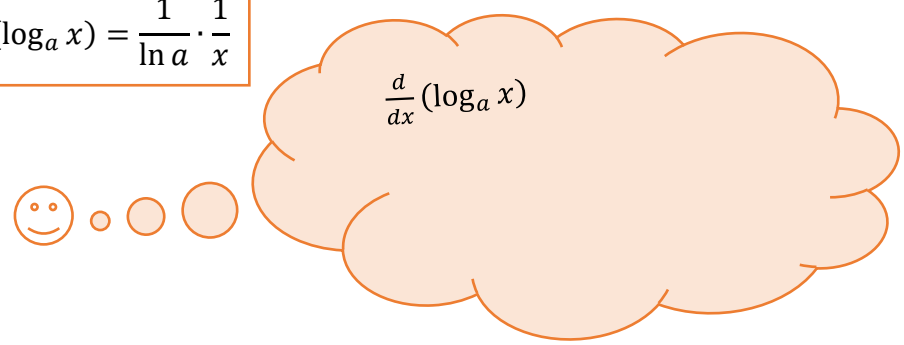
Example 3:

Given $h(x) = \ln\left(\frac{x}{2x+3}\right)$, find $h'(x)$.

Example 4:

Find $f'(x)$ where $f(x) = \ln((x+3)^2(4x+1))$

$$\boxed{\frac{d}{dx}(\log_a x) = \frac{1}{\ln a} \cdot \frac{1}{x}}$$



Example 1:

Find $\frac{dy}{dx}$, where $y = log_8 x$.

Example 2:

Find y' for $y = log_5(3x+2)$.