

## DERIVATIVE RULES

function

derivative formula

### I. Simple Derivatives

(a)  $y = e^x$

$$y' = f'(x) = e^x$$

(b)  $y = \ln x, x > 0$

$$y' = f'(x) = \frac{1}{x}$$

### II. Other Bases

(a)  $y = f(x) = b^x$

$$y' = f'(x) = b^x \ln b$$

(b)  $y = f(x) = \log_b(x)$

$$y' = f'(x) = \frac{1}{\ln b} \left( \frac{1}{x} \right)$$

Examples: