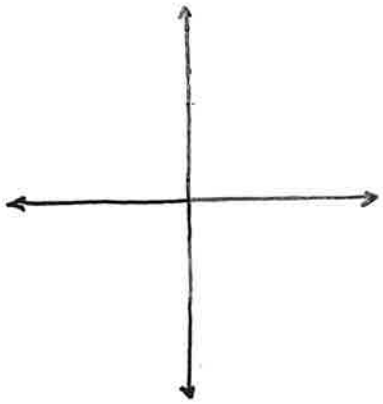
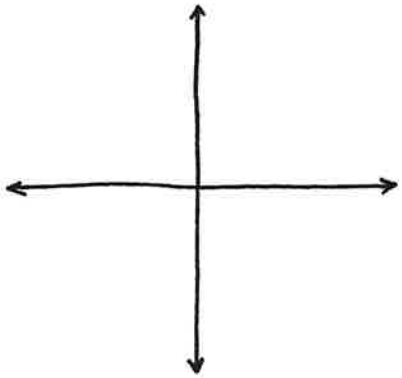
MATH 1325

Chapter 11.8: Derivatives of Logarithmic and Exponential Functions

$y = e^x$



$y' =$



$y = e^x$ $\quad \frac{dy}{dx} =$

$y = e^u$ $\quad \frac{dy}{dx} =$

$y = a^x$ $\quad \frac{dy}{dx} =$

$y = a^u$ $\quad \frac{dy}{dx} =$

FIND THE DERIVATIVE.

$y = x^3 e^x$

$y = (2e^x + x)^5$

FIND THE DERIVATIVE.

$y = e^{x^2 - 3x}$

$y = e^x + x^{10} + x^e + e^{10}$

$y = e^{7x}$

$y = 5e^{-3x}$

$y = 8e^{4x^3}$

$y = \dfrac{250000}{2 + 15e^{-4x}}$

$y = \ln(x)$ $\quad \frac{dy}{dx} =$

$y = \ln(u)$ $\quad \frac{dy}{dx} =$

$y = \log_a(x)$ $\quad \frac{dy}{dx} =$

$y = \log_a(u)$ $\quad \frac{dy}{dx} =$

FIND THE DERIVATIVE.

$y = 10^x$

$y = \ln 6x$

$y = \ln(3x^2 - 4x)$

$y = 3x \ln x^2$

$y = \ln\left[(x^2 + x + 1)(4x - 3)^5\right]$

FIND THE DERIVATIVE.

$y = e^x \ln x$

$y = \log x$

SALES OF PLANT-BASED FOODS IN THE US IN BILLIONS OF DOLLARS FOR 2017 THROUGH 2020 ARE MODELED BY THE FOLLOWING.

$f(t) = 3.3e^{.25t}$ $\quad t=0$ FOR 2017

a) FIND $f'(t)$.

b) FIND $f(3)$.

c) FIND $f'(3)$.

d) INTERPRET b) AND c).