

3.9 part 1: Derivatives of Exponential Functions

Derivative of $y = e^x$

Find the derivative of

$$f(x) = b^x \quad b \text{ being the base of the exponent } x$$

Using the definition of the derivative

Example 1

Find the derivative of each function:

a) $y = e^{3x}$

b) $y = e^{\frac{x}{3}}$

c) $y = e^{\sqrt{x}}$

$$d) y = e^{\sin x}$$

$$f) y = e^{\tan^{-1} x}$$

$$g) y = xe^x$$

$$h.) y = x^2e^x$$

