

Math 220 - Calculus f. Business and Management - Worksheet 15

Worksheet 15 - e^x and the Chain Rule

Exercise 1: Find the derivative of each function

$$\mathbf{1a} : f(x) = e^x x^2, \quad \mathbf{1b} : f(x) = (x^3 - 2x^2 + 5)(e^x + x - 2),$$

$$\mathbf{1c} : f(x) = \frac{e^x}{2x^2 + 3x - 7}, \quad \mathbf{1d} : f(x) = \frac{\sqrt{x}}{5e^x}.$$

Exercise 2: Decompose the functions $f(x)$ into $f(u)$ and $u(x)$

$$\mathbf{2a} : f(x) = (6x^4 + 3x - 8)^5, \quad \mathbf{2b} : f(x) = \sqrt[3]{x^2 - 5x}, \quad \mathbf{2c} : f(x) = \left(\frac{5}{x} + 7\right)^3.$$

Exercise 3:

$$\mathbf{3a} : f(x) = e^{x^2 - 2x + 4}, \quad \mathbf{3b} : f(x) = e^{\sqrt{x}}.$$

Exercise 4:

$$\mathbf{4a} : f(x) = e^{2/x^2 + 3x - 4}, \quad \mathbf{4b} : f(x) = [e^{(5x^2 + 2)}]^3.$$