Section 3.3

I. Derivatives of Trigonometric Functions

a. Sine and Cosine

\[ y = f(x) = \sin x \quad \text{and} \quad y = f(x) = \cos x \]

\[ y' = f'(x) = \cos x \quad \text{and} \quad y' = f'(x) = -\sin x \]

b. Other Trigonometric Functions – Quotients of Sine and Cosine

\[ y = f(x) = \tan x \quad \text{and} \quad y = f(x) = \sec x \]

\[ y' = f'(x) = \sec^2 x \quad \text{and} \quad y' = f'(x) = \sec x \tan x \]

II. Derivatives of Exponential and Logarithmic Functions

a. \( y = f(x) = \exp x = e^x \)

\[ y' = f'(x) = \exp x = e^x \]

b. \( y = f(x) = \ln x \)

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

III. Examples, Examples, Examples

IV. Tangent Line Approximations