

Assignment 3

Due date: 2 November 2023

TA: 鄒冠勳 E814

1. (30%) Compute the derivative $f'(x)$ for $f(x) = \log(x^4) \sin(x^3)$.

2. (30%) Compute the derivative $f'(x)$ of the logistic sigmoid

$$f(x) = \frac{1}{1 + \exp(-x)}.$$

3. (30%) Compute the derivative $f'(x)$ of the function

$$f(x) = \exp\left(-\frac{1}{2\sigma^2}(x - \mu)^2\right),$$

where $\mu, \sigma \in \mathbb{R}$ are real constants.