## Assignment 3

## Due date： 2 November 2023

## TA：鄒冠動 E814

1．（30\％）Compute the derivative $f^{\prime}(x)$ for $f(x)=\ln \left(x^{4}\right) \sin \left(x^{3}\right)$ ，where $\ln (x)=\log _{e}(x)$ ．
2．（30\％）Compute the derivative $f^{\prime}(x)$ of the logistic sigmoid

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

3．$(30 \%)$ Compute the derivative $f^{\prime}(x)$ 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．

