2022-23 Second Semester
MATH1083 Calculus II (1002)

Assignment 4

Due Date: 11:30am 15/Mar/2021(Wed).

- Write down your **Chinese name** and **student number**. Write neatly on **A4-sized** paper and **show your steps**.
- **Late submissions or answers without details will not be graded.**

1. [Taylor Remainder Theorem]
   (a) Find the first degree Taylor polynomial $p_3(x)$ of function $f(x) = x^{1/3}$ about $a = 27$ radius of convergence and interval of convergence of the power series.
   (b) Find the value of $\sqrt[3]{28}$ using $p_1(x)$
   (c) Estimate the error $R_1(x)$
2. Evaluate the limit using **Taylor series**
$$\lim_{x\to 0} \frac{e^{x^2} - x^2 - 1}{x^4}$$
3. Expand $1/\sqrt[4]{1+x}$ as a power series and estimate $1/\sqrt[4]{1.1}$ to **three decimal places**.