# Calculus II

## Assignment 13

20180727

Name : _____

Student ID : _____

1. Find the radius of convergence and interval of convergence of the series.
   (a) $\sum_{n=1}^{\infty} \frac{x^n}{2n-1}$
   (b) $\sum_{n=1}^{\infty} \frac{(-1)^n x^n}{n^2}$
2. Find a power series representation for the function and determine the interval of convergence.
   $f(x) = \frac{1}{1+x}$
3. Find a power series representation for $f(x) = \arctan x$.
4. * Find the Maclaurin series for $\sin x$.

Notice : * is an optional question.

Reading materials : Textbook (Calculus 6ed Stewart) Section $12.8, 12.9$, especially

— Section 12.8, Example 2, 5.
— Section 12.9, Example 2, 3, 5, 6, 7.

Or alternate Textbook (Calculus Early Transcendentals 6ed Stewart) Section $11.8, 11.9$, especially

— Section 11.8, Example 2, 5.
— Section 11.9, Example 2, 3, 5, 6, 7.