

Calculus II

Assignment 12

20180724

Name : _____

Student ID : _____

1. Determine whether the series converges or diverges. (Hint : Comparison Test)

(a) $\sum_{n=1}^{\infty} \frac{n}{2n^3+1}$

(b) $\sum_{n=1}^{\infty} \frac{n+1}{n\sqrt{n}}$

2. Show that the series is convergent. How many terms of the series do we need to add to find the sum to the indicated accuracy?

$\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n^6} \quad (|\text{error}| < 0.00005)$

3. Determine whether the series is absolutely convergent, conditionally convergent, or divergent.

(a) $\sum_{n=1}^{\infty} \frac{n}{5^n}$

(b) $\sum_{n=1}^{\infty} (-1)^n \frac{(1.1)^n}{n^4}$
Hint : Ratio Test.

(c) $\sum_{n=1}^{\infty} \left(\frac{-2n}{n+1}\right)^{5n}$
Hint : Root Test.

Reading materials : Textbook (Calculus 6ed Stewart) Section 12.4 ~ 12.7, especially

- Section 12.4, Example 1, 2.
- Section 12.5, Example 1, 2, 3, 4.
- Section 12.6, Example 1, 2, 3, 4, 5, 6.
- Section 12.7, Example 1, 3, 4, 6.

Or alternate Textbook (Calculus Early Transcendentals 6ed Stewart) Section 11.4 ~ 11.7, especially

- Section 11.4, Example 1, 2.

- Section 11.5, Example 1, 2, 3, 4.
- Section 11.6, Example 1, 2, 3, 4, 5, 6.
- Section 11.7, Example 1, 3, 4, 6.