Mathematics UN1102 Section 1, Spring 2020 — Homework 8

Due date: 1:10pm on Wednesday, April 1, 2020 on Gradescope.

Instructions: Please present your solutions in a legible, coherent manner. Unless otherwise specified, you should show your work; you will be evaluated on both your reasoning and your answer. Points may be deducted for unclear or messy solutions.

Collaboration and Academic Integrity: You are encouraged to collaborate on homework. However, you must write your solutions alone and **understand what you write**. When submitting your homework, list in the space below any sources you used (in print, online, or human) other than the textbook or the teaching staff.

Problems: All problems are from the course textbook *Calculus: Early Transcendentals* (8th edition). Please state clearly which convergence tests you are using!

- Section 11.8: 10, 12, 30, 31
- Section 11.9: 13, 39, 40
- Suppose that $\{c_n\}_{n=0}^{\infty}$ are numbers such that the series $\sum_{n=0}^{\infty} c_n$ converges but the series $\sum_{n=0}^{\infty}(-1)^n c_n$ diverges. Find the interval of convergence of the power series

$$\sum_{n=0}^{\infty} c_n x^n,$$

  and justify your answer.
- Write down a power series with interval of convergence $(0, 4)$.
- Write down a power series with interval of convergence $[0, 4)$.