Math 1232 Spring 2026
Single-Variable Calculus 2
Mastery Quiz 10
Due Thursday, April 2

This week's mastery quiz has two topics. Everyone should submit work on both M3 and S8.

Don't worry if you make a minor error, but try to demonstrate your mastery of the underlying material. Remember that you are trying to demonstrate that you understand the concepts involved. For all these problems, justify your answers and explain how you reached them. Do not just write "yes" or "no" or give a single number.

Feel free to consult your notes, but please **don't discuss the actual quiz questions with other students in the course**.

Please turn this quiz in class on Thursday. You may print this document out and write on it, or you may submit your work on separate paper; in either case make sure your name and recitation section are clearly on it.

Topics on This Quiz

- Major Topic 3: Series Convergence
- Secondary Topic 8: Power Series

Name:

Recitation Section:

M3: Series Convergence

(a) Analyze the convergence of the series $\sum_{n=1}^{\infty}(-1)^n \frac{n^3+n-1}{n^5-3n^4}$

(b) Analyze the convergence of the series $\sum_{n=1}^{\infty} \frac{(-2)^n}{n^3+n}$

(c) Analyze the convergence of the series $\sum_{n=1}^{\infty} \frac{(-2)^n}{n2^n + 1}$

S8: Power Series

(a) Find the radius of convergence and the interval of convergence of $\sum_{n=0}^{\infty} \frac{(n!)^2}{(3n)!}(x+2)^n$.

(b) Find the radius of convergence and the interval of convergence of $\sum_{n=1}^{\infty} \frac{(2x-5)^n}{n^2}$.