MA 241, Spring 2023, Nathan Reading
Review: Material **after** Test 4

This is an overview of the most important skills and understanding I expect you to have developed.
I don't promise that every final exam problem on this material will match with something on this sheet.

Exam questions might test your understanding of some of the following important terms and concepts:

power series
radius of convergence
interval of convergence
differentiation of power series
integration of power series
power series as functions on the interval of convergence
approximation of a function by power series

The exam might test your ability to carry out some of the following procedures.

• Given a power series, find its interval of of convergence. (First, find the radius of convergence. Then figure out whether the power series converges at the endpoints of the interval of convergence. To determine convergence at the endpoints, you may need to use other convergence tests.)
• Compute derivatives or indefinite integrals of a given power series.
• Find the power series representation of a given function. You will need to be able to do this in several ways:
  Use Geometric series
  Use Geometric series then integrate or differentiate
  Use Taylor/Maclaurin Series.

You do not need to memorize the formula $\sum_{n=0}^{\infty} \frac{f^{(n)}(0)}{n!} x^n$ for the Taylor/McLaurin series. It will be provided for you.

For the final, we will concentrate only on power series centered at 0.
(So actually, we are only doing Maclaurin Series in the objective described above.)

For logistical reasons, there will be no challenge problems on the final.

Closed book, closed notes, no calculators.