Name: _____

- This packet is due at **12:00 pm PDT (noon) on Friday, May 14**.
- Neatly fill out this packet either directly or on your own paper. Then upload your answers to Canvas. Please clearly number each problem and keep them in order.
- For each problem in this packet, **organize and show all of your work and justification** for your answer.
- Make sure that it is clear what your final answer is. This may mean boxing/circling it or it may mean doing neither.
- If you are required to draw a graph of a function, each axis must be labeled and given a scale.
- I will not be grading every individual problem, but answers will be available on Canvas after the due date.
- I am happy to help you however I can. Here are some options:
  - Come to my office hours (see syllabus).
  - Email me directly at gknapp4@uoregon.edu

1. Find the radius and interval of convergence for the following power series.

   (a) $\displaystyle\sum_{n=1}^{\infty} \frac{(2x)^n}{n}$

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

(c) $\displaystyle\sum_{n=1}^{\infty} \frac{10^n x^n}{n!}$

(d) $\displaystyle\sum_{n=1}^{\infty}(-1)^n \frac{x^n}{\ln(2n)}$

2. Find the **radius** of convergence for each of the following series. You do not need to find the actual interval.

   (a) $\displaystyle\sum_{n=1}^{\infty} \frac{n!(x+5)^n}{n^n}$

(b) $\displaystyle\sum_{n=1}^{\infty} \frac{(n!)^3(2x-4)^n}{(3n)!}$