

## STAT 150 HOMEWORK #0

SPRING 2023

**Due Monday, Jan 23, at 11:59 PM on Gradescope.**

The purpose of this assignment is to familiarize you with Gradescope, the software used in this course for grading homework and exams, and other course details. Complete the following steps.

1. Read the course website carefully.
2. Create an account with Gradescope (make sure you use your @berkeley.edu address). If you already have a Gradescope account linked to your @berkeley.edu address, then you do *not* need to create another account.
3. Add yourself to the course Gradescope page. This can be done by going to the course bCourses page and clicking on the Gradescope tab to the left. If this does not work (for example, you do not have access to the bCourses page), then add yourself on Gradescope by using the course entry code **BBXWPZ**. *If you are adding yourself manually, make sure to enter the correct information in the appropriate field (for example, do not put your email address in the student ID field).*
4. Read the guide for submitting homework on Gradescope. Make sure you read the guide *carefully*. In particular, make sure you read the section **Assign** under **Submitting a PDF**.
5. Answer the following questions (no justification required):
  - (i) What is the radius of convergence of the series  $\sum_{n=0}^{\infty} x^n$ ? Write your answer on the **front** page of your piece of paper (or the **first** page of your document file on your tablet device).
  - (ii) Let  $r$  be the radius of convergence from the previous question. Find a closed form expression for the series  $\sum_{n=0}^{\infty} x^n$  assuming  $|x| < r$ . In other words, find a function  $f(x)$  that returns the value of the series using only a finite number of operations. **Note:**  $f(x) = \sum_{n=0}^{\infty} x^n$  is not a closed form expression since it involves an infinite number of operations. Write your answer on the **front** page of your piece of paper (or the **first** page of your document file on your tablet device).
  - (iii) Find a closed form expression for the series  $\sum_{n=1}^{\infty} x^n$  assuming  $|x| < r$ . Write your answer on the **back** page of your piece of paper (or the **second** page of your document file on your tablet device).
  - (iv) Find a closed form expression for the series  $\sum_{n=m}^{\infty} x^n$  assuming  $|x| < r$ , where  $m \geq 0$ . Write your answer on the **back** page of your piece of paper (or the **second** page of your document file on your tablet device).
6. Upload your work to the course Gradescope page following the instructions in step 4. Make sure that you are selecting a page for each of the four problems that are listed in the Gradescope assignment: 5(i), 5(ii), 5(iii), and 5(iv). This is why you were asked to write your answers to question 5 on different pages. If you do not select a page for each of the four problems, then you will receive zero credit on this assignment. Similarly, if you do not select a page for the problems in your future uploads to Gradescope, then you will receive zero credit for that assignment.