

## Math 121 Take-Home Quiz #6

Due Sunday, October 24, 2021 in Gradescope by 11:59 pm ET

Instructions:

- This is an Open Notes Quiz. You can use materials, homeworks problems, lecture notes, etc. that you manually worked on.
- This is **NOT** an Open Internet Quiz. You can only access our Main Course Webpage.
- You are not allowed to work on or discuss these problems with other students or people.
- You can ask a few small, clarifying, questions in Office Hours, but the problems will not be solved for you.
- The main goal is to make a thoughtful and detailed presentation for the solutions. Submit a clear final draft. No mess please.
- Please submit your final work in Gradescope in the Quiz 6 entry.

1. [10 Points] Use the Absolute Convergence Test to show that  $\sum_{n=1}^{\infty} \frac{(-1)^n}{4 + 7^n}$  Converges.

For each of the following series, determine whether the series is Absolutely Convergent, Conditionally Convergent or Divergent. Name any convergence test(s) you use, and justify all of your work.

2. [10 Points]  $\sum_{n=1}^{\infty} \frac{(-1)^n 7^n n^n n!}{(2n)! n^7}$

3. [10 Points]  $\sum_{n=1}^{\infty} (-1)^n \frac{n^7 + 9}{n^9 + 7}$

4. [10 Points]  $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{7n + 2}$