Math 121 Take-Home Quiz #3

Due Sunday, October 1, 2023 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 3 entry.

Compute each of the following Integrals. Justify.

1. [10 Points] Show that $\displaystyle\int_0^1 (x+1)\arctan x \; dx = \boxed{\frac{\pi - 1 - \ln 2}{2}}$

Hint: You can work the integral right away OR you can distribute the $\arctan x$ and split it up into two pieces, worked separately.

2. [10 Points] $\displaystyle\int \frac{1}{(4+x^2)^{\frac{7}{2}}}\, dx$

3. [10 Points] $\displaystyle\int \arcsin x \; dx$

DO NOT SPEAK TO ANYONE ELSE ABOUT THIS QUIZ