

Math 1552 Summer 2023
Quiz 6 *QUP only* July 13
Due date: Sunday at 11:59PM

Name (Print): _____

Teaching Assistant/Section: _____

By signing here, you agree to abide by the **Georgia Tech Honor Code**: *I commit to uphold the ideals of honor and integrity by refusing to betray the trust bestowed upon me as a member of the Georgia Tech Community.*

Sign Your Name: _____

For Question (0.) below please list any **outside resources** you used to help solve quiz problems. You can use calculators, **each other**, textbook/course documents, websites, solving tools (e.g., TI-89 calculator, textbook formula sheet on page 281, 3Blue1Brown YouTube video on integrals, WolframAlpha, Symbolab). **Be specific**, and include the **name** of anyone you discussed quiz problems with. If you used no outside resources, write N/A.

As always, anything you submit must be your own work. Never submit the work of someone else.

Please clearly organize your work, show all steps, simplify all answers, and BOX your answers.

0. (1 point) *Full credit for accurately following the directions above.*

1. (4 points) Find the interval I and radius R of convergence of the given power series. For the interval of convergence, give your answer using interval notation or using inequality notation.

$$\sum_{n=1}^{\infty} \frac{x^n}{2^n \sqrt{n}}$$

$I =$

$R =$

2. (5 points) Find the Taylor series expansion of $f(x)$ at $x = 0$ for the given function. If you use a known (common) Taylor series, please carefully state the known series that you are using as part of your work.

$$f(x) = \frac{2x}{9 + x^2}$$

Note there is a third page to the quiz this week.

$$f(x) = \boxed{\phantom{\frac{2x}{9 + x^2}}}$$

3. (10 points) Determine if the given alternating series converges absolutely, converges conditionally, or diverges.

(a)
$$\sum_{n=2}^{\infty} \frac{(-1)^n}{n\sqrt{n-1}}$$

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