

Name _____

(circle your TA discussion section)

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|---|---|
| ▷ AD1 , TR 11:00-12:50, Adriana Morales | ▷ ADJ , TR 9:00-9:50, Gayana Jayasinghe |
| ▷ AD2 , TR 9:00-10:50, Hannah Burson | ▷ ADK , TR 10:00-10:50, Madina Bolat |
| ▷ AD3 , TR 1:00-2:50, Dana Neidinger | ▷ ADL , TR 11:00-11:50, Chris Loa |
| ▷ ADA , TR 8:00-8:50, Gayana Jayasinghe | ▷ ADM , TR 12:00-12:50, Heeyeon Kim |
| ▷ ADB , TR 9:00-9:50, Felix Clemen | ▷ ADN , TR 1:00-1:50, Josh Wen |
| ▷ ADC , TR 10:00-10:50, Lutian Zhao | ▷ ADO , TR 2:00-2:50, Kesav Krishnan |
| ▷ ADD , TR 11:00-11:50, Gidon Orelowitz | ▷ ADQ , TR 10:00-10:50, Felix Clemen |
| ▷ ADE , TR 12:00-12:50, Josh Wen | ▷ ADR , TR 9:00-9:50, Madina Bolat |
| ▷ ADF , TR 1:00-1:50, Nachiketa Adhikari | ▷ ADS , TR 12:00-12:50, Chris Loa |
| ▷ ADG , TR 2:00-2:50, Lutian Zhao | ▷ ADT , TR 2:00-2:50, Nachiketa Adhikari |
| ▷ ADH , TR 3:00-3:50, Stathis Chrontsios | ▷ ADU , TR 3:00-3:50, Kesav Krishnan |
| ▷ ADI , TR 4:00-4:50, Stathis Chrontsios | ▷ ADZ , TR 9:00-9:50, Gidon Orelowitz |

- You may lose points if you do not circle your correct discussion section.
- You may work with other MATH 220 students. However each student should write up solutions separately and independently – nobody should copy someone else’s work.
- You may use your notes, the textbook, or information found on my course home page including old test and quiz solutions.
- You are not allowed to use a calculator, Wolfram Alpha, or any similar technology.
- There is a higher expectation for the quality of your work on a take-home quiz. Everything should be written logically and legibly with sufficient work to justify each answer. Blank copies of the quiz are available on the course home page.
- Be sure that the pages are nicely stapled – do not just fold the corners.
- **The quiz is due at the beginning of your lecture period on Friday, October 19th.**
- **TAs and Tutors – Do not help students with these specific problems until the quizzes have been collected for all MATH 220 lectures (10am, 1pm, 3pm).**

1. (3 points) A function $f(x)$ is differentiable on the interval $(-\infty, \infty)$. Its first derivative is given below. Find the intervals of concavity and the x -value for each inflection point of $f(x)$.

$$f'(x) = e^{2x} (4x^3 - 18x^2 + 18x - 9)$$

2. (3 points) Evaluate the following limit.

$$\lim_{x \rightarrow 0} (\cos(4x))^{1/x^2}$$

3. (4 points) Determine the largest possible area for a rectangle which satisfies all three of the following conditions.

- The rectangle's bottom edge lies on the x -axis.
- The rectangle's bottom left corner is the point $(0, 0)$.
- The rectangle's top right corner is the point (x, y) on the curve $y = 2x^2e^{-x/2}$ with $x > 0$.

