

Name _____

(circle your TA discussion section)

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| ▷ AD1 , TR 11:00-12:50, Mina Nahvi | ▷ ADJ , TR 9:00-9:50, Robert "Bob" Krueger |
| ▷ AD2 , TR 9:00-10:50, Adriana Morales | ▷ ADK , TR 10:00-10:50, Sarah Simpson |
| ▷ AD3 , TR 1:00-2:50, Vincent Villalobos | ▷ ADL , TR 11:00-11:50, Rocco Davino |
| ▷ AD@ , TR 9:00-9:50, Phuong "Sophie" Le | ▷ ADM , TR 12:00-12:50, Dara Zirlin |
| ▷ ADA , TR 8:00-8:50, Scott Harman | ▷ ADN , TR 1:00-1:50, John "Connor" Grady |
| ▷ ADB , TR 9:00-9:50, Lutian Zhao | ▷ ADO , TR 2:00-2:50, Shuyu "Sonya" Xiao |
| ▷ ADC , TR 10:00-10:50, Lutian Zhao | ▷ ADQ , TR 10:00-10:50, Saaber Pourmotabbed |
| ▷ ADD , TR 11:00-11:50, Dara Zirlin | ▷ ADR , TR 9:00-9:50, Scott Harman |
| ▷ ADE , TR 12:00-12:50, David Altizio | ▷ ADS , TR 12:00-12:50, Rocco Davino |
| ▷ ADF , TR 1:00-1:50, Saaber Pourmotabbed | ▷ ADT , TR 2:00-2:50, Ryan McConnell |
| ▷ ADG , TR 2:00-2:50, John "Connor" Grady | ▷ ADU , TR 3:00-3:50, Shuyu "Sonya" Xiao |
| ▷ ADH , TR 3:00-3:50, Sarah Simpson | ▷ ADW , TR 8:00-8:50, Robert "Bob" Krueger |
| ▷ ADI , TR 4:00-4:50, Ryan McConnell | |

- 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 their 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, November 22nd.**
- **TAs and Tutors – Do not help students with these specific problems until the quizzes have been collected for all MATH 220 lectures (10-10:50am, 1-1:50pm, 3-3:50pm).**

1. (3 points) Suppose that $v(x)$ and $w(x)$ are differentiable everywhere and satisfy the following conditions.

- $v(9) = 4$
- $w(9) = 2$
- $v'(9) = 7$
- $w'(9) = -5$

Let $g(x) = \sqrt[3]{v(x)w(x)}$. Use the techniques of linear approximation found in section 3.10 to estimate the value of $g(9.5)$. Simplify and write your answer in decimal form.

2. (3 points) Given the function below, use a linear approximation to estimate $f(-1.1)$. Simplify and write your answer in decimal form.

$$f(x) = 100 + 5e^{x^3+1}$$

3. (4 points) Estimate the x -value for the point of intersection on the graphs of $y = x^3 + 2x$ and $y = 2x + 4$ using Newton's Method with an initial estimate of $x_1 = 1$. You should use this method two times in order to obtain estimates x_2 and x_3 . Your final estimate should be written as a simplified fraction.