Name _____

(circle your TA discussion section)

▷ **AD1**, TR 9:00-10:50, Andrew McConvey	▷ **ADJ**, TR 9:00-9:50, Mi Young Jang
▷ **AD2**, TR 1:00-2:50, Derrek Yager	▷ **ADK**, TR 10:00-10:50, Stephen Berning
▷ **ADA**, TR 8:00-8:50, Mi Young Jang	▷ **ADL**, TR 11:00-11:50, Adam Wagner
▷ **ADB**, TR 9:00-9:50, Stephen Berning	▷ **ADM**, TR 12:00-12:50, Adam Wagner
▷ **ADC**, TR 10:00-10:50, Sarah Yeakel	▷ **ADN**, TR 1:00-1:50, Mychael Sanchez
▷ **ADD**, TR 11:00-11:50, Michael Livesay	▷ **ADO**, TR 2:00-2:50, Mychael Sanchez
▷ **ADE**, TR 12:00-12:50, George Shakan	▷ **ADP**, TR 3:00-3:50, Albert Tamazyan
▷ **ADF**, TR 1:00-1:50, Albert Tamazyan	▷ **ADQ**, TR 4:00-4:50, George Shakan
▷ **ADG**, TR 2:00-2:50, Alonza Terry	▷ **ADR**, TR 9:00-9:50, Michael Livesay
▷ **ADH**, TR 3:00-3:50, Alonza Terry	

- 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.

- 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 official lecture period on Friday, April 24.**

- **Note to TAs and Tutors – you should not help students with these specific problems or go over solutions until after 5pm Friday.**

1. (4 points) Use the technique of linear approximation found in section 3.10 to estimate the following quantities. Simplify and write each answer in decimal form.

    (a) $\ln{(1.25)}$ **(No technology is allowed on this problem!)**

    (b) $\sqrt[3]{994}$ **(No technology is allowed on this problem!)**

2. (2 points) Suppose that the function $f(x)$ is differentiable everywhere. Some values for this function and its derivative are given in the table.

x	$f(x)$	$f'(x)$
0	4	0
1	1	-8
2	52	224
3	1057	2376
4	6916	11008

Let $g(x) = f\left(\sqrt{x}\right)$. Use the technique of linear approximation found in section 3.10 to estimate the value of $g(4.1)$. Simplify and write your answer in decimal form.

3. (4 points) There is one value of x for which the line tangent to the graph of $f(x) = x^4 - x^3 - 2x + 8$ is parallel to the line $y = 3x + 4$. Determine this x-value using Newton's Method with an initial estimate of $x_1 = 1$. You should use this method 3 times in order to obtain estimates x_2, x_3 and x_4. You are only allowed to use technology for basic arithmetic. Use at least 5 decimal places in each estimate.