

Name \_\_\_\_\_

(circle your TA discussion section)

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|---|---|
| ▷ <b>AD1</b> , TR 9:00-10:50, Andrew McConvey     | ▷ <b>ADF</b> , TR 1:00-1:50, Cassie Christenson |
| ▷ <b>AD2</b> , TR 1:00-2:50, Sarah Loeb           | ▷ <b>ADG</b> , TR 2:00-2:50, Xinghua Gao        |
| ▷ <b>ADA</b> , TR 8:00-8:50, Christopher Linden   | ▷ <b>ADH</b> , TR 3:00-3:50, Xinghua Gao        |
| ▷ <b>ADB</b> , TR 9:00-9:50, Dakota Ihli          | ▷ <b>ADJ</b> , TR 9:00-9:50, Lan Wang           |
| ▷ <b>ADC</b> , TR 10:00-10:50, Cassie Christenson | ▷ <b>ADK</b> , TR 10:00-10:50, Lan Wang         |
| ▷ <b>ADD</b> , TR 11:00-11:50, Daulet Dyussekenov | ▷ <b>ADO</b> , TR 2:00-2:50, Christopher Linden |
| ▷ <b>ADE</b> , TR 12:00-12:50, Daulet Dyussekenov | ▷ <b>ADQ</b> , TR 4:00-4:50, Dakota Ihli        |

- 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.
- You may use a calculator only for basic arithmetic. In particular you should not use its graphing features.
- You are not allowed to search the Internet, use Wolfram Alpha, or use technology for anything beyond what is stated above.
- 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 21.**
- **Note to TAs and Tutors – you should not help students with these specific problems or go over solutions until the quizzes have been collected for all MATH 220 lectures (11am, 1pm, 3pm).**

1. (3 points) A calculator gives an estimate of 1.947294361 for the value of  $\sqrt[5]{28}$ .

Using the techniques of linear approximation found in section 3.10, show that you are able to obtain a very similar estimate of 1.95 without the use of any technology.

2. (3 points) Suppose that the polynomial  $h(t)$  is an even function and satisfies the following conditions.

- $h(5) = 40$
- $h'(5) = 10$
- $h''(5) = 8$
- $h'''(5) = 3$

Use properties of even functions along with the techniques of linear approximation found in section 3.10 to estimate the value of  $h(-5.2)$ . Simplify your answer.

3. (4 points) One of the three points of intersection for the graphs of  $y = \frac{50}{x}$  and  $y = x^2 - 200$  occurs at a positive  $x$ -value. Approximate this  $x$ -value by using Newton's Method with an initial estimate of  $x_1 = 20$ . 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.