

Name \_\_\_\_\_

(circle your TA discussion section)

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|---|---|
| ▷ <b>AD1</b> , TR 9:00-10:50, Darlayne Addabbo    | ▷ <b>ADH</b> , TR 3:00-3:50, Paulina Koutsaki   |
| ▷ <b>AD2</b> , TR 1:00-2:50, Ben Fulan            | ▷ <b>ADJ</b> , TR 9:00-9:50, Jed Chou           |
| ▷ <b>ADA</b> , TR 8:00-8:50, Chris Bailey         | ▷ <b>ADK</b> , TR 10:00-10:50, Jed Chou         |
| ▷ <b>ADB</b> , TR 9:00-9:50, Chris Bailey         | ▷ <b>ADL</b> , TR 11:00-11:50, Andrew McConvey  |
| ▷ <b>ADC</b> , TR 10:00-10:50, Andrew McConvey    | ▷ <b>ADM</b> , TR 12:00-12:50, Benjamin Wright  |
| ▷ <b>ADD</b> , TR 11:00-11:50, Diaa Taha          | ▷ <b>ADN</b> , TR 1:00-1:50, Benjamin Wright    |
| ▷ <b>ADE</b> , TR 12:00-12:50, Paul Spiegelhalter | ▷ <b>ADO</b> , TR 2:00-2:50, Paul Spiegelhalter |
| ▷ <b>ADF</b> , TR 1:00-1:50, Diaa Taha            | ▷ <b>ADP</b> , TR 3:00-3:50, Wan-Yu Wu          |
| ▷ <b>ADG</b> , TR 2:00-2:50, Paulina Koutsaki     | ▷ <b>ADQ</b> , TR 4:00-4:50, Wan-Yu Wu          |

- 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.
- The only computational technology you may use is the basic arithmetic features of a calculator for problem 3.
- You are not allowed to search the Internet, use Wolfram Alpha, or use technology for anything beyond what is stated above.
- The quiz should be submitted to Mr. Murphy at the beginning of your official lecture period on Friday, April 25th.
- 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.
- **Note to TAs and Tutors – you should not help students with these specific problems or go over solutions until after 5pm Friday.**

1. (3 points) Use the techniques of linear approximation found in section 3.10 to obtain a good estimate for  $(122)^{2/3}$  without the use of technology. Simplify and write your answer in decimal form.

2. (3 points) Suppose that the polynomial  $g(x)$  is an odd function and satisfies the following conditions.

- $g(3) = 7$
- $g'(3) = 4$
- $g''(3) = 3$
- $g'''(3) = 2$

Use the techniques of linear approximation found in section 3.10 to estimate the value of  $g(-3.2)$ . 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  $f(x) = x^4 + x^2$  is perpendicular to the line  $y = \frac{1}{20}x - 10$ . 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. Your final answer should include 5 places after the decimal point.