

Minitest 1 Review, Calculus I

Dr. Graham-Squire, Spring 2013

•Minitest 1 covers the material from Section 2.2 to 2.6. There will be 5 or 6 questions on the test, and you will have half of the period (approximately 35 minutes) to work on it.

•To study, you should read over your notes, try to re-work old HW and quiz problems, and work on practice problems out of the textbook. You can look at the questions at the end of Chapter 2 and you can also try to work the recommended practice problems listed on each section of class notes. You can also use the Test 1 material on my website, but not all of the questions match. The questions from test 1 on my website that fit this test are numbers 1, 3, 5, 6, and 7.

•You can use a calculator, but you will not need one. Using the calculator might be useful for confirming an answer is correct, but you will still need to show your work to get full credit. There will be at least one question where you cannot use a calculator.

•Some problems to work on in class today:

1. Calculate the limit, if it exists. If it does not exist, explain why.

$$(a) \lim_{x \rightarrow 7} \frac{\left(\frac{1}{2} - \frac{1}{x-5}\right)}{x-7}.$$

$$(b) \lim_{x \rightarrow 4^-} \frac{4-x}{16-8x+x^2}$$

$$(c) \lim_{x \rightarrow \infty} \frac{2x^8 - 4x}{7x^8 + 4}$$

2. True or False: If true, explain why it is true, if false give a counterexample or explain why it is false.

(i) If $x = 2$ is a vertical asymptote of $y = f(x)$, then $\lim_{x \rightarrow 2^+} f(x) = \infty$.

(ii)

$$\lim_{x \rightarrow 1} \frac{x^2 + 6x - 7}{x^2 + 5x - 6} = \frac{\lim_{x \rightarrow 1} x^2 + 6x - 7}{\lim_{x \rightarrow 1} x^2 + 5x - 6} = \frac{0}{0} = DNE$$

3. Use the limit definition of the derivative to calculate $f'(11)$ if $f(x) = (\sqrt{x-7})$.

4. Find a value for c such that the limit exists:

$$\lim_{x \rightarrow 3} \frac{x^2 - 7x + c}{x - 3}$$