

- Reminders:**
1. A notebook is on reserve in the math library for this course. This notebook contains tests from last year and solutions to tests, homework, quizzes and projects. The math library is located in the basement of the Patterson Office Tower.
 2. The next homework is due on Wednesday, 14 October. The assignment is §2.5 #8, §2.6 #8, §2.7 #8.
 3. The second exam will be Tuesday night, 19 October from 7:30 to 9:30 in CB114.

Below is a selection of problems related to sections 2.7 and 2.8. These problems will not be collected or graded. However, you should understand how to work each of these problems. You should begin working on these problems in groups in recitation. You will probably want to finish these problems outside of class. If you have questions, please ask your TA or instructor. If you find a problem difficult, consider working similar problems from the text for additional practice.

1. (Review, §2.3) Find the limit by simplifying and then using the limit laws.

$$\lim_{x \rightarrow 3} \frac{x^2 + 2x - 15}{x^2 - 9}$$

2. §2.7 #3, 5, 13, 15, 27.
3. §2.8 #3, 5, 7, 9, 14, 21, 23, 33, 35.
4. You will be expected to find derivatives using the definition. Please make sure that you know how to find the derivatives of the following functions:

$$f(x) = 2x^2 + 3x, \quad g(x) = \frac{1}{x^2 + 2x}, \quad h(x) = \sqrt{2x + 1}.$$

5. Sketch the derivative of the function whose graph appears below. Your answer should correctly and clearly indicate: 1) points where the derivative is zero, 2) points where the derivative does not exist, 3) points where the derivative does not exist but has a limit (or one-sided limit) of $\pm\infty$, 4) intervals where the derivative is positive or negative.