Part I: Read and Respond (prepare for class Wednesday, April 16)

Carefully read the first part of Section 5.2, stopping when you get to the heading "Combinations of Differentiable Functions," taking notes for yourself and answering the following questions to turn in as part of your Part I assignment. Review the syllabus for parts (a)–(c) that should be included in this assignment.

Reading Questions

1. Use the definition of the derivative to find the derivative of a constant function, $f(x) = k$.
2. In the proof of Theorem 5.2.3., why does the Algebraic Limit Theorem for functional limits allow us to make the step where it's invoked?

Part II: Exercises (prepare for class for Wednesday, April 16)

No Part II this time.

Part III: Problems (due FRIday, April 25 at the beginning of class)

1. (I) Prove that if $f(x)$ is continuous on the closed interval $[a, b]$ and $f(a)f(b) < 0$, then there exists a $c \in (a, b)$ such that $f(c) = 0$.

Chapter 4 Quiz

We forgot to discuss this at the end of class, but I truly think it will be better for you if we do the Chapter 4 quiz on Wednesday before break. It's a short quiz; you'll just need to know definitions of functional limits, continuity at a point, and uniform continuity, the main results from Chapter 4, and be able to apply the definitions. If it's an extreme hardship for you to take it before break, talk to me!