The exam is Wednesday, November 7. The exam will cover sections 2.6 through 4.3. Classes are canceled this Friday, November 2 and Monday, November 5. I will be in the office on Tuesday, November 6 to answer any questions. Homework redos for HW4 are due by 10 AM on Tuesday, November 6.

1. Definitions. I will ask you any of the following definitions. They may be interspersed within problems or separate problems.
   (a) The definition of \( \lim_{x \to A} f(x) = B \) where \( A \) is any of: \( x \to \infty, x \to -\infty, x \to a, x \to a^+ \) or \( x \to a^- \) and \( B \) is any of \( L \in \mathbb{R}, \infty \) or \( -\infty \).
   (b) The definition of a function \( f \) being continuous (or from left or from right) at \( x = a \).
   (c) The definition of open and/or closed sets.

2. Theorem Statements. I may ask you to state any of the following theorems. Again, they may be interspersed within problems or separate problems.
   (a) The Extreme Value Theorem
   (b) Bolzano’s Intermediate Value Theorem
   (c) Theorem relating limits of a function and limits of sequences.

3. I may ask you to do any of the following types of problems or proofs.
   (a) Prove that if \( \), then the \( \lim_{x \to ?} = ?? \) using the definition.
   (b) Prove that if \( \) is continuous, then \( \) is continuous using the definitions.
   (c) Prove that for \( f(x) = \), \( f \) is not continuous at \( x = \).
   (d) Prove if \( f : [a, b] \to \mathbb{R} \) is continuous then \( f \) is bounded.
   (e) Prove the Brouwer Fixed Point Theorem.

4. I may give you a sequence \( \{a_n\} \). I may ask you to give an example of a subsequence, give all subsequential limits, the \( \limsup_{n \to \infty} a_n \), and/or \( \liminf_{n \to \infty} a_n \). I may also ask you to show the sequence diverges (probably would be good to use subsequences here rather than the definition).

5. I may give you some sets and ask you for the set of accumulation points and whether the sets are open, closed or neither.

6. I may ask you some basic questions about continuity and discontinuities of various functions.