

Exam 1 Study Topics – Calculus I

The first exam will be held in class on Thursday 6 February. Try to arrive a few minutes early so we're ready to begin on time. There are 12 problems, taken from Chapter 2. **Do not bring a calculator – all of the problems are set up so that you don't need one.** Be prepared for the topics below.

To study, review the Exam 1 Practice Problem document on my web site , as well as those quiz problems that appear on this list. Look through the examples from lecture that fit into one of the categories below so you can identify the type of problem.

It is not enough to just look at problems and their solutions. **You need to work problems** so you can identify and apply the correct technique.

1. Evaluate limits given a graph (2.2).
2. Evaluate limits algebraically (2.3 and 2.6).
3. Given an application problem, identify x , $f(x)$, L , a , ϵ , δ . Calculations will not require a calculator (2.4).
4. Determine if a function is continuous at a specified point (2.5).
5. For a piecewise function with parameters, find the parameter values that make the function continuous at a given point (2.5).
6. Sketch a graph with given properties (2.2 and 2.6).
7. Use the definition of the derivative (make sure you know it!) to find the derivative of a function (2.7 and 2.8).
8. Find the equation of a tangent line (2.7 and 2.8).
9. Draw a rough sketch of $f'(x)$ given the graph of $f(x)$ (2.8).
10. Use the Intermediate Value Theorem to find an interval where $f(x)$ has a root.