

- What will be covered?
 - Exam 1 will cover Chapter 2 of the textbook. It will also cover all of your notes, practice problems, and the supplemental exercises from 2.4 and 2.5.
 - About 60% of the problems are considered easy or medium (i.e. comparable to quiz), and 40% considered challenging (as in my sample exam 1 posted on my website).
- What type of problems?
 - **Definitions & Theorems:**
Average rate of change;
Limit laws;
Sandwich Theorem;
Limit;
One sided limit;
Theorem for one and two sided limits;
Continuity at a point or on an interval;
Continuous function;
Properties of continuous functions;
Continuity and composite functions;
Limits of continuous functions;
Intermediate value property and theorem (IVP/IVT);
Limits at or equal to infinity;
Vertical, horizontal, and oblique asymptotes.
 - **Rates of Change:**
Find average or instantaneous rates of change from a function or a graph;
Find the slope/formula of a secant/tangent line.
 - **Formal Definition of a Limit:**
Find δ given ε ;
Prove limits for linear functions.
 - **One and Two Sided Limits:**
Determine limit existence (given a formula or graph);
Determine a limit from a graph;
Find the limit of polynomial and rational functions;
Multiply by a conjugate to find a limit;
Limits of the average rate of change formula;
Apply the limit laws;
Use the Sandwich theorem;
Limits of functions with an absolute value;
Find a limit using $\sin(\theta)/\theta$;
Limits as $x \rightarrow \infty$;
 - **Continuity:**
For a point or interval on a graph;
Apply the continuity test;

- Find or explain where a function is continuous;
- Continuity for composite functions;
- Limits of continuous functions;
- Find a continuous extension;
- Use the Intermediate Value Theorem.
- **Graphing Rational Functions:**
 - Find vertical, horizontal, or oblique asymptotes;
 - Use the previous information to sketch a graph
- How to prepare the exam 1?
 - Go over your ALL OF your previous homework.
 - Try the sample exam 1 I posted on my website
http://www.math.msu.edu/~yangsy/PDFfiles/MTH132_Exam1_sample.pdf
 - Finish the self-improving exercises I posted online and compare with the solutions I provided.
<http://www.math.msu.edu/~yangsy/PDFfiles/HW1.pdf>
 - You can use the end of Chapter review exercises in the practice problems to test how well you understand the various types of problems listed above. If you struggle with a particular type, you may benefit from a visit to the MLC or studying with a friend. Consult similar review exercises or the appropriate section for additional review problems if you feel you need more practice.