Midterm 1 Review Guide

1 Chapter 0

You should be familiar with all of the review material, especially anything that was covered in class or on the first homework assignment.

2 Chapter 1: Limits

1. Limit of an equation or function at a point.
2. Left and Right limits at vertical asymptotes.
3. Limits at infinity (horizontal asymptotes, divergence).

3 Chapter 2: Derivatives

1. Know the different limit definitions of the derivative and how to use them to evaluate a derivative.
2. Differentiable implies continuous, know why the opposite is not true.
3. Know the derivative rules (power, product, quotient, etc.) and be able to use them together to find the derivatives of more complicated functions.
4. Know the simple trig function derivatives.
5. Know the definition of the chain rule and how to use it to find the derivative of more complicated functions.

4 Chapter 3: Applications of the derivative

1. Finding Local Maxes/Mins.
2. Finding Regions of increasing/decreasing.
3. Finding Regions of concave up/down.
4. First and Second Derivative tests.
5. Graphing

5 Chapter 4: Integration

1. Riemann Sum Definition of the Integral.
2. First Fundamental Theorem of Calculus Problems.
3. Second Fundamental Theorem of Calculus Problems.

6 Chapter 5

1. Area between 2 functions.
2. Integrals of rotation with horizontal and vertical slicing using disks, washers or shells.
3. Length of a curve.

7 Homework Problems

Understand and be able to do all of the homework assignments (1-10)

8 Midterms

Understand and be able to solve all of the problems from the three Midterm exams.

9 Practice Final

You should be able to solve all the problems on the practice final exam.