Math 251 Exam 1 Review Sheet

- Exam 1 is an in-class exam given Thursday, October 23, 2008.
- Exam 1 will cover Chapter 1 and §2.1 – §2.5
- The topics covered on the exam will include the following:
- Functions:
  - domain and range
  - combinations of functions (i.e., $(f+g)(x)$,$(f-g)(x)$,$(f \cdot g)(x)$, $(\frac{f}{g})(x)$)
  - composition of functions (i.e., $(f \circ g)(x)$
  - piecewise functions
- Solving equations involving exponential and logarithmic functions (remember the exponent and logarithm laws)
- Inverse functions
- Finding the equation of a line through given points
- Limits
  - estimating the slope of tangent lines (as a limit of the slope of secant lines)
  - estimating the instantaneous velocity (as a limit of average velocities)
  - using tables, graphs and algebra to find limits
  - left hand and right hand limits
  - sketching graphs with various limit conditions given
  - limits at infinity
- The Squeeze Theorem
- Continutity
  - determining continuity at a given point
  - continuity from the left and right
  - sketching graphs with various continuity conditions given
- The Intermediate Value Theorem
- Determining vertical and horizontal asymptotes using limits

**Suggested Review Problems**

- Chapter 1 Review
  - True-False Quiz on page 83 Problems $1-11$
  - Exercises on pages $84-85$ Problems: $1(a)-(f), 2, 5-8, 9, 10, 19, 20, 23-28$
- Chapter 2 Review
  - Concept Check on page 175 Problems $4-8$
  - Exercises on pages $176-178$ Problems $1-16, 19-21, 23, 24, 25$ (Hint: use the Squeeze Theorem on 20)