Math 12002 Exam III Review

Exam III will be given in class on Thursday, October 20, 2016. It will cover Section 3.1 through 3.5 as well as 1.6 (as it pertains to asymptotes).

Basic Skills

- Find the the absolute maximum and minimum values of a continuous function defined on a closed interval.
- Determine the intervals where a function is increasing and decreasing and find all local maxima and minima. Be able to apply the first derivative test when given either a graph of the derivative or an explicit expression.
- Determine the intervals of concavity and find inflection points given either the graph of the first derivative, the graph of the second derivative, or an explicit expression.
- Know how to apply the second derivative test to classify local extream.
- Find vertical asymptotes of a function.
- Find horizontal asymptotes of a function.
- Sketch the graph of a function using the above information.
- Solve applied optimization problems.

Definitions and Theory

- Absolute minima and maxima, local minima and maxima.
- Critical numbers.
- Increasing and decreasing (functions), concave upwards and concave downwards.
- Points of inflection.
- Horizontal asymptotes, vertical asymptotes.
- Extreme Value Theorem
- Mean Value Theorem
- Tests for local maxima and minima, Increasing and decreasing intervals, concavity, etc.