MATH 104/184: Week 8 Learning Goals
August 16, 2012

Learning Goals

This week we cover the first and second derivative tests and curve sketching. This is material in sections 4.2 and 4.3 in Briggs Cochran, with some additional material from 2.5 focused on asymptotes.

Suggested problems that help build these skills are given as [section: question #s].

The specific learning goals for this week are that by the end of the week and review homework, you should be able to:

1. explain how the first derivative of a function determines where the function is increasing and decreasing and apply this to specific functions to determine their intervals of increase and decrease; [4.2: 1, 3, 12, 16, 22, 30,63]

2. use the first derivative test to identify local maxima and minima; [4.2: 2, 32, 36, 37, 40]

3. explain how the second derivative of a function determines concavity and apply this to specific functions to determine where they are concave up and concave down, and to identify inflection points; [4.2: 48, 50,54, 56,80,63]

4. use the second derivative test to classify local maxima and minima; [4.2: 60,62, 77,78]

5. identify any asymptotic behaviours a function may have: vertical asymptotes, horizontal asymptotes, and oblique or slant asymptotes; [2.5: 22,24,38,39, 43,54]

6. use calculus to sketch a graph of a given function. [4.3: 2,3, 8, 14, 19, 22, 26, 31, 32, 42, 43, 64]

Suggested Problems

Suggested Problems: This week, all suggested problems from the text are:
Chapter 4.2:1, 2, 3, 12, 16, 22, 30,32, 36, 37, 40,48, 50,54, 56, 60,62, 77,78,80.
Chapter 4.3: 2,3, 8, 14, 19, 22, 26, 31, 32, 42, 43, 64.
Chapter 2.5: 22,24,38,39, 43,54.