Preparing for Class 24

Reading: *H-H*, Section 4.7

Problems:

H-H Section 4.7, #1, 2, 5, 6, 8, 14-15, 22

H-H Chapter 2 Review Problems #8, 11, 13 (use the *definition* of the derivative), 25

H-H Chapter 4 Review Problems #3, 6, 9, 12, 18-19, 20 a)

Homework Due: All problems assigned to prepare for Classes 22, 23 and 24 are due at the start of Class 24.

Monday, October 23

Class 24:

Checking Solutions to Initial Value Problems

An initial value problem of the form $y'(t) = F(t, y(t)),\ y(t_0) = y_0$, can be viewed as a set of statements about an unknown function $y(t)$. If you think you know a formula for $y(t)$, then you can check whether your formula is correct by checking whether these statements are true if you use it. Checking the initial value is easy: just evaluate $y(t)$ at t_0 and see if you get the value y_0. Now that you know how to differentiate, you can also check the rate equation. First differentiate to find $y'(t)$. Then simplify $F(t, y(t))$ and see if your result really is the same function as $y'(t)$.

Preparing for Class 25

Review for the second midterm exam, covering Unit 2. Note that the *Focus on Practice* on *H-H* pp. 237-238 has many problems for practicing differentiation. Solutions to the odd problems are in the back of the text. We will also hand out an additional sheet of review problems on Monday.

Wednesday, October 25

Class 25:

Review of Unit 2

We will discuss the review problems and any other questions you may have in preparing for the exam.

Labs will be held this week, but will be designed to help you prepare for the exam.

Exam 2: Thursday, October 26, 6:30 pm - 9:30 pm, Fowler 302

Preparing for Class 26

Take a break!

Friday, October 27

Class 26:

Interpreting the Second Derivative

If it exists, the *second* derivative $f''(a)$ gives the rate at which the first derivative function f' is changing at the point a. The sign of the second derivative on an interval is an indicator of the concavity of the original function on that interval.