Class 13: *Monday, October 3*

Elementary Derivatives and Rules of Differentiation

Reading: *Smith&Minton* Sections 2.2, 2.3, 2.5, 2.6
(This is too much to read thoroughly, but the topics we cover in this class appear at various places in these sections.)

The algebraic definition of the derivative of a function at a point, expressed in terms of a limit, can be used to find *formulas* for the derivatives of elementary functions. We will look specifically at derivatives of exponential and trigonometric functions. This definition also leads to algebraic rules for differentiation, such as those for differentiating a constant times a function or the sum of two functions.

Homework 5: *Smith&Minton* Section 2.2: 18, 56,57; Section 2.5: 6, 10.
   BONUS: Section 2.5: 53.

Lab 3: *Monday, October 3 and Tuesday, October 4.*
Limits, Continuity, and Differentiability

In this lab you will explore the concepts of limits numerically and visually to enhance the understanding of the relationship between the differentiability and continuity of a function at a point.

Quiz 4

This quiz will attempt to highlight your understanding of limits.

Class 14: *Wednesday, October 5*
Taylor's Theorem

You know that some error is incurred in using a tangent line to approximate the graph of a function about a point where it is locally linear. Although we cannot determine this error precisely, we can learn enough about it to get some very useful results. We will state and prove Taylor's Theorem concerning this error.

Homework 5: Worksheet handed out in class.

Class 15: *Friday, October 7*
The Product and Quotient Rules

Reading: *Smith&Minton* Section 2.4

Another very useful algebraic rule for differentiation states how to differentiate the product of two functions. In this class we will use Taylor's Theorem to derive the Product Rule. Then, under the assumption that a quotient is differentiable, we will use the Product Rule to derive the Quotient Rule.

Homework 6: *Smith&Minton* Section 2.4: 6, 19, 20, 25, 26, 45, 47

Quiz 5 (Take-Home)

Homework 5 Due in the Math 114 Course Box by 5:00 pm