Applied Calculus

Spring 2008

Module 5: Integrals

Introduction

In this module, you will continue the discussion of integrals that began in Module 4 and further synthesize the seemingly unrelated problems of finding the area under a curve and determining information about the (change in) values of an antiderivative using the derivative. You will meet the **definite integral**, a notion that you have already seen how to approximate and compute in many instances, and how the two different objects called 'integrals' are related. Later, you will meet better techniques for approximating areas under curves, and will sew how the computations you have learned can be stretched to solve other problems.

This is the second of the two theory modules. In these modules, we will excuse ourselves from the applications in order to develop technical skills. In particular, after completing this module, you will be able to compute areas under curves exactly for a number of functions without directly using limits.

Schedule

Date	Lecture	Assignment
Mon. 7th Apr	More on Riemann Sums	**Homework:** 6.2: 1, 3, 4*, 7, 8*, 9, 15, 16*, 21, 22* **Read:** Section 6.3
Wed. 9th Apr	Definite Integrals and the Fundamental Theorem of Calculus	**Homework:** 6.3: 1, 3, 4*, 5, 9, 10*, 13, 14*, 21, 22*, 23, 31, 32*, 41, 42*
Fri. 11th Apr	Areas in the xy-Plane and other Applications of the Definite Integral	**Homework:** 6.4: 1, 2*, 7, 8*, 19, 20* 6.5: 5, 6*, 31, 32*, 34*, 35 **Read:** Section 7.6
Mon. 14th Apr	Double Integrals	**Homework:** 7.6: 1, 2*, 3, 4*, 9, 10*, 11, 12*
Fri. 23rd Apr	Module 5 Exam	**Homework:** Final exam review.