Learning Goals

This week we work with the derivative as rate of change and the chain rule. This is the material in sections 3.5 and 3.6 of Briggs Cochran. We will be interested in Growth Models and Average and Marginal Cost/Revenue/Profit/etc. Indeed, we will relate the idea of "marginal" from economics with the idea of derivative in this course. Note that there are some notes on this for you in the Notes on a Business Problem that are posted on the main course webpage.

   Suggested problems that help build these skills are given as [section: question #s]. There are also some extra problems posted on the business related concepts.

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

1. work with velocity and acceleration as derivatives. [3.5:10,11,12,29]

2. solve problems involving average and instantaneous growth rates. [3.5: 20,35]

3. explain the notion of marginal cost (or revenue or profit, etc.) in terms of the derivative of the cost (or revenue or profit) function. [3.5:7 plus posted extra problems]

4. solve problems involving average and marginal costs (revenue/profit/etc.). [3.5: 21,3640,41 plus posted extra problems]

5. state the Chain Rule, including its hypotheses, and identify when it can be used. [3.6:2–6]

6. make use of the Chain Rule in computations. [3.6: 29,30,32, 40,41,42,57, 59,60,66,71,77,78]

Suggested Problems and Assignments

Suggested Problems: This week, all suggested problems from the text are:
   Chapter 3.5: 7, 10, 11, 12, 20, 21, 29, 35, 36, 40, 41.
   Chapter 3.6: 2, 4, 5, 6, 29, 30, 32, 40, 41, 42, 57, 59, 60, 66*, 71, 77, 78.
   I will post some problems on the marginal cost, etc. as a separate item on the main course webpage.
   (A * indicates a hard problem.)
   Webwork Homework: Students will be asked to complete a webwork assignment on this material.