

MATH 104/184: Week 6 Learning Goals

August 16, 2012

Learning Goals

This week has three key topics. We will finish section 3.8 of Briggs Cochran (which we began last week), which is on the derivatives of logarithmic and exponential functions. We will cover *price elasticity of demand*, which is not covered in the text. While such elasticities can be a big topic, we will cover it in an introductory way. You find the material in the notes I have post online on price elasticity of demand. Finally, we will introduce exponential growth, especially as applied to continuous compound interest. This material is in section 6.8 and a short set of notes on continuous compound interest.

The suggested problems will help you build these skills. I will post an extra set of problems for the price elasticity of demand section and for the continuous compound interest section.

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 the inverse properties of e^x and $\ln x$;
2. use the derivatives of general logarithmic functions in computations;
3. use the derivatives of general exponential functions in computations;
4. use the technique of logarithmic differentiation;
5. use the logarithmic derivative of a function $f(x)$ to compute relative rates of change of $f(x)$ per unit change of x ;
6. compute the *price elasticity of demand* and use it to determine the direction revenue changes when there is a change in price;
7. solve problems involving price elasticity of demand;
8. compare and contrast linear growth and exponential growth;
9. solve problems involving continuously compounded interest.

Suggested Problems

Suggested Problems: This week, all suggested problems from the text are:

Chapter 3.8: 1,2,6,10,12,15,36,39,42, 47,50, 79, 87*.

Chapter 6.8: 1, 10, 11,13, 16, 25, 30, 38*.

(* means the problem is hard or is a proof-type question)