Department of Mathematical Sciences
Carnegie Mellon University

Fall 2001

21-121 Calculus 1 (IM/Econ)

Assignment 7

Solutions to *all* the following problems should be written up and hand in to your TA.

Due in recitation on Thursday, October 18, 2001

Section 4.1: Problems 34, 42, 50, 55, 58, 62
Section 4.2: Problems 12, 17, 30

Supplementary Problem*: A certain monopolist can produce at most 120 units of a product. The demand function for this product is

$$p = q^2 - 100q + 3200,$$

and the average cost function is

$$\bar{c} = \frac{2}{3}q^2 - 40q + \frac{10000}{q}.$$

At what level of production will profit be maximized? At what price does this occur and what is the maximum profit?

*Problem taken from *Introductory Mathematical Analysis for Business, Economics, and Life Sciences*, Ernest F. Haeussler, Jr. & Richards S. Paul (Eighth Edition)