MA 160

Practice Quiz #3 – Summer 2008 Name

Show your work on the quiz paper. Full credit is not given unless the answer follows from the work shown.

- 1. (12 points) A rectangular garden of area 1800 square feet is to be surrounded on three sides by wire fencing costing \$2 per foot and on one side by wood fencing costing \$6 per foot. The goal is to determine the dimensions of the garden such that the cost of the fencing is minimized.
- (a) State the objective function for this problem.



- (b) State the constraint equation for this problem.
- (c) Use calculus to determine the dimensions of the garden that will minimize the cost of the fencing.

(d) What is the minimum fencing cost?



- 2. (13 points) A management training company finds that 1000 people will attend its seminar on management training techniques if the price is \$400 per person. The company estimates that for each \$5 reduction in price, an addition 20 people will attend the seminar.
- (a) Let x be the number of people who will attend the seminar at price p dollars per person. Use the given information to write two data points of the type (x, p) and then use these points to find the equation of the function p = f(x).



(b) Write the revenue function for this situation.

(c) Use calculus to determine the value of x that will result in maximum revenue.



(e) What will the maximum revenue be?