## QUIZ 5 - MATH 112 YOUR NAME:

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. A bicycle company finds that it costs \$ 70 to manufacture each bicycle and fixed costs are \$ 100 per day. The price function is p(x) = 270 - 10x, where p is the price in dollars for which exactly x bicycles will be sold. Find how many bicycles should be produced per day and the price that should be charged for each to maximize the company's profit. (Hint: Start by figuring out the profit function P(x).)

2. An airline company finds that pricing a cross-country ticket at \$300 allows it to sell 500 tickets a day. It estimates that each \$10 price reduction will result in 40 more tickets sold per day. Find the ticket price that will maximize the airline's revenue. How many tickets will be sold per day at the optimal price? (**Hint:** Start by figuring out the revenue function R(x), where x represents the number of the \$10 price reductions.)