Wilf Csaplar Jr.   Economics 476   Homework #3   Due **Monday 10/1**

Place your name on the back of this sheet of paper and nowhere else. Staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 10 points. If you use double-sided printing or print on the back of scrap paper, I will give you one additional point.

Show all work on all questions.

1A) (25 points) Suppose the demand curve for a Cournot-Nash duopoly is given by
$P = 110 - 3(Q_1 + Q_2)$. Firm i's total cost function is given by $TC_i = 2 + 10Q_i + \frac{1}{2}Q_i^2$. Find each firm's best response function. Use that to find the equilibrium outputs, price, and profits for the two firms.
B) (25 points) Suppose Firm 1 realizes what Firm 2's best response function in Part A is and they decide to become a Von Stackelberg leader. Find the profit maximizing outputs for the two firms and the price.

2A) (25 points) Suppose the demand curve for a Cournot-Nash duopoly is given by $P = 200 - 2Q_I$. Firm i's total cost function is given by $TC_i = 5 + 10Q_i + 2Q_i^2$. Find each firm's best response function. Use that to find the equilibrium outputs, price, and profits for the two firms.
B) (25 points) Suppose Firm 1 realizes what Firm 2's best response function in Part A is and they decide to become a Von Stackelberg leader. Find the profit maximizing outputs for the two firms and the price.