Wilf Csaplar Jr.   Economics 280   Homework #8   Due Thurs. 4/17

Do not write your name on the assignment. Write your name only on the back of this sheet of paper and staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 1 point on the assignment.

1) This question assumes that the two firms (Firm 1 and Firm 2) sell identical goods so that their demand and cost functions are identical. Those equations are
$TC(Q_i) = 4 - 2Q_i + 2Q_i^2$ and $P = 40 - (Q_i + Q_j)$.
A) (15 points) Use mathematics to derive the MC and MR equations. Show all work.
B) (10 points) Find Firm 1's best response function using mathematics. Show all work.
C) (15 points) Find the equilibrium outputs for both firms, the market price, and the profits of both firms. Show all work.
D) (20 points) Graph the industry's demand, Firm 1's perceived residual demand, marginal cost, and marginal revenue curves. Briefly explain how you got each graph.
E) (10 points) Draw the two firms' best response functions (BRF). Briefly explain how you know which curve belongs to which firm.

2) (30 points) Suppose that you are a producer that believes your competition will match price cuts because they do not want to lose customers to you. However, they will not match price increases because they will want to steal your customers. Draw the demand curve you are facing. Derive the marginal revenue curve you are facing. Draw a normal shaped marginal cost curve. Find the equilibrium price and quantity you will sell. Explain why your demand curve looks like what you have drawn, how you got the MR curve, and how you got the equilibrium price and quantity.