Homework 4

Due Monday, November 14, 2005

Assume the demand curve for a market is given by

$P = 50 - 10Q$

The marginal cost function for any firm producing in this market is given by

$MC = c = 10$

1.   *Assume the market is characterized by a Cournot Duopoly.*

    (a)   Derive the *best-response functions* for both firms in the market.

    (b)   What is the level of output q_1^C produced by firm 1?

    (c)   What is the level of output q_2^C produced by firm 2?

    (d)   What is the price P^C both firms sell their output at?

    (e)   What is the profit earned by each firm?

    (f)   What is the total profit in the industry, π^C?

2.   *Assume the market is characterized by perfect competition.*

    (a)   What is the equilibrium level of output q^* ?

    (b)   What is the equilibrium price P^*?

    (c)   What is the total profit in the industry, π^*?

3.   *Assume the two firms from 1 band together a form a monopoly.*

    (a)   What is the monopoly level of output q^M ?

    (b)   What is the equilibrium price P^M?

    (c)   What is the total profit in the industry, π^M?

4.   Compare the market levels of output, price, and profit you obtained from (1), (2), and (3).