

Econ 100B (Grossman)—Winter 2010
Practice questions for midterm 2
With answers (but not detailed solutions)
February 14, 2010

If you can do these practice questions, as well as workouts 25.6 and 25.7, you should be in good shape for most of the questions on the test. I will post answers, but not detailed solutions on Sunday night. The questions that will be on the exam have been designed so that the numbers typically work out relatively “nicely”. I haven’t taken such care here, so don’t be surprised or scared if you get less “nice” numbers.

1. A profit-maximizing monopolist discriminates between two markets. Its marginal cost is 10 and—at the quantities it sells in each market—the price-elasticity of demand is $\epsilon_1 = -2$ and $\epsilon_2 = -5$, respectively in each market. What price does it charge in each market?

Answer: $p_1 = 20$ and $p_2 = 12.5$

2. A profit-maximizing monopolist faces demand $p_1 = 100 - q_1$ in one market and $p_2 = 80 - 2q_2$ in a second market. If its marginal cost is 20, what price should it charge if it charges the same price in both markets? What about if it engages in multi-market price discrimination?

Answer: Uniform price = $56\frac{2}{3}$. Multi-market prices: $p_1 = 60$ and $p_2 = 50$

3. What is the deadweight loss if the above monopolist can perfectly-price discriminate?

Answer: Zero. Perfect price discrimination is efficient.

4. Find the Cournot equilibrium quantities, price, profits and consumer surplus if two duopolists have $MC = 4$ and face demand for their product given by $Q = 20 - 2P$.

Answer: Reaction function: $q_i^*(q_j) = 6 - \frac{q_j}{2}$. $q_1^* = q_2^* = 4$ $Q = 8$, $p = 6$, $\pi_1 = \pi_2 = 8$ and $\Pi = 16$, $CS = 16$

5. How do the above answers change if the firms are Stackelberg duopolists, which firm 1 being the leader and firm 2 the follower?

Answer: $q_1^* = 6$, $q_2^* = 3$ $Q = 9$, $p = 5.5$, $\pi_1 = 9$ and $\pi_2 = 4.5$. $\Pi = 13.5$, $CS = \frac{81}{4}$

6. Suppose firm 1 has $MC = 4$ and firm 2 has $MC = 2$. Can you repeat the analysis from the previous two questions?

Answer: Cournot: $q_1^*(q_2) = 6 - \frac{q_2}{2}$ and $q_2^*(q_1) = 8 - \frac{q_1}{2}$; $q_1^* = 8/3$ and $q_2^* = 20/3$; $Q = 28/3$ and $p = 16/3$; $\pi_1 = 32/9$ and $\pi_2 = 200/9$; $\Pi = 232/9$ and $CS = (\frac{14}{3})^2$.

Stackelberg: $q_1^* = 4$ and $q_2^* = 6$; $Q = 10$ and $p = 5$; $\pi_1 = 4$ and $\pi_2 = 18$; $\Pi = 22$ and $CS = 25$.