

Microeconomics I

EMI

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Suggested Exercises 5

Perfect competition

1. MWG 10.B: 1, 2.

- 10.B.1: Is interiority necessary in (b) and (c)?

2. MWG 10.C: 1-4, 6, 8-11.

3. MWG 10.D: 2-4.

- MWG 10.D.3: The second part of this exercise is optional. If case you are interested, check this proposition with the Second Welfare Theorem.

4. MWG 10.E: 1-3.

- 10.E.3: optional. But you should do it if you're interested in regulatory economics.

5. MWG 10.F.1.

6. MWG 10.G: 1-4.

7. Varian 10: Farmers produce corn from land and labor. The labor cost in dollars to produce y bushels of corn is $c(y) = y^2$. There are 100 identical farms which all behave competitively.

(a) Derive the individual and market supply of corn.

(b) Suppose that the market demand of corn is $D(p) = 200 - 50p$. Find the equilibrium corn price and quantity sold.

(c) What is the equilibrium rent on the land?

Monopoly

1. MWG 12.B: 1-10.
2. Varian 14: Consider a monopolist with CRS technology. The inverse demand facing the monopolist is $p(q, t)$, where q is output and t is a parameter that shifts demand. Find the optimal response of equilibrium monopoly output to a marginal change in t . What is the optimal response if $p(q, t) = a(q) + b(t)$?
3. Varian 14: Consider a common price discrimination practice called “two part tariff:” the firm charges a lump sum fee to have the *right* to purchase a good, and then charge a per-unit cost for consumption of the good after that. Can you think of an example of such scheme in real life?

Suppose that all consumers have identical utility functions $u(x)$ and a monopolist has cost function $c(x)$. Will the monopolist produce more or less than the efficient level (i.e., the one under perfect competition) if it can use two part tariff?

4. Varian 14: In the class we derived the monopolist’s optimal quantity to sell on the market. Now try with the case where the monopolist optimally chooses the price to sell the good. Show that the two approaches have the same result.
5. Varian 14: Consider a monopolist with no production cost and faces two markets with demand function $x_1 = a_1 - b_1 p_1$ and $x_2 = a_2 - b_2 p_2$, where x_i and p_i are the quantity sold and price charged in market $i = 1, 2$. Suppose the monopolist can charge different prices for different markets, but not within the same market.
 - (a) Find the conditions on (a_1, b_1, a_2, b_2) such that the monopolist will optimally choose *not* to price discriminate while still selling positive quantities.
 - (b) Find the same conditions for demand functions $x_i = A_i p_i^{-b_i}$, $i = 1, 2$, and constant marginal cost $c > 0$.