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Problem Set 8

Key concepts:

- Natural monopoly
- Legal barriers to the entry
- Network economies
- First–Degree Price discrimination
- Second–Degree Price discrimination
- Third–Degree Price discrimination

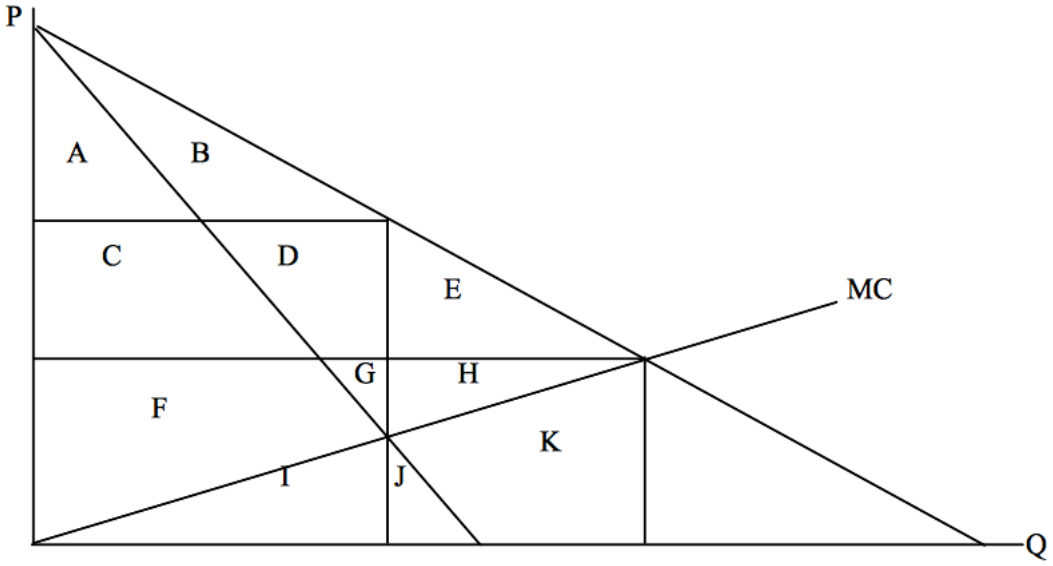
1. You are a self-employed profit-maximization consultant specializing in monopolies. Five single-price, profit-maximizing monopolies are currently seeking your advice, and although the information they have supplied to you is incomplete, your expert knowledge allows you to go back and make a definite recommendation in each case. Select one of the following recommendations for each firm in the short run:

Firm	P	MR	TR	Q	TC	MC	ATC	AVC	Your recommendation
A	3.90	3.00		2000	7400	2.90		3.24	
B	5.90			10000		5.90	4.74	4.24	
C		9.00	44000	4000		9.00	11.90	10.74	
D	35.90	37.90		5000		37.90	35.90		
E	35.00		3990	1000	3300		at min value	23.94	

   (a) Remain at the current output level.
   (b) Increase output.
   (c) Reduce output.
   (d) Shut down.
   (e) Go back and recalculate your figures because the ones supplied cant possibly be right.

2. Refer to the graph below. Use this graph to illustrate the welfare effects of a single price monopoly, a perfectly price discriminating monopolist, and perfect competition.

   (a) List the letters of the total welfare generated in the market if it is perfectly competitive.
   (b) List the letters of the total welfare generated in the market if it is perfectly price discriminating.



(c) List the letters of the total welfare generated if the market is a single price monopoly market.

(d) What letters show the deadweight loss due to monopoly?

(e) If there are no fixed costs, what letters represent single price monopoly profits?

(f) If there are no fixed costs, what letters represent a perfect price discriminator's profit?

3. Consider a monopoly operating in the energy market. The demand is given by

$$Q^D = 40 - P.$$

You are consulting the monopoly as how to increase its revenues. Suppose that currently the monopoly is selling at the price of 27 Euro. Does this price maximize the revenue? Does this price maximize the profit?

4. Consider a monopoly with a total cost function given by

$$TC = 2q^3 - 36q^2 + 250q + 6000.$$

The market demand is given by

$$Q^d = 29 - 0.01P.$$

(a) Find the profit maximizing price and quantity.

(b) Represent the solution graphically and present the loss in the consumer surplus and the deadweight loss of this monopoly compared to the perfectly competitive market.

5. Explain why the profit maximizing price of the monopoly has to be in the elastic part of the demand curve.

6. A monopolist faces a demand given by

$$Q = 10000P^{-2}$$

and produces with a constant marginal and average cost equal 1.

(a) Find the elasticity of demand.

(b) Fidn the profit of the monopolist.

7. Imagine that only one Pub exists in a town. Its business is to serve drinks. The costs associated with the functioning of the bar depend on the amount of sold drinks (Q) and is given by:

$$TC(Q) = F + 2Q.$$

The customers of this bar are homogeneous and each one has a demand behavior for drinks that can be represented by:

$$P = 10 - Q.$$

(a) If the price to charge per drink is uniform, which will be the choice that maximizes the profit of the Pub (price and quantity consumed for each individual, profit per consumer)?

(b) Now, consider that the Pub will try out a new pricing strategy. The Pub will sell each drink at its marginal cost but will charge an entrance fee. What is the price, the fee and the quantity purchased? Show that profit increases with this two-part tariff.

(c) Assume now that two types of consumers exist: of high and low drinking habits. Individual demand curves are respectively

$$P_H = 16 - Q_H$$

and

$$P_L = 12 - Q_L.$$

If the bartender or doorman is able to distinguish the consumers what price scheme yields the maximum profit?

(d) Should this approach be maintained if they cannot identify the two groups of consumers? Could it be preferable to quit serving the light drinkers?

(e) Imagine one more strategy: charging lower entry fees and drinks' prices before midnight and higher afterwards. Example of which price discrimination (1st,2nd or 3rd?) would that be?