

PRACTICE CLASS Nr 10

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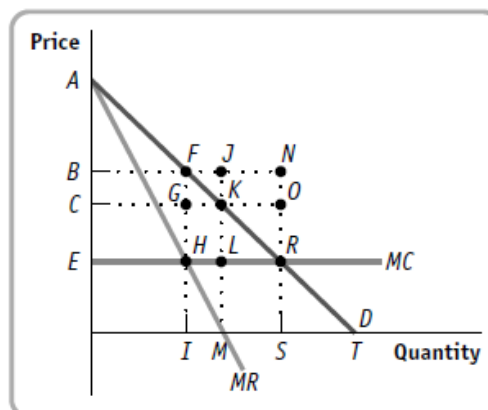
AP10-14 to AP10-20

Classroom Exercises

AP10-1-

Problems 17 (pg.418, 4th ed.)

Consider an industry with the demand curve (D) and marginal cost curve (MC) shown in the accompanying diagram. There is no fixed cost. If the industry is a single-price monopoly, the monopoly's marginal revenue curve would be MR. Answer the following questions by naming the appropriate points or areas.



- a) If the industry is perfectly competitive, what will be the total quantity produced? At what price?
- b) Which area reflects consumer surplus under perfect competition?
- c) If the industry is a single-price monopoly, what quantity will be the monopolist produce? Which price will it charge?
- d) Which area reflects the single-price monopolist's profit?
- e) Which area reflects consumer surplus under single-price monopoly?
- f) Which area reflects the deadweight loss to society from single-price monopoly?
- g) If that monopolist can price-discriminate perfectly, what quantity will the perfectly price-discriminating monopolist produce?

AP10-2-

Suppose that a monopolistic firm faces a demand curve given by

$$p = 100 - Q$$

and has short-run total costs given by

$$CT = Q^2 + 16$$

Perante esta informação:

- a) Calculate the quantity supplied and the price that maximise the firm's profit.
- b) What is the firm's economic profit?

(Exerc. 2008-9 n°17)

AP10-3-

A monopolist has constant marginal costs equal to 1 and has no costs when output is zero. The monopolist faces the demand curve $p^d(Q) = 8 - 0.5Q$, where $p^d(Q)$ is the price, and Q is the quantity.

- a) Find the monopolist's optimal price, quantity and profit. Explain and illustrate in a graph.
- b) Now the government sets a price ceiling at €2.50. How much does the consumer surplus change? Explain and illustrate in a graph.
- c) Will the monopolist be willing to keep producing when there is the €2.50 price ceiling? Explain.

(Final Exam ER, 26-06-2014, 2013-14, B.3)

AP10-4

A monopolist sells 10 units at €1000 each. To sell 11 units it would have to set the price at €900. Then the quantity and price effects of the 11th unit would be respectively:

- a) €1000 and €100.
- b) €1000 and – €900.
- c) €900 and – €1000.
- d) None of the other alternatives are correct.

(Exam ER, 26-06-2014, 2013-14, A.15)

AP10-5

Consider the game between two players shown in the payoff matrix below. The dominant strategy equilibrium in this game is:

		Player 2	
		L	R
Player 1	U	10, 20	5, 8
	D	5, 10	4, 9

Note: each cell in the matrix shows player 1's payoff first, then player 2's payoff.

- a) The pair of strategies (D, L).
- b) The pair of strategies (U, L).
- c) The pair of strategies (D, R).
- d) The pair of strategies (U, R).

AP10-6

Consider the following game corresponding to a duopoly, with the profits of each player represented by the values in the cells of the matrix.

		Column player	
		L	R
Line player	T	1; 5	4; 4
	B	2; 1	3; 0

Which of the following statements are correct?

- 1. (B, L) is a Nash equilibrium.
- 2. (T, R) is a Nash equilibrium.
- 3. The game has no Nash equilibrium.

- a) Only 1. and 2. are correct.
- b) Only 3. is correct.
- c) Only 2. is correct.
- d) Only 1. is correct.

AP10-7

In the following payoff matrix for what values of a and b is there an equilibrium in dominant strategies? Explain:

		Player 2	
		X	Y
Player 1	X	(2; 0)	(3; -2)
	Y	(5; 1)	(a ; $b+1$)

Home Exercises (Chap 13)

AP10-8-

- Check Your Understanding 13-2, 1. (pg. 400, 4th ed.)
- Check Your Understanding 13-3, 2. (pg. 407, 4th ed.)
- Check Your Understanding 13-4, 2. (pg. 413, 4th ed.)

AP10-9-

In the short run, a monopolist has the following function of total costs:

$$CT(Q) = 12 Q^3 - 30 Q^2 + 50 Q + 700$$

where CT is the total cost of production and Q is the quantity produced. This monopolist faces consumers whose market demand is:

$$Q^d(p) = 15 - \frac{P}{30}$$

where Q^d is the quantity demanded and p is the price of the good.

- a) Find the equilibrium of the monopolist (quantity and price that the monopolist sets) assuming that he wants to maximize profit.
- b) Determine the level of profit in the equilibrium (previous alinea).

AP10-10-

A monopolist has the following total cost function:

$$TC = 200Q + 200,$$

where Q is the level of output. The market demand curve is

$$P = 1000 - 2Q,$$

where P is the price.

- a) What quantity will the monopolist produce and what price will it charge?
- b) Suppose the government forces the monopolist to produce the level of output such that marginal cost equals price. How much will the consumer surplus change (from the level in part b)))? Illustrate in a graph.

(Exam EN 2011-12, P.2)

AP10-11-

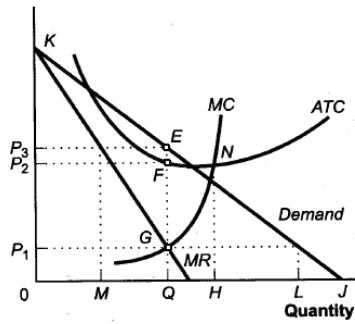
A monopolist faces the demand curve $Q^D = 120 - 2p$, and has total cost given by $TC(Q) = 20Q + 100$.

- a) Find the profit maximising price and output.
- b) Calculate the monopolist's profit.
- c) Find the difference between the deadweight loss of the situation you have calculated in part a) and the deadweight loss that would exist if the monopolist were able to perfectly discriminate prices, that is sell each unit at the highest price consumers are willing to pay for it

(Exam ER, 14-01-2013, 2012-13, B.3)

AP10-12-

The figure below shows several curves pertaining to a monopoly.

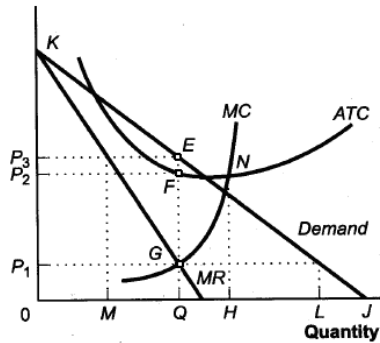


The maximum profit is given by the area with coordinates:

- a) $[P_2 P_3 E F]$.
- b) $[P_1 P_2 F G]$.
- c) $[0 P_2 F Q]$.
- d) $[0 P_3 E Q]$.

AP10-13-

The figure below shows several curves pertaining to a monopoly.



At the point where the monopolist has maximum profit, the total cost is given by the area with coordinates:

- a) $P_1 0 Q G$.
- b) $P_3 0 Q E$.
- c) $P_2 0 Q F$.
- d) $F Q$.