Week 9

Monopoly

Classroom exercises: Exercises 9.1 to 9.5

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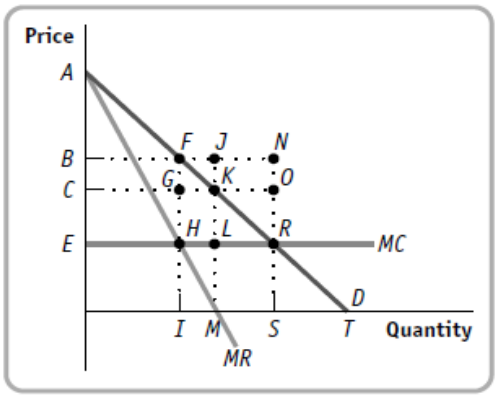
Classroom exercises

Exercise 9.1 Textbook Problem 17 (p. 418)

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 be 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?

Exercise 9.2 (EXERC 2008-9 nº17)

Suppose that a monopolistic firm faces a demand curve given by p=100-Q, and has short-run total costs given by $TC = Q^2+16$.

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

Exercise 9.3 (Exam 25-06-2014)

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. (1 mark)

b) Now the government sets a price ceiling at €2.50. How much does the consumer surplus change? Explain and illustrate in a graph. (1.25 marks)

c) Will the monopolist be willing to keep producing when there is the €2.50 price ceiling? Explain. (0.75 marks)

Exercise 9.4 (Exam 13-03-2015)

A natural monopoly will arise if a firm:

a) Has exclusive control over a crucial input.
b) Has marginal costs lower than average costs for all output levels.
c) Has a better technology than any potential competitor.
d) None of the other alternatives is correct.

Exercise 9.5 (Exam 25-06-2014)

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

Home exercises

Exercise 9.6 Check your understanding 13.2, 1 (p. 400)
Check your understanding 13.3, 2 (p. 307)
Check your understanding 13.4, 2 (p. 413)

Exercise 9.7 (EXERC 2008-9 nº18)

Suppose a monopolist has short-run total costs are given by

$$TC = 12Q^3 + 30Q^2 + 50Q + 700$$

where TC is the total cost, and Q is the firm's output. The firm faces a demand curve given by:

$$Q^d(p) = 15 - p/30$$

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

a) If the monopolist wishes to maximise its profit what price will it charge and what quantity will it sell?
b) What is the profit in part a)?

Exercise 9.8 (Adapted from exam 09-01-2012)

Suppose a monopolist has short-run total costs are given by $TC = 200Q + 200$, where TC is the total cost, and Q is the firm's output. The firm faces a demand curve given by: $p(Q) = 1000 - 2Q$, where Q^d is the quantity demanded, and p is the price.

a) Find the monopolist's output, price, and profit.
b) The governemnt forces the monopolist to charge a price no higher than the marginal cost. Find the change in consumer surplus and the total surplus. Show it in a graph.
c) Find the monopolist's profit. Would the monopolist stay in business in the long run? Why or why not? What could the government do about it?

Exercise 9.9 (Exam 25-06-2014)

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. (1.5 marks)
b) Calculate the monopolist's profit. (1.5 marks)
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. (1.5 marks).

Exercise 9.10 (Exam 25-06-2015)

The figure below shows several curves pertaining to a monopoly. The maximum profit is given by the area with coordinates:

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