

PROBLEMS AND APPLICATIONS

1. A publisher faces the following demand schedule for the next novel of one of its popular authors:

Price (€)	Quantity demanded
€100	0
90	100 000
80	200 000
70	300 000
60	400 000
50	500 000
40	600 000
30	700 000
20	800 000
10	900 000
0	1 000 000

The author is paid €12 million to write the book, and the marginal cost of publishing the book is a constant €10 per book.

- Compute total revenue, total cost and profit at each quantity. What quantity would a profit-maximizing publisher choose? What price would it charge?
 - Compute marginal revenue. (Recall that $MR = \Delta TR / \Delta Q$.) How does marginal revenue compare to the price? Explain.
 - Graph the marginal revenue, marginal cost and demand curves. At what quantity do the marginal revenue and marginal cost curves cross? What does this signify?
 - In your graph, shade in the deadweight loss. Explain in words what this means.
 - If the author were paid €13 million instead of €12 million to write the book, how would this affect the publisher's decision regarding the price to charge? Explain.
 - Suppose the publisher was not profit-maximizing but was concerned with maximizing economic efficiency. What price would it charge for the book? How much profit would it make at this price?
2. Suppose that a natural monopolist was required by law to charge average total cost. On a diagram, label the price charged and the deadweight loss to society relative to marginal-cost pricing.
3. Consider the delivery of mail. In general, what is the shape of the average total cost curve? How might the shape differ between isolated rural areas and densely populated urban areas? How might the shape have changed over time? Explain.

4. Suppose the Eau de Jeunesse Water Company has a monopoly on bottled water sales in France. If the price of tap water increases, what is the change in Eau de Jeunesse's profit-maximizing levels of output, price and profit? Explain in words and with a graph.
5. A small town is served by many competing supermarkets, which have constant marginal cost.
- Using a diagram of the market for groceries, show the consumer surplus, producer surplus and total surplus.
 - Now suppose that the independent supermarkets combine into one chain. Using a new diagram, show the new consumer surplus, producer surplus and total surplus. Relative to the competitive market, what is the transfer from consumers to producers? What is the deadweight loss?
6. Guy Rope and his backing group, the Tent Pegs, have just finished recording their latest music CD. Their record company's marketing department determines that the demand for the CD is as follows:

Price (€)	Number of CDs
€24	10 000
22	20 000
20	30 000
18	40 000
16	50 000
14	60 000

The company can produce the CD with no fixed cost and a variable cost of €0.15 per CD.

- Find total revenue for quantity equal to 10 000, 20 000 and so on. What is the marginal revenue for each 10 000 increase in the quantity sold?
 - What quantity of CDs would maximize profit? What would the price be? What would the profit be?
 - If you were Guy Rope's agent, what recording fee would you advise Guy to demand from the record company? Why?
7. In 1969 the US government charged IBM with monopolizing the computer market. The government argued (correctly) that a large share of all mainframe computers sold in the United States were produced by IBM. IBM argued (correctly) that a much smaller share of the market for *all* types of computers consisted of IBM products. Based on these facts, do you think that the government should have brought a lawsuit against IBM for violating the US anti-trust laws? Explain.