

HW 4: Monopoly and Price Discrimination

1. The inverse demand curve facing a monopoly is $p = 20Q^{-1/2}$. Its cost curve is $C(Q) = 10Q$. What is the firm's profit maximizing price and quantity?
2. What is a monopoly's demand for labor if it uses a fixed-proportions production function in which each unit of output takes one unit of labor (which costs w) and one unit of capital (which costs r)?
3. An upstream monopoly sells its product at price p_u to a downstream monopoly, which in turn sells it to final customers at price p_d . The upstream monopoly's marginal cost is constant at \$2 per unit. The inverse demand of final consumers is $p_d = 10 - Q_d$.
 - A. Suppose that the two firms merge ("integrate"). What price will the new monopoly charge customers and how many units will it sell?
 - B. Now assume that the two firms act independently. Determine the derived demand curve facing the upstream firm. [*Hint*: Think about the role of the downstream firm's marginal revenue curve.]
 - C. Next, determine the price that the upstream firm charges the downstream firm. What price does the downstream firm charge the final customers? How many units are sold?
 - D. Compare the results for the integrated firm to the two firms that impose successive markups.
4. There are two groups of consumers that purchase a monopoly's good. The inverse demand for one group is $p_1 = 10 - Q_1$, and the inverse demand for the other group is $p_2 = 12 - 2Q_2$. If the monopoly's marginal cost is constant at \$2 and it can prevent resales, how many units does it sell to each group at what prices?
5. Suppose that there are two types of customers. Show diagrammatically that welfare can be either higher or lower under simple (one-price) monopoly compared to multimarket price discriminating monopoly.
6. Would a price-discriminating monopoly ever sell less than a single-price monopoly?
7. A local gym sells an annual membership for \$500. Any member can use the gym for \$5 a visit. Why does the gym charge both an annual fee and a per visit fee? Some people love exercise and use the gym frequently, while others are less enthusiastic and rarely use the gym. Can you think of a different pricing scheme that might increase the gym's profit? What would the gym need to know to make this pricing scheme feasible?
8. Document Senator Kerry's and President Bush's views on importing drugs from Canada and elsewhere in the United States. What reasons do they give? What are the economic implications of a ban?