Class 8 Exercises

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Chapter 11 Exercise 4

- Suppose that BMW can produce any quantity of cars at a constant marginal cost equal to $20,000 and a fixed cost of $10 billion. You are asked to advise the CEO as to what prices and quantities BMW should set for sales in Europe and in the United States. The demand for BMWs in each market is given by
  $Q_E = 4{,}000{,}000 - 100P_E$
  and
  $Q_U = 1{,}000{,}000 - 20P_U$
  where the subscript E denotes Europe, the subscript U denotes the United States. Assume that BMW can restrict U.S. sales to authorized BMW dealers only.
- **a.** What quantity of BMWs should the firm sell in each market, and what should the price be in each market? What should the total profit be?
- **b.** If BMW were forced to charge the same price in each market, what would be the quantity sold in each market, the equilibrium price, and the company's profit?

Chapter 11 Exercise 9

- You are an executive for Super Computer, Inc. (SC), which rents out super computers. SC receives a fixed rental payment per time period in exchange for the right to unlimited computing at a rate of P cents per second. SC has two types of potential customers of equal number—10 businesses and 10 academic institutions. Each business customer has the demand function $Q = 10 - P$, where Q is in millions of seconds per month; each academic institution has the demand $Q = 8 - P$. The marginal cost to SC of additional computing is 2 cents per second, regardless of volume.
- **a.** Suppose that you could separate business and academic customers. What rental fee and usage fee would you charge each group? What would be your profits?
- **b.** Suppose you were unable to keep the two types of customers separate and charged a zero rental fee. What usage fee would maximize your profits? What would be your profits?
- **c.** Suppose you set up one two-part tariff—that is, you set one rental and one usage fee that both business and academic customers pay. What usage and rental fees would you set? What would be your profits? Explain why price would not be equal to marginal cost.