

Homework 2, Managerial Economics: Eco 685
Due: Friday, February 11, 2005

Question 1

Demand for Boeing aircraft is notoriously volatile. When the economy, and the airline industry in general, is doing well, orders for new aircraft are strong and vice versa. Explain how this information affects the decision about whether or not to build a larger hanger that can produce aircraft at a lower cost per unit.

Question 2

A cruise ship line is deciding what size ship to build. Let Q denote the number of passengers per ship. Then the long run average cost function of a ship is given by:

$$LRAC = 3000 - 100Q + Q^2 \quad (1)$$

The price of a cruise is \$1000.

- a. Compute the ship size that minimizes long run average costs.
- b. Suppose that for engineering reasons, the firm can choose between a 20 passenger ship and a 60 passenger ship. Which one should be built?
- c. Calculate profit per passenger for both the 20 and 60 passenger ships.

Question 3

Give one reason why demand for cigarettes by young adults is more elastic than demand for cigarettes by older adults.

Question 4

The market demand for a watch manufacturer is:

$$Q = 9 - 0.7P + 2I \quad (2)$$

Here I is income per capita and the price of watches is \$30.

- a. Suppose income per capita is \$27. Calculate the price elasticity.
- b. Assess the pricing power and degree of competition of the watch manufacturer and make a recommendation to improve profits.
- c. Suppose a recession lowers per capita income to \$13. Calculate the new price elasticity and explain how the fall in income affects price elasticity.

Question 5

In 1991, Brazil and Columbia united to form a coffee cartel and reduce coffee output. Suppose total costs for the cartel are:

$$TC = 12 + 5Q + Q^2 \quad (3)$$

Here Q is millions of pounds of coffee. The market demand curve for coffee is:

$$P = 17 - Q \quad (4)$$

Here P is millions of dollars per million pounds. Suppose before the cartel was formed, output was 11 million pounds. In the *Wall Street Journal* a Columbian delegate to the cartel said that he believed that if the cartel reduced coffee output by 10%, the price would rise by 20%.

- a. Before the cartel was formed, What did the Columbian delegate believe was the price elasticity? What was the actual price elasticity before the cartel was formed?
- b. Compute the profit maximizing level of coffee output, the price the cartel should charge, the maximum cartel profits, and the price elasticity at the optimal output.