

Second Quiz
Managerial Economics: Eco 685

The quiz is closed book. Good luck.

$$\pi = TR - TC$$

$$\frac{\partial bL^c}{\partial L} = bcL^{c-1}, \quad \frac{\partial a + bL^c}{\partial K} = 0, \quad \frac{\partial \text{objective}}{\partial \text{decisions}} = 0 \text{ at the maximum}$$

$$e_p = \left(\frac{P}{Q}\right) \left(\frac{\partial Q}{\partial P}\right) = \frac{\text{percent change in } Q}{\text{percent change in } P}$$

$$P = \frac{1}{\frac{1}{e_p} + 1} MC, \quad \text{Markup} = \frac{P - \text{cost}}{\text{cost}}$$

$$\text{Optimal Mark up} = \frac{-1}{e_p + 1}$$

$$e_I = \frac{\partial Q}{\partial I} \frac{I}{Q} = \frac{\text{percent change in } Q}{\text{percent change in } I}$$

Shorter Questions

Question 1

Give one advantage and one disadvantage of pricing a good at \$9.99 rather than \$10.

Question 2

Explain how to increase profits if the price elasticity is inelastic (between 0 and -1).

Question 3

Identify each of the following as first, second, or third degree price discrimination or no price discrimination. Explain your reasoning.

- a. United airlines gives a discount if the passenger stays over a Saturday.
- b. A retail firm charges more in a wealthy neighborhood because labor costs are higher in the wealthy neighborhood.
- c. The Discover Card offers cash back if purchases on the credit card exceed a minimum dollar amount.
- d. Dell computer offers a rebate of \$100 on DVD-RW disk drives.
- e. Dry cleaners charge more for women's clothes.
- f. UM gives financial aid to each student based on family income.

Longer Questions

Question 4

Suppose a computer hardware installation firm has \$30 of fixed costs, \$40 of computer hardware per installation, and air travel and labor costs equal to $\frac{Q^2}{2}$, where Q is the quantity of installations. Total costs are thus:

$$TC = 30 + 40Q + \frac{1}{2}Q^2 \quad (1)$$

Suppose further that the demand function is:

$$P = 75 - 3Q, \text{ or } Q = 25 - \frac{1}{3}P \quad (2)$$

- a. Suppose the firm uses cost plus pricing, with a 72.5% markup (over cost of goods sold). Calculate the price, quantity sold, and profits.
- b. Calculate the quantity which maximizes profits. What is the price and price elasticity?

- c. How much extra profits are generated from using the optimal pricing policy versus cost plus pricing? Explain why cost plus pricing is close or not close to the optimal price.

Question 5

Suppose Airbus (A) announces it will lower prices. Boeing (B) announces that it will match the price reduction.

		B	
		Hold prices	Cut prices
A	Hold prices	8,12	10,-6
	Cut prices	16,26	18,24

Table 1: Profits in millions of dollars

- a. Calculate all (if any) dominant strategies by each firm.
- b. Calculate all (if any) Nash Equilibria.
- c. Should Airbus believe the threat to reduce prices by Boeing? Explain.

Question 6

In 1965, per capita income of a certain segment of the population fell from \$10,000 to \$9,000. Beer consumption fell from 50 to 40 gallons per year. Similarly, vodka consumption rose from 500 to 525 liters per year.

- a. Calculate the income elasticity for beer and vodka.
- b. Classify beer and vodka as either normal or inferior and as either necessities or luxuries.
- c. Briefly assess how sensitive beer and vodka demand are to changes in income caused by booms and recessions in Russia.