Econ 3012 - Final Exam

April 22, 2024

1. *Briefly describe the following in a way that a person who* ***has not studied economics or mathematics would understand****:*

A. What is the marginal rate of substitution?

B. What does it mean if a firm has "increasing returns scale"?

C. Why is it never optimal for a monopolist to operate where consumer demand is inelastic?

2. *Fill in the blank***.**

A. If some of a consumer's indifference curves slope upwards, the consumer's preferences are not ____________________.

B. We say a consumer's preferences are rational is those preferences are *reflexive*, *complete*, and ___________________.

C. For a firm, profit maximization implies ___________ minimization.

3. A market's demand is $Q = 500 - p$. Each firm in the market has cost function $c(q) = 200q$.

A) If there is only one firm in this market (a monopolist), what is their profit function?

B) What quantity does a monopolist produce to maximize profit?

C) If there are two firms in this market. Firm 1 produces q_1 and firm 2 produces q_2, what is firm 1's profit function?

D) What is firm 1's best response function?

E) What quantity does each firm produce in a symmetric Nash equilibrium?

4. In a market, demand is $Q = 300 - 2p$ and supply is $Q = p$.

A) What is the equilibrium price and quantity in this market?

B) What is the price elasticity of demand at the price you found in part A? (*Your answer should be a number.*)

C) Given your answer to part B, if price were to increase by 1%, approximately what would happen to demand?

D) What is the equilibrium price and quantity if the government imposes a $t = 75$ quantity tax?

E) What is the dead-weight-loss associated with this tax?

5. A consumer has demand $x_1 = \frac{m}{p_1 + 2p_2}$ and $x_2 = 2\frac{m}{p_1 + 2p_2}$.

A) Are these goods complements, substitutes, or neither?

B) At $p_1 = 2$, $p_2 = 1$ and $m = 60$, what is this consumer's demand? What about if p_2 increases to $p_2 = 2$.

C) Of the change in demand for x_2 in part B, how much is due to the substitution effect?

D) Of the change in demand for x_2 in part B, how much is due to the income effect?