

Microeconomics

2026-03-06

Name: _____

Multiple Choice (3 questions)

- (5 points) 1. Consider a consumer purchasing a good that is classified as an inferior good (but not a Giffen good). If the price of this good decreases, which of the following statements correctly describes the resulting income and substitution effects?
- A. Both the substitution and income effects act to decrease the quantity demanded because the good is inferior.
 - B. The substitution effect increases the quantity demanded, while the income effect decreases it, but the substitution effect is stronger.
 - C. The substitution effect and income effect both act to increase the quantity demanded of the good.
 - D. The substitution effect decreases the quantity demanded, while the income effect increases it, leading to a net decrease.
- (5 points) 2. In the context of Behavioral Economics and Prospect Theory, how does the framing of a choice as a 'loss' versus a 'gain' typically affect an individual's risk preferences?
- A. Individuals tend to be risk-averse in the domain of gains but risk-seeking in the domain of losses.
 - B. Individuals tend to be risk-seeking when facing potential gains and risk-averse when facing potential losses.
 - C. The framing effect only applies to individuals with high levels of mathematical training.
 - D. Individuals are generally risk-neutral regardless of whether the choice is framed as a gain or a loss.
- (5 points) 3. According to the theory of perfect competition, what occurs in the long run if firms in an industry are currently earning positive economic profits?
- A. Existing firms will reduce their output to maintain high prices and preserve their profit margins.
 - B. Firms will exit the market to avoid future competition, increasing the market price.
 - C. The government will likely intervene with a price floor to protect the existing firms' profits.
 - D. New firms will enter the market, shifting the industry supply curve to the right until economic profits reach zero.

Calculations (1 question)

- (18 points) 4. A manufacturing firm produces high-tech sensors using capital K and labor L . The firm's production function is given by $q = 10\sqrt{KL}$. The hourly cost of capital r is 25 euros, and the hourly wage rate w is 16 euros. The firm is currently operating in the long run where all inputs are variable.
- (4 points) (a) Find the expressions for the Marginal Product of Labor MP_L and the Marginal Product of Capital MP_K . Then, calculate the Marginal Rate of Technical Substitution $MRTS_{LK}$.
- (4 points) (b) Determine the optimal cost-minimizing ratio of capital to labor (K/L) for this firm given the input prices.
- (6 points) (c) If the firm targets a production level of $q = 200$ units per hour, calculate the exact amount of labor L and capital K it should employ to minimize costs.

- (4 points) (d) Calculate the total hourly cost of producing 200 units at the optimal input levels.

Short Answer (1 question)

- (7 points) 5. The Consumer Price Index (CPI) is often criticized for possessing a 'substitution bias.' Briefly explain what substitution bias is and why it generally causes the CPI to overestimate the actual increase in the cost of living for a typical consumer.