Econ 3012 - Midterm Exam

March 2, 2024

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

    A. What is price elasticity of demand? What does it mean for demand for a good to be "inelastic".

    B. What does it mean for preferences to be "homothetic"?

    C. What are "perfect substitutes preferences"?

2. *Fill in the blank.*

    A. If a consumer is a borrower and interest rate _ _ _ _ _ _ _ _ _ _, they will remain a borrower.

    B. A good is inferior. If _ _ _ _ _ _ _ _ decreases then demand will _ _ _ _ _ _ _ _.

    C. The _ _ _ _ _ _ _ _ _ _ _ _ _ _ measures the slope of indifference curves.

3. A consumer utility function $min\{x_1, 2x_2\}$. They have an income of m. Prices are p_1, p_2.

    A) Write the equation for the consumer's budget line.

    B) What is the "no waste condition" for this consumer?

    C) What is the consumer's (Marshallian) demand for x_1 and x_2?

    D) What is their **income** elasticity of demand for x_1?

4. A consumer has demand $x_1 = \frac{\frac{1}{4}m}{p_1}$ and $x_2 = \frac{\frac{3}{4}m}{p_2}$

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

    B) At $p_1 = 5$, $p_2 = 5$ and $m = 400$, what is this consumer's demand? What about if p_1 increases to $p_1 = 10$.

    C) Of the change in demand for x_1 in part B, how much is due to the substitution effect?

    D) Of the change in demand for x_1 in part B, how much is due to the income effect?

5. There are 3 consumer's in a market and each has demand $x = \frac{\frac{1}{3}m_i}{p}$ where m_i is consumer i's income and p is the price of the good. Suppose $m_1 = 10, m_2 = 20, m_3 = 30$.

    A) What is the market demand?

    B) What is the market inverse demand?

    C) What price would lead to a market demand of 10?

    D) Can we use the representative consumer property here?