Econ 3012 - Midterm

November 11, 2021

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

A. What is a consumer's **marginal rate of substitution**?

B. What are **complete** preferences?

C. What are **perfect substitutes** preferences?

2. *Fill in the blank:*

A. A **normal good** is one in which the demand for that good _____ as _____ increases.

B. A person is a net borrower. If the interest rate _____, they must remain a net borrow and will be strictly better off.

C. A consumer **strictly prefers** both the bundles $(2, 0)$ and $(0, 2)$ to the bundle $(1, 1)$. This consumer's preferences are **not** _____.

3. The price of two goods are $p_1 = 5$ and $p_2 = 10$. A consumer has income $m = 100$.

A. Sketch the budget equation. Label the slope and intercepts.

B. A store starts a promotion that the first 10 units of x_2 cost only $p_2 = 5$. After buying 10 units, the price is the usual $p_2 = 10$ each. Sketch this budget equation. Label the slopes.

C. How much x_2 can the consumer buy under this promotion if they only buy x_2?

4. *A consumer has utility function* $min\left\{x_1, \frac{1}{4}x_2\right\}$. *The price of* x_1 *is* $p_1 = 4$ *and the price of* x_2 *is* $p_2 = 1$. *Income is* m.

A. Write down the budget equation.

B. Sketch some indifference curves for this consumer.

C. What are the demands for x_1 and x_2 at these prices (m should be the only variable that appears in these functions).

D. Sketch the **Engel Curve** for x_2.

E. You observe that the consumer buys $x_2 = 100$. What is their income?

5. A consumer has demand $x_1 = 10$ and $x_2 = \frac{m-10p_1}{p_2}$.

A. Is x_2 a **normal** or **Giffen** good? *How do you know?*

B. What bundle does this consumer demand at $m = 100$,$p_1 = 5$,$p_2 = 1$?

C. The price of good 2 changes to $p_2 = 2$. What is the **total** change in demand for x_2 after this price change?

D. How much income would the consumer need to afford the bundle in part B at the prices in part C?

E. How much of the total effect from part C is due to the **substitution effect** and due to the **income effect**?