NAME _____

Peking University

Intermediate Microeconomics

Fall 2023

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Homework 1

Due: Friday, October 13

Instructions:

1. Print your name on the answer sheet.
2. This homework assignment consists of 5 multiple-choice questions with each one worth 4 points and 3 short-answer questions for 80 points, 100 points total. Make sure you have a complete question set.
3. Please write down all your answers on the answer sheet. Answers written on the question sheet will NOT be graded.
4. The space provided on the answer sheet should be sufficient for your answer. If you need additional space, attach a blank paper.
5. Please write neatly. If I cannot read an answer, you will receive no credit for it.
6. Show enough of your work so that I can tell how you arrived at the answer. You will receive credit for sound reasoning. Partial credit will be awarded wherever I deem there is sufficient justification.
7. When drawing graphs, make sure to label everything, including the axes. It is not particularly important to draw your graphs with perfect precision.
8. Turn in the answer sheet ONLY.

1. **Suppose Fiori spends all his income on brownies and hotpots, then which of the following situation is plausible?**

A. Both brownies and hotpots are inferior goods.
B. Both brownies and hotpots are luxuries.
C. Brownies are neither inferior goods nor luxuries, and hotpots are inferior goods.
D. Brownies are luxuries, and hotpots are neither inferior goods nor luxuries.

2. **Other things being equal, the lower the magnitude of own-price elasticity of demand**

A. the less likely the profitability of a price increase.
B. the more likely the profitability of a price increase.
C. the greater the responsiveness in quantity demanded to a price change.
D. the lower the corresponding increase in firm revenue.

3. **Poorer countries have a _____ demand for wheat because they usually _____.**

A. less elastic; find other substitutes.
B. less elastic; can't find other substitutes.
C. more elastic; can't find other substitutes.
D. more elastic; find other substitutes.

4. **Recent research estimates that the short-run price elasticity of demand for gasoline in the U.S. is −0.3, and the long-run price elasticity of demand is −1.4. What happens if the government increases the federal gasoline tax?**

A. Consumer expenditures on gasoline increase in the short-run and long-run.
B. Consumer expenditures on gasoline decline in the short-run and increase in the long-run.
C. Consumer expenditures on gasoline increase in the short-run and decline in the long-run.
D. Consumer expenditures on gasoline decrease in the short-run and long-run.

5. A demand function is given as $\log(Q_x) = a - b * \log(P_x) + c * \log(P_y) + d * \log(M)$, where P_x is the price of the good x, P_y is the price of a second good y and M is income. Suppose a, b, c, d are positive numbers, then the second good y must be

A. a normal good.
B. an inferior good.
C. a substitute for the good x.
D. a complement for the good x.

6. **Suppose the demand of Fiori for brownies has a constant elasticity of $-\epsilon$ ($\epsilon > 0$):**
   1) **Suppose $\epsilon = 1$ and Fiori purchases 10 brownies when the price is \$1. Derive the demand function and the inverse demand function for him.**
   2) **If the price of brownie increases, will Fiori spend more or less purchasing it? (Do not assume $\epsilon = 1$ here)**

7. Fiori wants to buy coffee and bread. The price of coffee and the quantity purchased are given as P_1 and Q_1. Similarly, P_2 and Q_2 correspond to bread. Simplify the notation with (P_1, Q_1, P_2, Q_2). Fiori buys the goods according to the following rule

$$P_1Q_1 + P_1Q_2 + P_2Q_1 + P_2Q_2 = 4$$

Fiori's purchase yesterday was (1, 1, 1, 1).

1) If the price of coffee increases by 10% today and the price of bread is unchanged, Fiori still buys one unit of bread. What is the arc price elasticity of demand for coffee?

2) If the price of coffee and the amount of bread purchased are held constant, what is the cross-price elasticity of demand for coffee with respect to the price of bread at the point of (1, 1, 1, 1)?

8. **The theoretical model we discussed in class shows that a producer can maximize the revenue by setting the price at the point of unit-elastic demand. However, in reality we observe that producers frequently adjust prices. Explain why producers may alter prices over time rather than keeping the price constant.**