Microeconomics In-class Quiz 2
Fall 2025

Student ID:

Name:

Instructions

1. Do NOT flip over this page until every student receives this quiz. Your TA will let you know when you can start.
2. During this closed-book quiz, you cannot consult any materials.
3. If you are unable to explain your reasoning in English, it is okay to write in Korean.
4. [**IMPORTANT**] Make your answers legible. Clearly delineate your scratches from your answers. Deducted points due to illegible writing cannot be the reason for reevaluation.

Honor Code: Cheating on exams or quizzes, plagiarizing someone else's answers as one's own, or any other instance of academic dishonesty violates the standards of academic integrity.

Confidentiality Code: Sharing the information of the exam or quiz contents with other students in any form and medium is strongly prohibited, as it raises information inequity.

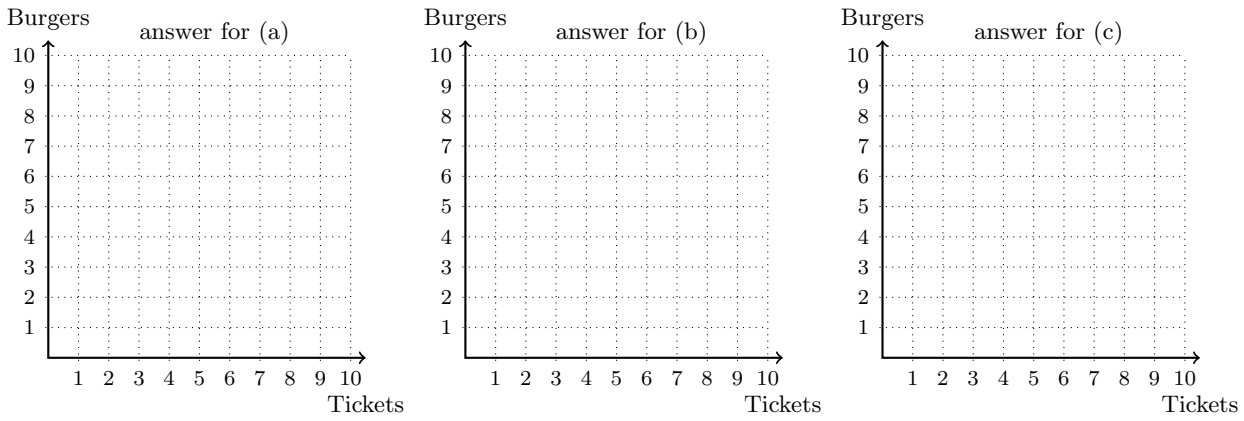
I, _____, consent to the Honor Code and the Confidentiality Code.
(write your name)

1. With weekly money allowance of \$80, Sheldon buys basketball tickets and hamburgers. A basketball ticket costs \$10, and a hamburger costs \$20.

(a) Draw a budget constraint (BC) on a figure below.

(b) Draw a BC when there are only four basketball games per week.

(c) Draw a BC when the burger price is discounted to \$10 from the 3rd one. (That is, Sheldon can buy 2 burgers for \$40, 3 burgers for \$50, 4 burgers for \$60, and so on.)



2. Evaluate whether the following statement is **true or false**. Assume there are only two consumption goods, A and B, and the consumer's preferences satisfy the typical assumptions.

(a) If A is an inferior good, the price decrease in B must increase the demand for B.

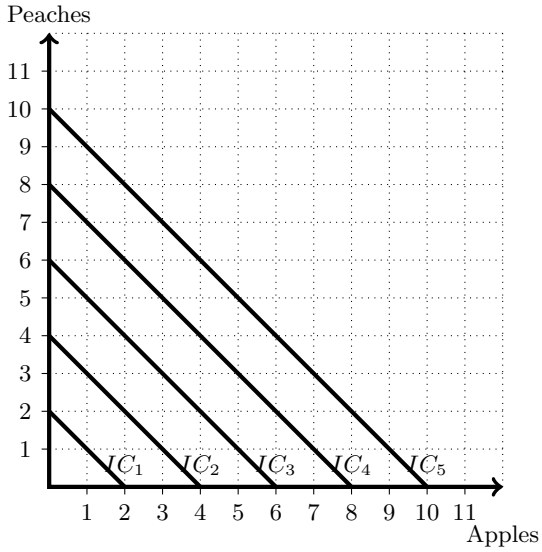
(b) If both are normal goods, a price decrease in A leads to consumption increases in both goods.

3. The following table shows the relationship between the labor input and the product output in the short run. Fill out all the blanks.

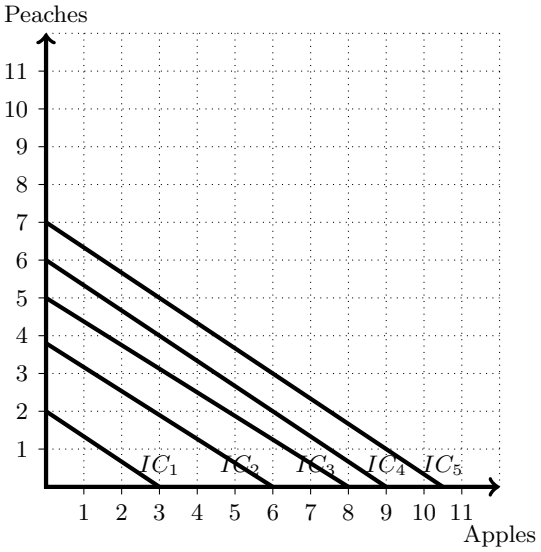
Labor Input	**Total Product**	**Marginal Product**	**Average Product**
0	0	-	-
1		70	
2	134		
3			63
4		51	
5			57
6	324		

4. The following two graphs show several **indiffence curves** on apples and peaches of Anne and Bob. (A farther one from the origin represents a higher utility value.) Each consumer has a budget of \$24. The unit price of apples is \$3, and the unit price of peaches is \$6.

(a) Anne



(b) Bob



(a) Depict the optimal consumption bundle for Anne and Bob on each graph with an $\circ$ mark.

Now suppose the price for peaches decreases to \$4.

(b) Depict the new optimal consumption bundle on each graph with an $\times$ mark.

(c) Write down how much peach consumption has changed in the 1st column of the table below. (For example, if the initial peach consumption was 10, and the new consumption is 13, then write down "+3".) Write down the substitution effect in the 2nd column of the table below. Write down the income effect of the price change in the 3rd column of the table below.

	(b) Total Effect of Price Change	(c) Substitution Effect of Price Change	(d) Income Effect of Price Change
Anne			
Bob			

5. Suppose a plumbing company's production function is: $Q = 2KL$, where Q is the number of water heaters installed, K is the number of machine hours from plumbing supplies, and L is the number of plumbers. The wage rate is \$20 per hour, and the rental rate of capital is \$40 per hour.

(a) What's $MRTS_{LK}$, the marginal rate of technical substitution between labor and capital?

(b) To minimize the production costs, $MRTS_{LK}$ should be equal to the input price ratio. For every unit of capital, how many units of labor the company should use? (Hint: Rearrange the firm's cost minimization condition so that L can be a function of K.)

(c) For installing 100 new water heaters, what is the cost-minimizing bundle of capital and labor?

6. The following figure (left) shows isoquants and one isocost line for a local taxicab company. The wage rate of a driver is \$20 per hour, and the rental rate of a taxicab is \$40 per hour.

(a) Graph the expansion path on the figure.

(b) From the expansion path, derive the company's cost function.