Microeconomics Midterm
Fall 2025

Student ID:

Name:

Instructions

1. Do NOT flip over this page until every student receives this exam. Your TA will let you know when you can start.
2. During this closed-book exam, you cannot consult any materials.
3. If you are unable to explain your reasoning in English, it is okay to write in Korean.
4. Make your answers legible. Clearly delineate your scratches from your answers. Deducted points due to illegible writing cannot be the reason for reevaluation.
5. There are **12 questions in total**. Both sides are printed, so make sure you check the backside of each page.

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. Suppose that the equilibrium price of guacamole is $3 per pound, and the price of tortilla chips (a complement for guacamole) increases. What happens in the market for guacamole?

1. An excess supply of guacamole at $3 per pound leads to an increase in quantity demanded and a decrease in quantity supplied.
2. The demand curve for guacamole shifts to the left, resulting in a decrease in both the equilibrium price and the quantity.
3. An excess demand for guacamole at $3 per pound results in a new equilibrium price that is less than $3 per pound.
4. The demand curve for guacamole increases, raising the equilibrium price and quantity.

2. A consumer's bundle includes good X and good Y. Consumer's preferences satisfy the typical assumptions. Is each of the following statements TRUE, FALSE, or UNCERTAIN?

(a) If X is a normal good and the income rises, the consumer will buy more of it.

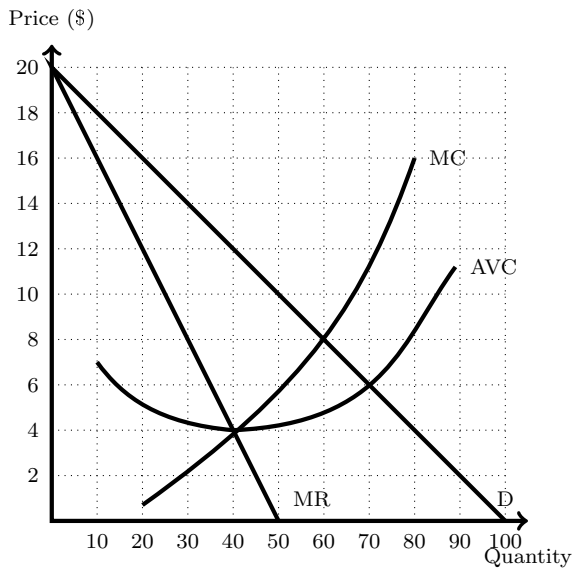
(b) If X is an inferior good and its price decreases, the consumer will buy more of it.

(c) If X is a Giffen good and its price falls, the consumer will buy less of it.

3. A company had already spent $2 million developing a new smartphone. Before launch, market research reveals the phone will likely be a commercial failure. Which of the following should mainly influence the decision to continue development?

1. The $2 million spending
2. The expected future sales revenue
3. Proportion of expenses to the R&D team
4. Profit margins of other products that the company sells

4. The following figure shows a market demand for a monopolist firm's products, marginal revenue, and marginal cost of the firm. Evaluate whether each of the following statements is TRUE or FALSE.



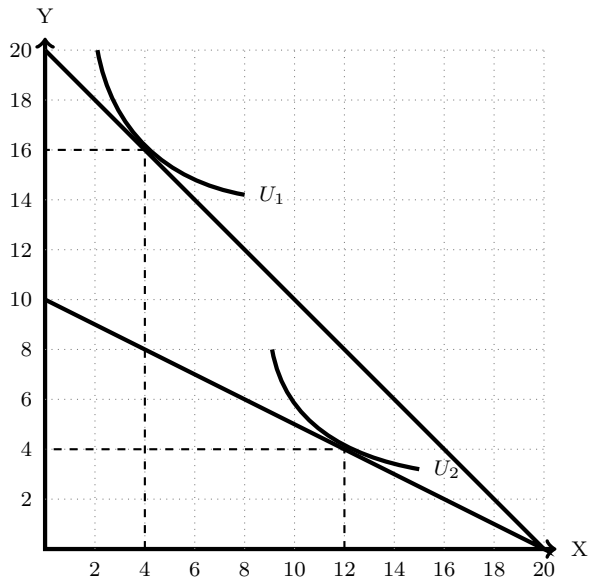
(a) If the firm produces 50 units of output, it should produce more for increasing profits.

(b) The profit-maximizing price is \$6.

(c) At a price of \$14, the firm's profit would rise if it lowers its price.

(d) The profit-maximizing quantity is 60 units where $D = MC$.

5. The cross-price elasticity of demand between good X and good Y is $\frac{\%\Delta X}{\%\Delta P_Y}$. The following figure shows optimal consumption bundles for a consumer with different budget constraints for the same income. Answer the followings based on the information available from the graph.

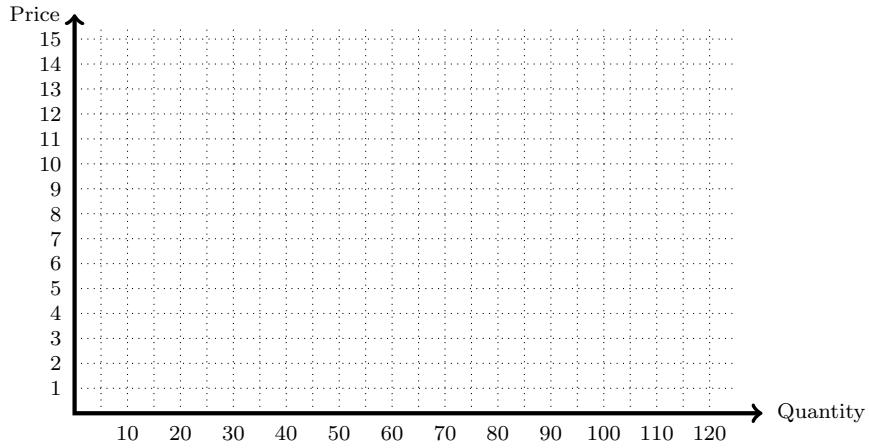


(a) What's the percentage change in the price of Y?

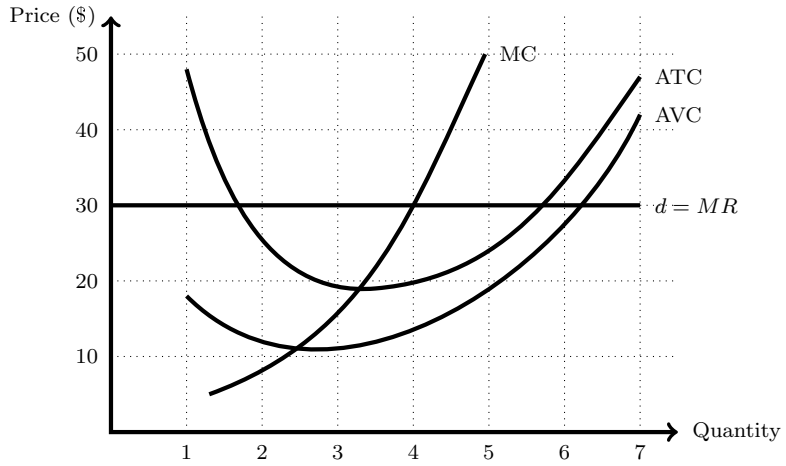
(b) Calculate the cross-price elasticity of demand between good X and good Y.

(c) Are goods X and Y substitutes or complements? Explain why.

6. Suppose Lizzie and Miranda are the only two customers in the market for voice lessons. Lizzie's demand is $Q_L = 40 - 4P$, and Miranda's demand is $Q_M = 75 - 5P$. Draw the market demand for vocal lessons.



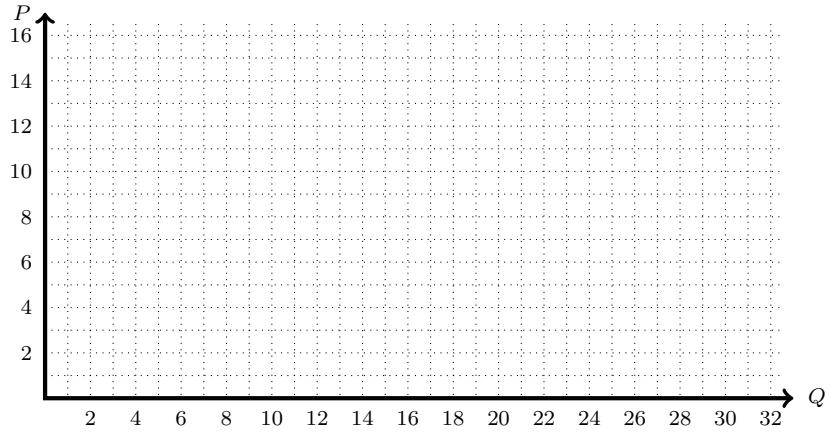
7. The following figure shows a firm's short-run average total cost, average variable cost, marginal cost, and marginal revenue. At the profit-maximizing quantity, what's the firm's total cost?



8. Jack is a monopolist who sells rare Pokemon cards. Fill out the blanks in the table below.

Quantity	Price ($ per card)	Total Revenue	Marginal Revenue
0	500	\$0	-
1	400	(_____)	(_____)
2	(_____)	(_____)	\$200
3	(_____)	\$600	(_____)

9. The demand for ice cream is given by $Q^D = 30 - 2P$, measured in gallons of ice cream. The supply of ice cream is given by $Q^S = 4P$.

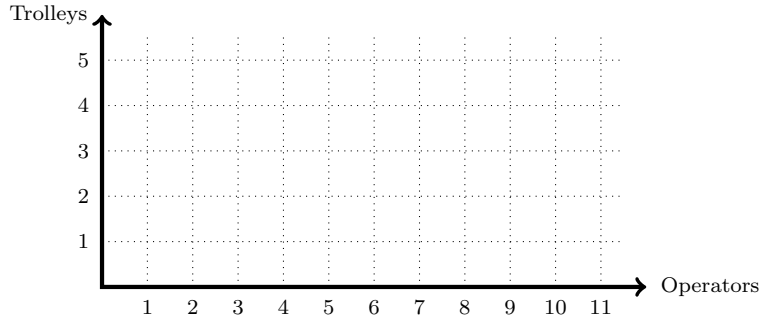


(a) Graph the supply and demand curves above, and find the equilibrium price and quantity of ice cream.

(b) Suppose the government imposes the buyer a \$3 tax on a gallon of ice cream. As a result of the tax, how many gallons of ice cream are sold?

(c) Who bears the greater burden of the tax?

10. At an amusement park, it takes two workers to operate a trolley. Each trolley can carry 500 passenger rides per day.



(a) Draw above the isoquants for 1,000 and 2,000 passenger rides.

(b) Suppose the worker's wage is \$100 per day, and the rent rate of the trolley is \$200 per day. Draw isocost lines for the costs of \$400 and \$800.

(c) For 1,500 passenger rides, find the optimal input bundle (operators and trolleys) that minimizes the total cost.

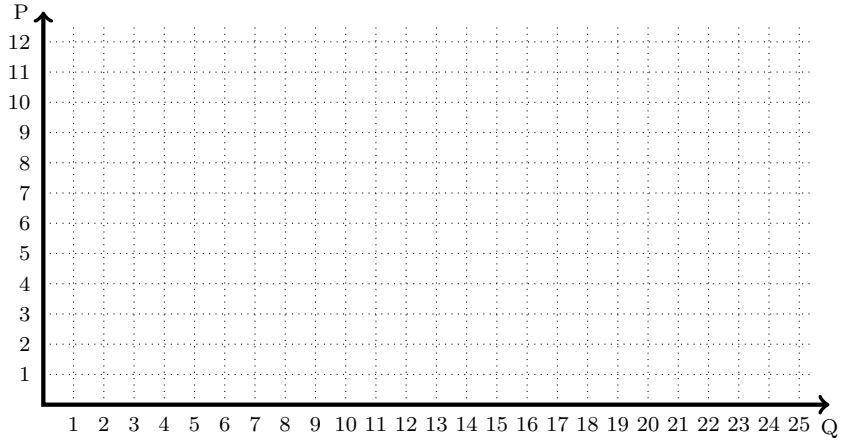
11. Assume that the strawberry market is perfectly competitive, and the market equilibrium price for a kilogram of strawberries is \$6. Andy is a strawberry farmer with having a fixed cost of \$160 and a variable cost of $0.3Q^2$ in the short run, where Q is the production level of strawberries. Her short-run total cost is $TC = 160 + 0.3Q^2$, and the marginal cost is $MC = 0.6Q$.

(a) Andy currently produces 20kg of strawberries. What's his average variable cost and average total cost?

(b) What's the current profit?

(c) Should Andy shut down the business or keep open? If you think that he needs to keep her business open, suggest the optimal production level of strawberries. If you think that he needs to shut down, explain why.

12. Jake is a monopolist who sells unique pies. The demand for Jake's pies is given as $Q = 24 - 2P$. Jake's total cost is $C(Q) = 0.25Q^2$, and the marginal cost is $MC = 0.5Q$.



(a) Draw the inverse demand, the marginal revenue, and the marginal cost on the graph.

(b) Find the price and the quantity that maximize Jake's profit.

(c) Calculate Jake's profit based on your answer above.