ECON 002 - Principles of Microeconomics Signature: _____
Drake University, Fall 2025
William M. Boal Printed name: _____

EXAMINATION 4 VERSION B
"Perfect and Imperfect Competition"
November 25, 2025

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators, calculators with alphabetical keyboards, cell phones, and wireless devices are NOT permitted. Numerical answers, if rounded, must be correct to at least 3 significant digits. Point values for each question are noted in brackets. Maximum total points are 100.

I. Multiple choice: Please circle the one best answer to each question. [1 pt each, 12 pts total]

(1) A perfectly competitive firm expects that if it decreases its output, the price will
a. increase.
b. stay the same.
c. decrease.
d. cannot be determined from information given.

(2) Suppose that the bread industry is producing 3 million loaves of bread per month for some reason, and that at this level of output, the marginal benefit to consumers of a loaf of bread is $3, but the marginal cost of producing a loaf of bread is only $4. Society would be better off if
a. fewer loaves of bread were produced.
b. more loaves of bread were produced.
c. None of the above.
d. Cannot be determined from information given.

(3) In a perfectly-competitive economy, the slope of a poor person's budget line is always
a. equal to the slope of a rich person's budget line.
b. less than the slope of a rich person's budget line.
c. greater than the slope of a rich person's budget line.
d. zero.

(4) Suppose the price of a pair of jeans is $30 and the price of a teeshirt is $6. If the economy is perfectly competitive, then these prices indicate that the *economy's* opportunity cost of a pair of jeans is
a. 1/5 of a teeshirt.
b. 1/6 of a teeshirt.
c. 1 teeshirt.
d. 5 teeshirts.
e. 6 teeshirts.

(5) An industry is a natural monopoly if
a. one firm owns all the key natural resources required to produce the product.
b. each firm's average cost curve slopes down.
c. the industry became a monopoly without government interference.
d. the only seller in the market sells a natural or "green" product.

(6) Suppose the market price of a certain drug is $10. If the market for this drug is a monopoly, the seller's marginal revenue is
a. equal to $10.
b. less than $10.
c. greater than $10.
d. $10 times the quantity sold.

(7) A monopolist always sets price
a. above marginal cost.
b. equal to marginal cost.
c. below marginal cost.
d. cannot be determined from the information given.

(8) Economists are opposed to monopolies because monopolies
a. make the rich richer, and the poor poorer.
b. make people buy things that people don't really want.
c. advertise too much.
d. create unhealthy concentration of social power.
e. set prices that exclude some buyers who are willing to pay the marginal cost.
f. All of the above.

(9) Which market model predicts the highest equilibrium quantity of output?
a. Perfect competition.
b. Monopoly.
c. Cournot oligopoly.
d. All models predict the same equilibrium price, if all use the same assumptions about market demand and marginal cost.

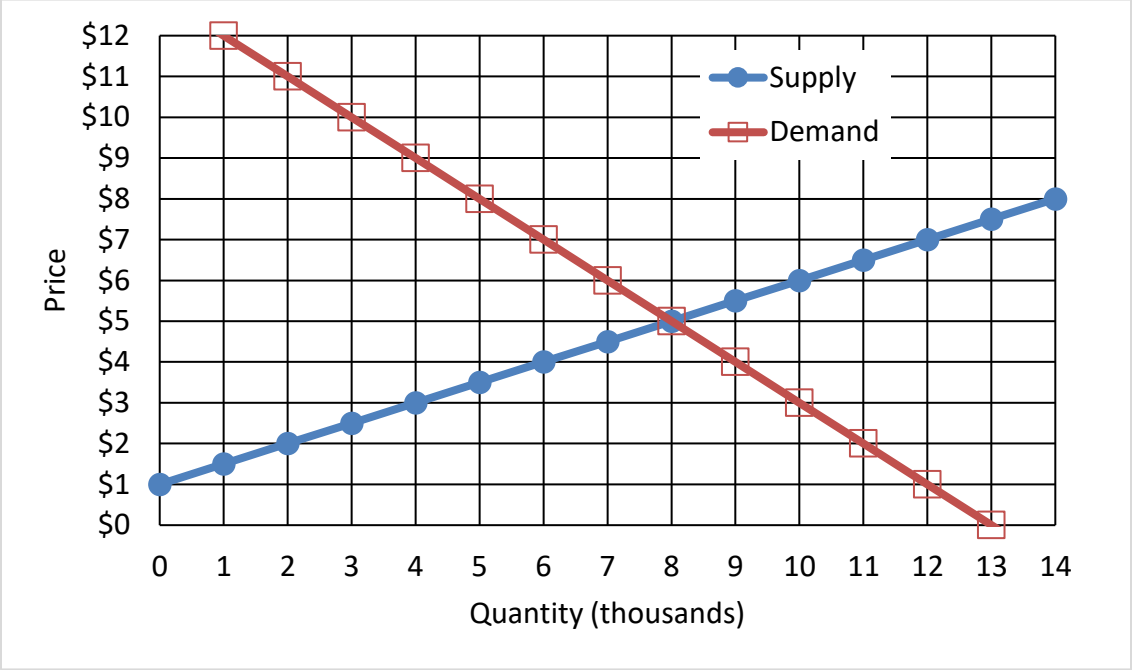
(10) Cartels often collapse because
a. costs fluctuate unpredictably.
b. each firm has an incentive to cut price and produce too much.
c. they tend to raise price above the profit-maximizing level.
d. some firms are not interested in maximizing profit.

(11) Antitrust laws prohibit
a. deceptive advertising.
b. anticompetitive practices.
c. dishonest accounting practices.
d. low pay for workers.
e. all of the above.

(12) Entry into the ethnic restaurant business is practically free, but each restaurant's cuisine is somewhat different from others'. Therefore, a sensible economic model for ethnic restaurants is
a. monopoly.
b. monopolistic competition.
c. perfect competition.
d. joint-profit-maximizing cartel.

II. Problems: Insert your answer to each question in the box provided. Use margins and graphs for scratch work. Only the answers in the boxes will be graded. Work carefully—partial credit is not normally given for questions in this section.

(1) [Efficiency of competition: 16 pts] The following graph shows the market for burritos.



Suppose only 6000 burritos were produced for some unknown reason.

a. How much would consumers be willing to pay for a 6001st burrito? $

b. By how much would the burrito industry's total costs increase from producing a 6001st burrito? $

c. If the 6001st burrito were produced, would total surplus *increase*, *decrease*, or *remain constant*?

d. By about how much? (Give a whole number answer.) $

Alternatively, suppose 12,000 burritos were produced for some unknown reason.

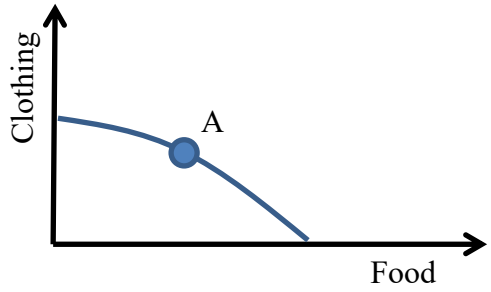
e. How much were consumers willing to pay for the 12,000th burrito? $

f. How much would the burrito industry's total cost decrease from NOT producing the 12,000th burrito? $

g. If the 12,000th burrito were NOT produced, would total surplus *increase*, *decrease*, or *remain constant*?

h. By about how much? (Give a whole number answer.) $

(2) [Economy-wide efficiency: 16 pts] The graph below shows a country's production possibilities curve. The country is currently at point A, where the slope equals **-1/3**.



Production possibilities curve

a. What is this **country's** opportunity cost of a unit of food? units of clothing

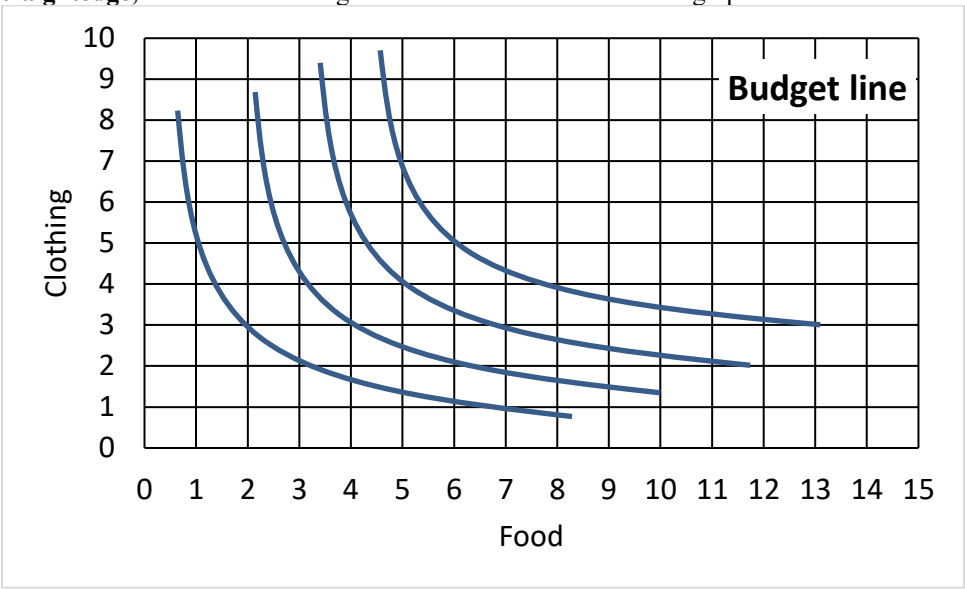
b. What is this **country's** opportunity cost of a unit of clothing? units of food

Assume this country's economy is in competitive equilibrium in all markets and the price of a unit of food is **$3**

c. What must be the price of a unit of clothing? $

Adam is a consumer in this economy. He has an income of **$ 36**.

d. **Using a straightedge,** draw Adam's budget line in the indifference-curve graph below.



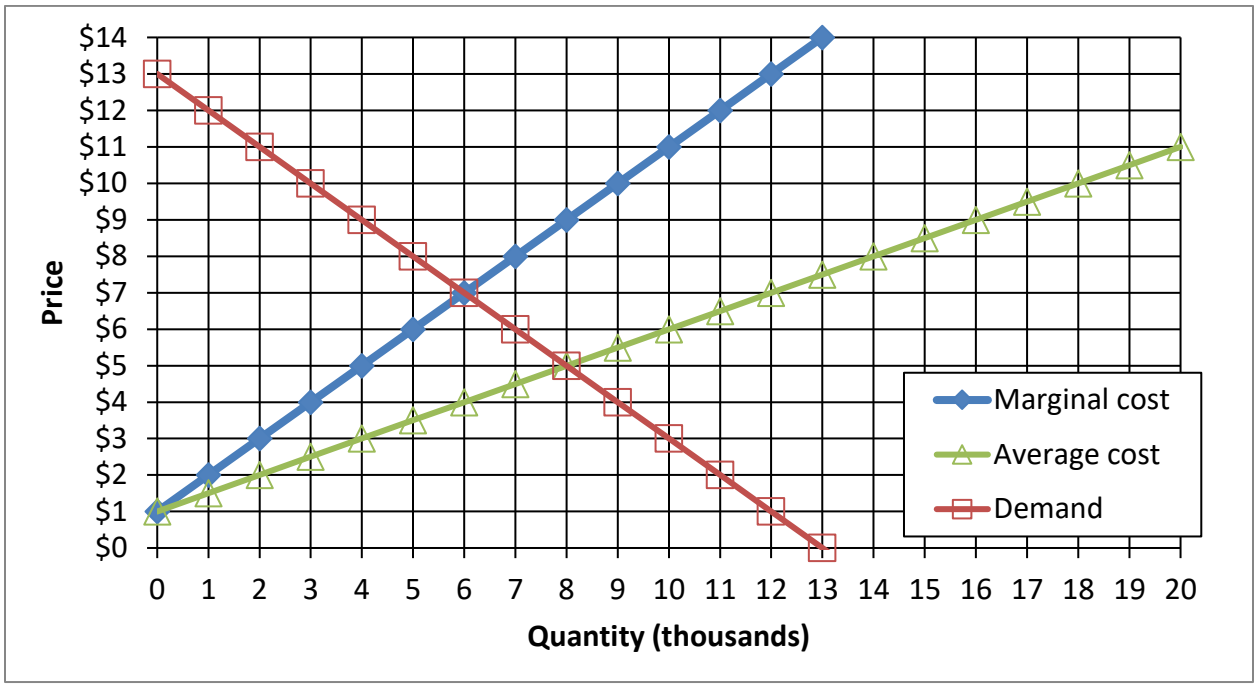
e. What is **Adam's** opportunity cost of a unit of food? units of clothing

f. What is **Adam's** opportunity cost of a unit of clothing? units of food

g. How many units of clothing will Adam choose to purchase? units of clothing

h. At **Adam's** chosen bundle, what is his marginal rate of substitution, that is, the |slope| of his indifference curve at his chosen bundle? (Give a number.)

(3) [Monopoly: 12 pts] Slip 'N' Slide Skating rink is the only ice rink in town, so it enjoys a local monopoly. Its marginal cost, average cost, and demand curves are shown below.



Assume that the ice rink must charge the same price on every admission sold.

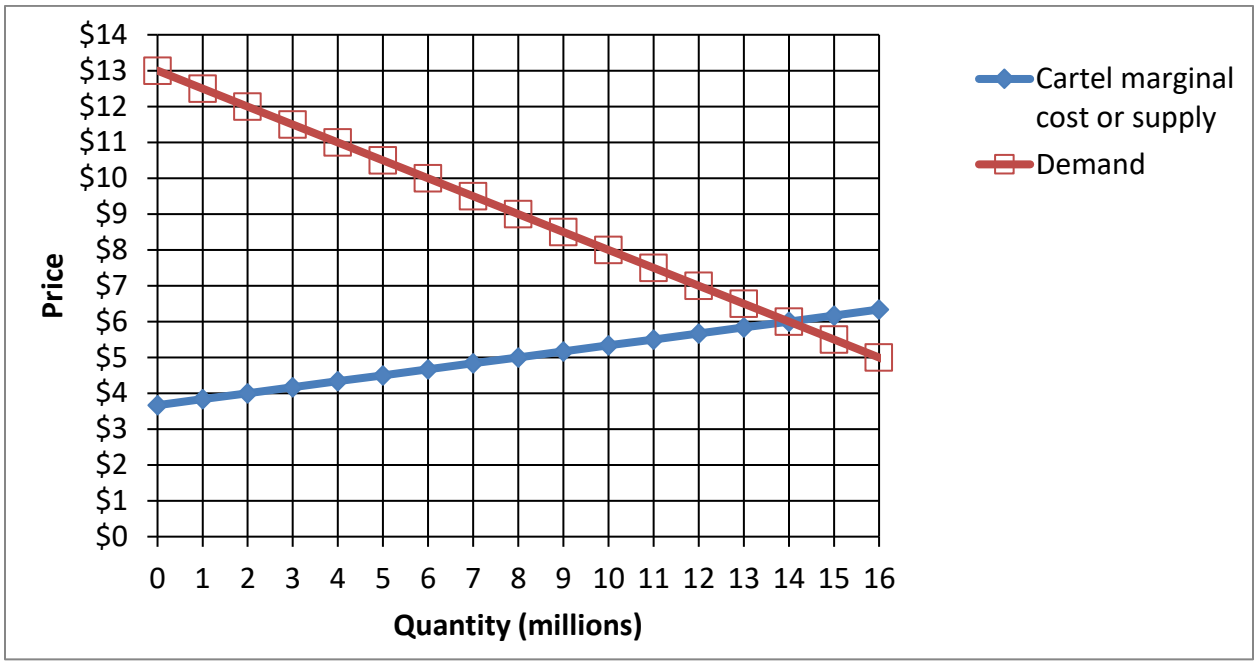
a. *Using a straightedge*, draw and label the ice rink's marginal revenue curve.

b. Compute the ice rink's profit-maximizing quantity.	thousand
c. Compute the price that the ice rink would charge.	$
d. Compute the ice rink's profits.	$ thousand
e. Compute consumer surplus.	$ thousand
f. Compute the social deadweight loss from the ice rink's monopoly pricing.	$ thousand

(4) [Monopoly price discrimination: 6 pts] Suppose the Nutcracker Ballet sells tickets to both children and adults. The ballet's manager believes the elasticity of demand by children is **–6**, and the elasticity of demand by adults is **–2**. Assume the ballet's marginal cost of providing a ticket is **$15**.

a. To maximize profit, which group should get the **higher** price?	
b. Compute the profit-maximizing ticket price for children.	$
c. Compute the profit-maximizing ticket price for adults.	$

(5) [Competition versus collusion: 16 pts] Suppose a small group of firms produce vitamins. The graph below shows the demand curve and the joint marginal cost or supply curve of the group of firms.



First, assume the firms *compete* with each other, each maximizing its own profit while taking the market price as given.

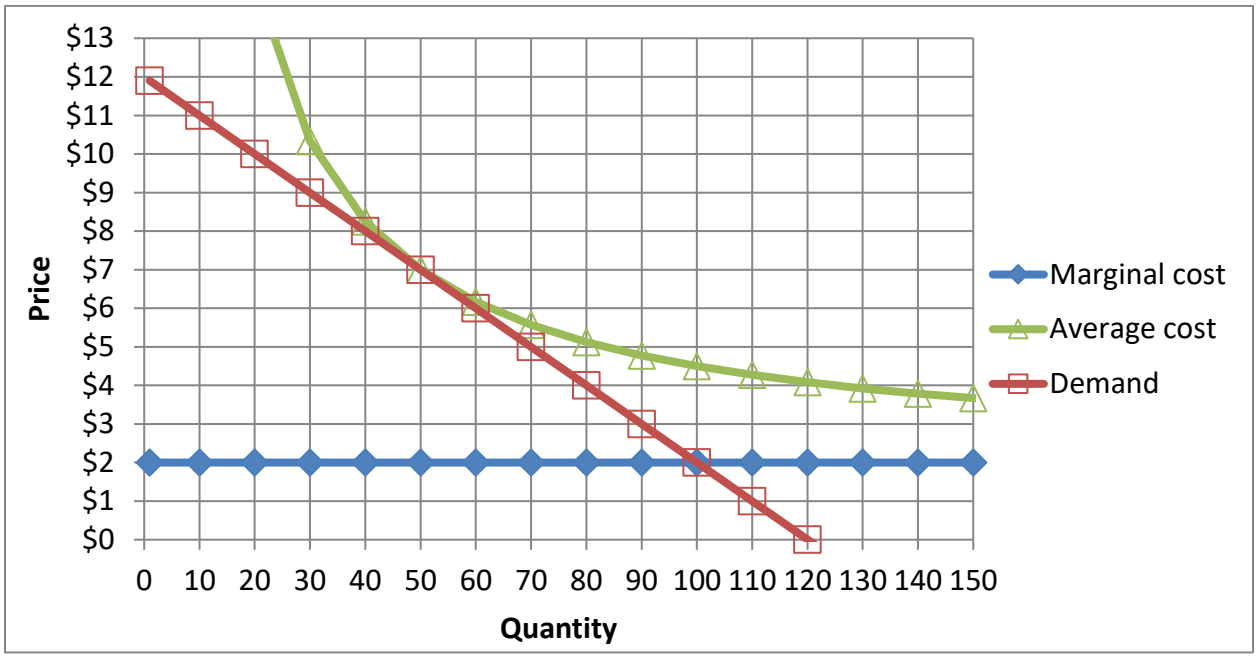
a. What will be the equilibrium market quantity?	million
b. If output increased by one more unit at any firm, total costs would increase by how much?	$
c. What will be the equilibrium market price?	$

Second, alternatively assume the firms *collude* with each other, setting price jointly as a cartel to maximize the sum of their profits.

d. *Using a straightedge*, draw and label the colluding firms' marginal revenue curve.

e. What total quantity will the firms produce?	million
f. If output increased by one more unit at any firm, total costs would increase by how much?	$
g. What price will the firms jointly set?	$
h. Compute the social deadweight loss from collusion.	$ million

(6) [Monopolistic competition: 18 pts] Bethany sells sandwiches from a food truck downtown. The graph below shows Bethany's cost curves and demand curve.



a. Although there are many other food trucks downtown, Bethany's demand curve slopes down. Does that indicate that consumers view sandwiches from different trucks as *perfect substitutes* or *differentiated products*?

First suppose that Bethany sets a price of **$4**, for some unknown reason.

b. How many sandwiches will Bethany sell? sandwiches

c. Will Bethany make a *profit* or a *loss* ?

d. How much? $

Now suppose that Bethany sets a price to maximize profit.

e. *Using a straightedge*, draw and label Bethany's marginal revenue curve.

f. How many sandwiches will Bethany sell? sandwiches

g. What price will Bethany set? $

h. What is Bethany's marginal cost? $

i. What is Bethany's profit? $

III. Critical thinking: Write a one-paragraph essay answering ***one*** question below (your choice). [4 pts]

(1) Suppose a Christmas tree stand sells 20 trees per hour if it sets a price of $50, but it can sell 21 trees per hour if it sets a price of $49. Compute the marginal revenue of the 21st tree. Show your work and circle your final answer. (Ignore the graph.)

(2) Suppose the government permitted automobile companies to set prices cooperatively.
   a. Who would gain? Who would lose?
   b. Would society as a whole gain or lose?
   c. Justify your answers with a supply-and-demand graph. Label all axes and curves. Shade the area of gain or loss for society as a whole.

Please circle the question you are answering. Write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.

[end of exam]