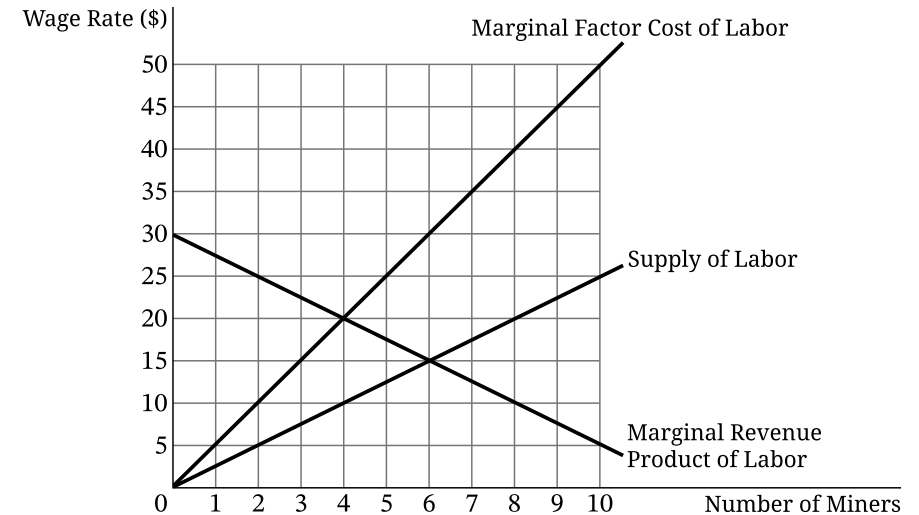


1. Voda Reservoir is a profit-maximizing firm and the only producer of bottled water in a country. Currently, Voda Reservoir is earning negative economic profit.

- A. Draw a correctly labeled graph for Voda Reservoir and show each of the following.
- The profit-maximizing quantity, labeled Q_M
 - The profit-maximizing price, labeled P_M
 - The average total cost curve consistent with Voda Reservoir earning negative economic profit, labeled ATC
 - The area of deadweight loss, shaded completely
- B. Suppose the government requires Voda Reservoir to produce the socially optimal quantity of bottled water. On your graph in part A, show the socially optimal quantity of bottled water, labeled Q_S .
- C. Suppose instead the government grants a per-unit subsidy to Voda Reservoir. What will happen to Voda Reservoir's profit-maximizing quantity of bottled water? Explain.
- D. Suppose new producers have entered the bottled-water market and Voda Reservoir continues to operate in the bottled-water market. Will the demand for Voda Reservoir's bottled water become more elastic, become less elastic, or stay the same as new producers enter the market?
- E. Voda Reservoir hires workers in a perfectly competitive labor market.
- If the demand for bottled water increases, what will happen to Voda Reservoir's demand for labor? Explain.
 - The government implements a new regulation that increases the minimum age required for a worker to be employed in a bottled-water factory. What will happen to the market wage in the short run? Explain.

2. Quartz Excavations is a profit-maximizing firm and the only employer of miners of quartz in a small town. The graph provided shows the labor market for miners.



- A. Identify Quartz Excavations' profit-maximizing number of miners to hire.
- B. Will Quartz Excavations pay its profit-maximizing number of miners a wage rate that is equal to \$15, greater than \$15, or less than \$15? Explain using numbers.
- C. Suppose the government sets a minimum wage (a price floor on wages) at \$25. Calculate the total wage bill for Quartz Excavations at the resulting profit-maximizing number of miners. Show your work.
- D. Suppose that instead of a minimum wage, there is now an increase in the demand for quartz.
- Will the marginal revenue product of miners increase, decrease, or remain the same? Explain.
 - After the demand for quartz increases, Quartz Excavations hires the new profit-maximizing number of miners. Will the marginal factor cost of the last miner hired be greater than, less than, or equal to the marginal factor cost of the last miner hired before the demand for quartz increased?

1. RKB is a profit-maximizing monopoly that produces a new, patented electronic device. RKB is earning positive economic profit.

(a) Draw a correctly labeled graph for RKB, and show each of the following.

- (i) The profit-maximizing quantity, labeled Q_M
- (ii) The profit-maximizing price, labeled P_M
- (iii) The average total cost curve consistent with RKB earning positive economic profit
- (iv) The area representing the deadweight loss, shaded completely

(b) The government wants RKB to produce the allocatively efficient quantity. Would the government impose a binding price ceiling, a binding price floor, a per-unit tax, or a lump-sum tax?

(c) Suppose that the government does not impose the policy you identified in part (b). Consumers now become aware of research that confirms the use of this new device harms users' vision. Given widespread consumer awareness of this research, what will happen to RKB's profit-maximizing quantity in the short run? Explain.

(d) Assume that RKB hires workers in a perfectly competitive labor market.

- (i) Draw a correctly labeled graph for the labor market, showing the equilibrium wage and quantity of labor, labeled W_E and Q_E , respectively.
- (ii) Suppose immigration increases the number of workers in this labor market. On your graph in part (d)(i), show the new equilibrium wage and quantity of labor, labeled W_2 and Q_2 , respectively.
- (iii) RKB uses the optimal combination of capital and labor in its production process. The firm rents capital at \$500 per unit, and the last unit of capital rented has a marginal product of 2,500 units. If the marginal product of the last unit of labor hired is 1,000 units, calculate the wage rate. Show your work.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

Number of Workers	Number of Parked Cars
0	0
1	8
2	20
3	34
4	45
5	54
6	60
7	63

2. Assume that Schmitt Inc. provides car parking services in a perfectly competitive output market and hires labor in a perfectly competitive input market. The market price per car parked is \$10, the daily market wage per worker is \$100, and fixed costs are \$50 per day. The table above shows the number of workers required to park different quantities of cars per day.

(a) Calculate the marginal revenue product of the second worker. Show your work.

(b) How many workers will Schmitt Inc. hire to maximize profit? Relative to this number of hired workers, explain why Schmitt Inc. will not hire one additional worker. Your answer must use marginal analysis and numbers from the table.

(c) Calculate the daily profit for Schmitt Inc. at the profit-maximizing quantity identified in part (b). Show your work.

(d) Suppose new legislation requires each worker in the parking industry to purchase an individual insurance policy at the worker's expense in order to legally park cars.

- (i) Will the market wage paid by a typical firm in this industry increase, decrease, or stay the same in the long run?
- (ii) For a typical firm in the industry, will the number of workers hired in the short run increase, decrease, or stay the same? Explain.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

MICROECONOMICS**Section II****Total Time—1 hour****Reading Period—10 minutes****Writing Period—50 minutes**

Directions: You are advised to spend the first 10 minutes reading all of the questions and planning your answers. You will then have 50 minutes to answer all three of the following questions. You may begin writing your responses before the reading period is over. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

1. Gigantic Pharmaceutical Corporation has a patent on a prescription drug, making it the only manufacturer of that prescription drug. Gigantic is currently earning a positive economic profit.
 - (a) Draw a correctly labeled graph for Gigantic and show each of the following.
 - (i) The profit-maximizing quantity, labeled Q_G
 - (ii) The profit-maximizing price, labeled P_G
 - (iii) The average total cost curve, labeled ATC
 - (iv) The area representing the consumer surplus, shaded completely
 - (b) Suppose the demand for the prescription drug increases, and Gigantic hires its warehouse workers in a perfectly competitive labor market.
 - (i) What will happen to Gigantic's demand for warehouse workers? Explain.
 - (ii) What will happen to the wage rate Gigantic pays its warehouse workers and the number of warehouse workers it hires?
 - (c) After Gigantic's patent expires, another firm enters the prescription drug market and produces an identical drug that sells for a lower price.
 - (i) What will happen to Gigantic's producer surplus?
 - (ii) What will happen to the consumer surplus in this prescription drug market? Explain.

MICROECONOMICS**Section II****Total Time—1 hour****Reading Period—10 minutes****Writing Period—50 minutes**

Directions: You are advised to spend the first 10 minutes reading all of the questions and planning your answers. You will then have 50 minutes to answer all three of the following questions. You may begin writing your responses before the reading period is over. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

1. In the early twentieth century, limited transportation options and the lack of effective substitutes gave Single Cinema monopoly power in a small town. Assume that Single Cinema is a profit-maximizing firm and currently operates at a negative economic profit in the short run.
 - (a) Draw a correctly labeled graph for Single Cinema, and show each of the following.
 - (i) The profit-maximizing price and quantity of tickets, labeled as P_m and Q_m , respectively
 - (ii) The area representing the negative economic profit, shaded completely
 - (b) Explain why Single Cinema continues to operate in the short run despite earning negative economic profit in the short run.
 - (c) Would Single Cinema's total revenue increase, decrease, or stay the same if it decides to sell one fewer ticket than Q_m ? Explain.
 - (d) Single Cinema hires workers in a perfectly competitive labor market with a downward-sloping demand curve. Suppose the number of workers available in the market decreases.
 - (i) What will happen to the wage rate? Explain.
 - (ii) What will happen to the marginal revenue product of the last worker hired? Explain.