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.

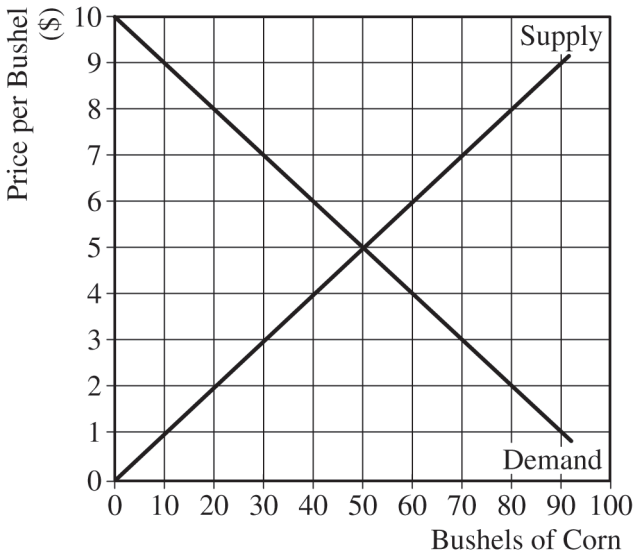
   (i) Will the market wage paid by a typical firm in this industry increase, decrease, or stay the same in the long run?

   (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.

© 2021 College Board.
Visit College Board on the web: collegeboard.org.

GO ON TO THE NEXT PAGE.



3. The diagram above shows the market for corn in the country of Microland. Corn is produced and sold in a constant-cost, perfectly competitive market.

   (a) Calculate the total revenue earned by corn farmers at the market equilibrium price. Show your work.

   (b) In an attempt to assist corn farmers in Microland, the government sets a $7 price floor on corn.

   (i) How many bushels of corn will be exchanged at the price floor?

   (ii) Calculate the deadweight loss associated with the price floor. Show your work.

   (iii) Assume the government agrees to buy the unsold quantity at $7. Calculate the producer surplus. Show your work.

   (iv) Assume the price floor and the government buying program remain in effect. In addition, assume the demand for corn does not change. In the long run, will the quantity of corn purchased by the government increase, decrease, or remain 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.

© 2021 College Board.
Visit College Board on the web: collegeboard.org.

GO ON TO THE NEXT PAGE.

Question 2: Short — 5 Points

(a)	Calculate the marginal revenue product of the second worker as $120 and show your work. Marginal Revenue Product = (20–8)/(2–1) × $10 or ($200–$80)/(2–1) = $120	**1 point**
(b)	State that Schmitt Inc. will hire 4 workers and explain that Schmitt will not hire the 5th worker because the marginal revenue product of the 5th worker is $90 ((54-45) × $10) which is less than the wage of $100.	**1 point**
(c)	Calculate Schmitt's daily profit as $0 and show your work. Profit = (TR – TC) = ($10 × 45) – ($50 + (4 × $100)) = $450 – $450 = $0	**1 point**
(d) (i)	State that the wage will increase.	**1 point**
(ii)	State that the number of workers employed by a typical firm will decrease and explain that the market supply of workers will decrease, which causes the marginal factor cost (marginal resource cost) to increase, leading to a lower quantity of workers for the typical firm where MRP = MFC.	**1 point**
	Total for part (d)	**2 points**
	Total for question 2	**5 points**

© 2021 College Board