

1. Anderson Company is a typical firm that manufactures Good G in a constant-cost, perfectly competitive market. Anderson Company is currently earning positive economic profit.
- (a) What must be true about the relationship between accounting profit and economic profit if Anderson Company currently incurs both explicit and implicit costs in production?
- (b) Draw correctly labeled side-by-side graphs for the market and Anderson Company and show each of the following.
- (i) The market equilibrium price and quantity, labeled  $P_M$  and  $Q_M$ , respectively
  - (ii) The profit-maximizing price and quantity for Anderson Company, labeled  $P_F$  and  $Q_F$ , respectively
  - (iii) The area representing Anderson Company's positive economic profit, shaded completely
- (c) On your graphs in part (b), show what will happen to each of the following if the market for Good G adjusts to long-run equilibrium.
- (i) The market equilibrium price and quantity, labeled  $P_2$  and  $Q_2$ , respectively
  - (ii) Anderson Company's profit-maximizing price and quantity, labeled  $P^*$  and  $Q^*$ , respectively
- (d) Assume the production of Good G creates benefits for third parties.
- (i) Given this situation, will the market equilibrium quantity be greater than, less than, or equal to the allocatively efficient quantity? Explain.
  - (ii) The government takes an action that corrects the externality in the market for Good G. As a result of the government's action, does total economic surplus increase, decrease, or stay the same? Explain.

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**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.**

2. Keepdry produces and sells rain jackets in a perfectly competitive product market at the price of \$5 per jacket and hires all the workers it needs in a perfectly competitive labor market at the wage rate of \$15. Labor is the only variable input, and the firm's production schedule is provided in the table.

Number of Workers	Quantity of Output
0	0
1	9
2	20
3	27
4	32
5	34
6	35

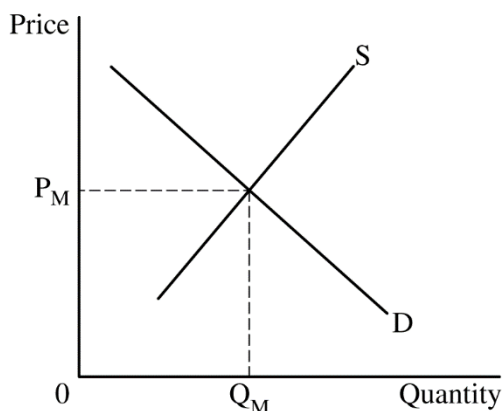
- (a) Calculate the marginal revenue product of the second worker. Show your work.
- (b) Diminishing marginal returns will begin with the hiring of which worker?
- (c) Determine the profit-maximizing number of workers the firm should hire. Explain using marginal analysis.
- (d) Assuming Keepdry's fixed cost is \$40, calculate Keepdry's economic profit when hiring the profit-maximizing number of workers. Show your work.
- (e) Suppose Keepdry's fixed cost increases to \$80. Will the profit-maximizing number of workers hired in the short run increase, decrease, or stay the same? Explain.

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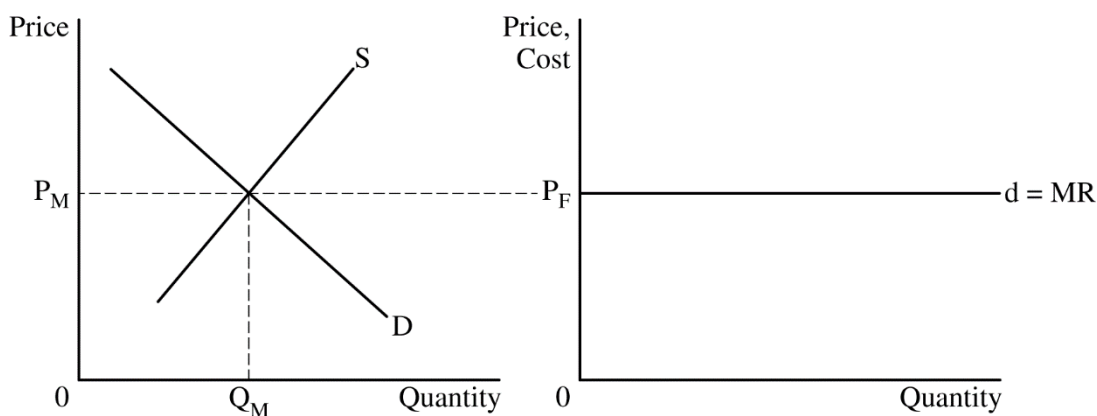
**Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.**

**Question 1: Long****10 points**

- (a) State that Anderson Company's accounting profit must be greater than its economic profit. **1 point**
- (b) Draw a correctly labeled graph of the market for Good G with a downward-sloping demand (D) curve and upward-sloping supply (S) curve and label the market equilibrium price as  $P_M$  and the market equilibrium quantity as  $Q_M$ . **1 point**

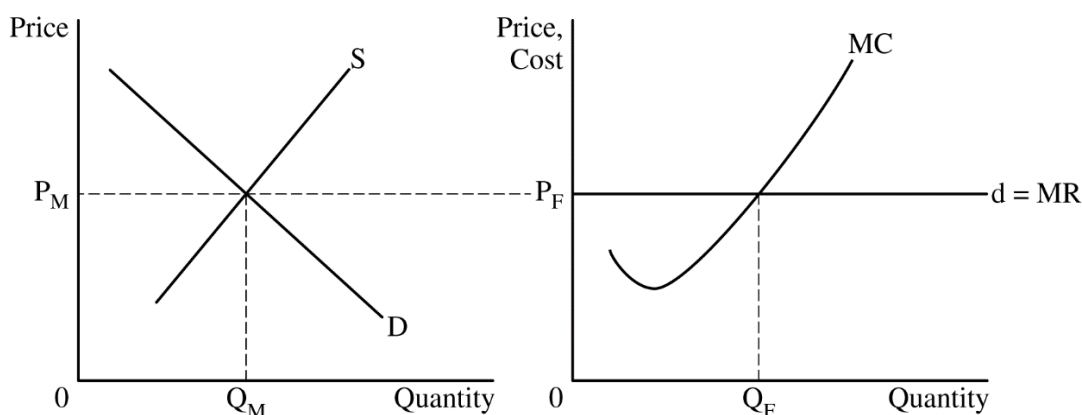


For the second point, draw a correctly labeled graph for the firm and show the firm's horizontal demand and marginal revenue ( $d=MR$ ) curve extended from the market equilibrium price ( $P_M$ ), and label the firm's price as  $P_F$ .

**1 point**

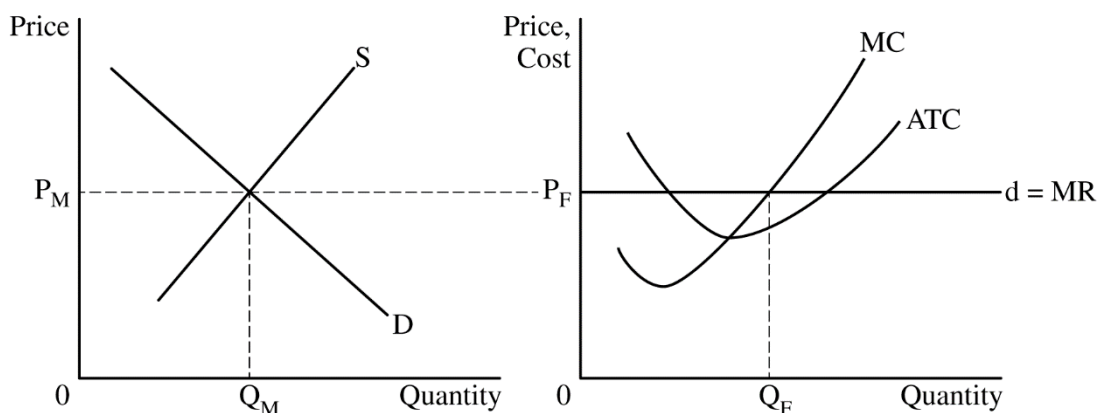
For the third point, the firm's graph must show a rising marginal cost (MC) curve and the profit-maximizing quantity, labeled  $Q_F$  where  $MR = MC$ .

**1 point**



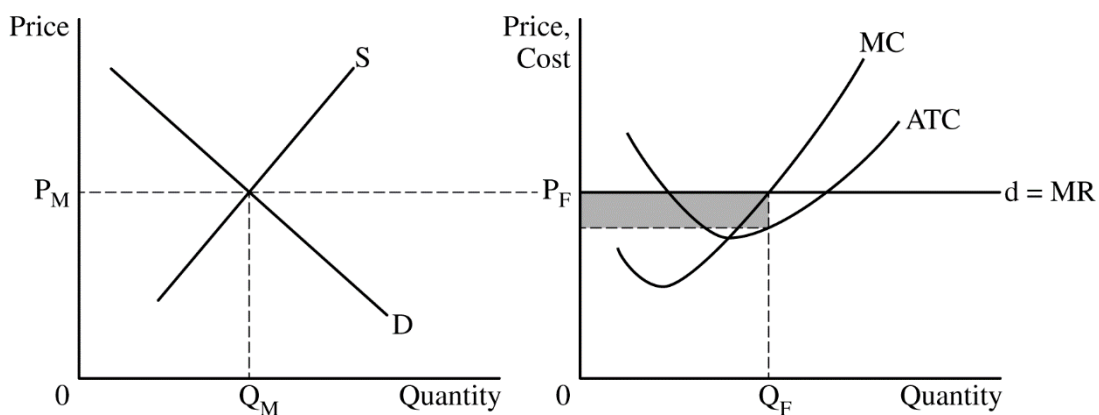
For the fourth point, the firm's graph must show the average total cost (ATC) curve below the firm's demand curve at  $Q_F$  and show the MC curve passing through the minimum point of the ATC curve.

**1 point**



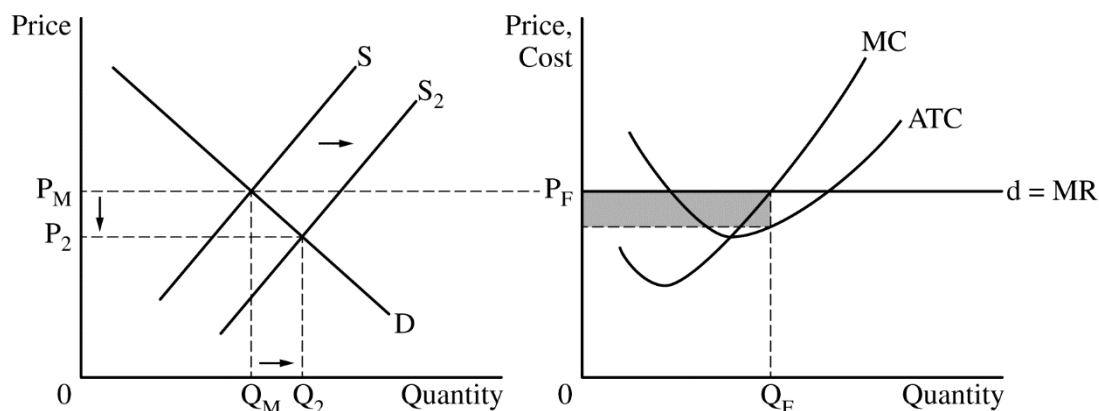
For the fifth point, the firm's graph must show the area representing positive economic profit, shaded completely.

**1 point**

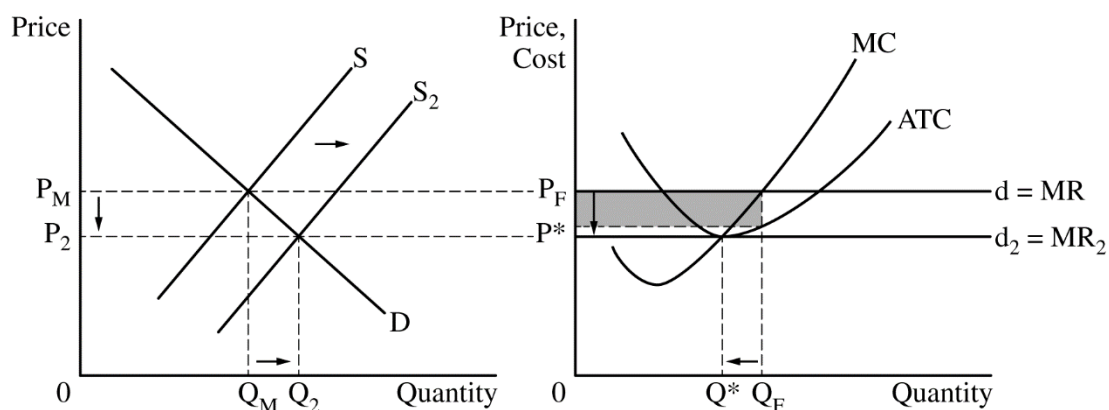


**Total for part (b) 5 points**

- (c)(i)** On the market graph from part (a), show a rightward shift in the market supply curve, resulting in a lower market equilibrium price, labeled  $P_2$ , and a greater market equilibrium quantity, labeled  $Q_2$ . **1 point**



- (ii)** On the firm's graph from part (a), show a lower price, labeled  $P^*$ , extended from the new market equilibrium price,  $P_2$ , and show a lower quantity produced,  $Q^*$ , at the new intersection point of  $P^* = MR_2 = MC = \text{minimum ATC}$ . **1 point**



**Total for part (c) 2 points**

- (d)(i)** State that the market equilibrium quantity will be less than the allocatively efficient quantity and explain that the positive externality in production causes the marginal social cost to be less than the marginal private cost ( $MSC < MPC$ ) at the market equilibrium. **1 point**
- (ii)** State that total economic surplus will increase and explain with **ONE** of the following: **1 point**
- The quantity produced will increase to the allocatively efficient quantity.
  - Deadweight loss will decrease to \$0.
  - The marginal private cost will equal the marginal social cost, causing the externality to be internalized.

**Total for part (d) 2 points**

**Total for question 1 10 points**