CHAPTER 10: PURE MONOPOLY

Introduction
While the perfectly competitive firm has no power over prices in the marketplace, the monopoly has the power necessary to determine both the price and output of the product. The monopoly model shows us important differences from perfect competition in terms of efficiency and effects on producer and consumer surplus. Chapter 10 focuses on the ways monopolies develop, output and price determination, the effects of monopoly behavior, and government regulation. The monopoly model is important to understanding the oligopoly and monopolistic competition, which will be covered in Chapter 11. Material from Chapter 10 appears on the AP microeconomics exam in a large number of multiple-choice questions, and a free-response question about decision making in at least one of the market structures is part of nearly every AP microeconomics exam.

Pure Monopoly
A pure monopoly is a market structure with only one producer, no close substitutes, and complete barriers to entry. Unlike a price-taking perfectly competitive firm, the pure monopoly is a price maker, with the firm determining its own output and the price it will charge for its product. Because the monopoly faces a downward-sloping demand curve, it can restrict output in order to raise the product price. Pure monopolies include local natural gas, electricity, and water companies, as well as pharmaceutical companies that hold patents on particular medications. Near monopolies also exist where a single firm provides the vast majority of sales in a particular industry.

Barriers to Entry
Monopolies hold market power, the power to determine prices, because of barriers to entry—factors that prevent competitors from entering the industry. While perfectly competitive firms face no barriers and are free to enter and exit the industry, imperfectly competitive firms must deal with barriers. Monopolies, for a variety of reasons, are able to completely prevent potential competitors from entering the industry.

Economies of scale
One important barrier to entry is economies of scale. The larger the firm’s output, the more efficient the firm becomes. Natural monopolies achieve economies of scale, with their average total cost curves continuing to fall over a very large range of output. In this example, if one firm produced 200 products, the average total cost would be $10. But if two firms each produced 100
units, the average total cost would be $15; four firms each producing 50 units would lead to an average total cost of $20. Clearly, it is more cost-effective to have one large producer. These economies of scale also serve as a barrier to entry for new firms, which face those higher costs as smaller producers.

The government also creates barriers to entry by granting patents and licenses. The government grants a patent, which protects an inventor’s ownership rights, in order to encourage investment in research and development. For the life of the patent, the owner has monopoly control of the product and can use revenues to recoup research and development costs and potentially to support further development of other products. The government can also create a barrier to entry by licensing producers, from taxi drivers and cosmetologists to teachers and electricians.

Other firms create barriers to entry by controlling the resources necessary to produce the product. Monopolists deeply cut their prices to undercut the competition, make deals with retailers to reinforce their monopoly status, or find other ways to make the competitor’s product more expensive or less desirable.

**Monopoly Demand**
Analysis of the pure monopoly assumes no firms can enter the industry, the government does not regulate the firm, and the firm charges the same price for every product. The most important difference between the perfectly competitive firm and the pure monopoly is the demand curve. Remember, the perfectly competitive firm was a price-taker, accepting the price set in the industry. So the individual firm had a perfectly elastic, horizontal demand curve, with the marginal revenue equal to the product price.

Because it is the only firm in the industry, a monopoly has only one graph, unlike the side-by-side graphs for perfect competition. Also, a monopoly faces a different demand curve. Because it is the only producer, industry demand is the firm’s demand. Therefore, a monopoly faces a downward-sloping demand curve, with quantity demanded increasing as price falls. This difference has important ramifications for price and output decisions.

First, the marginal revenue curve is lower than the price curve. For the firm to sell more products, it must lower the price for all the goods it sells, not just the last one. Therefore, the marginal revenue—the change in total revenue from selling one more product—will be lower than the price charged for that product. Say a firm sells 5 T-shirts for $10 each, for total revenue of $50. If the firm wants to sell the 6th T-shirt, it must lower its price of T-shirts to $9—for all of them. Now the firm sells 6 T-shirts for $9 each, for total revenue of $54. So while the price of the T-shirt is $9, the marginal revenue to the firm is just $4 (total revenue increased from $50 to $54). Thus, the marginal revenue is less than the price. Average revenue, price, and demand are all represented on the higher curve.

**Bear in Mind**
This concept of marginal revenue being lower than price has frequently appeared on both the multiple-choice and free-response sections of the AP microeconomics exam. It is important to understand and be able to explain the reason for this relationship: in order for the firm to sell more products, it must lower the price on all of the products sold.
Demand, marginal revenue, and total revenue for a pure monopolist

As the marginal revenue falls, the growth in total revenue slows. As long as the marginal revenue is positive, the sale of additional products adds to the total revenue of the firm, but each additional sale adds less and less revenue. At the point where the marginal revenue of the next product is zero, the total revenue peaks. The total revenue is maximized at the output where the marginal revenue curve crosses through the bottom axis of the graph. After that point, each additional product sold results in a negative marginal revenue. The product price is positive, but the reduction in price for all of the earlier units overwhelms that price, so the marginal revenue curve falls through the bottom of the graph. At the output where marginal revenue becomes negative, total revenue of the firm begins to fall.

A second important implication for a downward-sloping demand curve is that the firm is a price maker. Monopolies control supply and product price through their own output decisions. A third effect of a downward-sloping demand curve is that the firm will set its price in the elastic portion of the demand curve. The firm will never choose to produce where the marginal revenue is negative because that output would result in a lower total revenue for the firm at the same time that total cost is rising; therefore, the firm would experience lower profit in that range of production. Because the monopoly seeks to maximize profit, the firm will set its output in the elastic portion of the demand curve.
Output and Price Determination for the Monopoly
As was the case for the perfectly competitive model, we assume that the monopoly is in a constant-cost industry. The monopoly firm is such a small part of the market for resources that increased demand will not push up the cost of those resources.

Profit maximization by a pure monopolist

The monopolist maximizes profit at the output where marginal revenue equals marginal cost. As long as the firm receives revenue greater than or equal to the cost of producing the next unit of output, the firm should produce it. If the cost to produce the next unit is greater than the revenue the firm would receive from selling it, the firm should not produce it. In this figure, MR = MC at five units of output, the profit-maximizing output.

To find the monopoly's price, extend the line at the selected output up to the demand curve. Because consumers are willing and able to pay that price, that is the price the firm will charge. In this case, the firm charges a price of $122 for its products.

Taking the EEK! Out of Economics
When determining the price, be very careful to go all the way up to the demand curve. Students often make the mistake of treating the MC = MR point similarly to a supply and demand equilibrium, setting the price at that same point. Consumers are willing and able to pay the higher price, and charging that higher price maximizes the firm’s profit.

To calculate the profit the firm earns from the selected output, you must compare the price at that output to the average total cost at that output. Just as was the case for the purely competitive firm, you can calculate the profit two different ways.

1. Total Revenue—Total Cost.
   Total Revenue = Price × Output
   Total Cost = ATC × Output

2. Profit per Unit × Output.
   Profit per Unit = Price – Average Total Cost

In this case, profit per unit is $28, so at an output of five units, the firm’s profit is $140.
**Taking the EEK! Out of Economics**

To ensure that you'll show the firm earning an economic profit when drawing the monopoly model, first draw the demand, marginal revenue, and marginal cost curves. Then draw a point on the marginal cost curve between the demand and marginal revenue curves. Make that point the lowest point on your average total cost curve. This tip ensures you'll demonstrate marginal cost crossing ATC at its lowest point (productive efficiency), as well as show that the ATC is lower than the price on the demand curve.

When determining profit, be very careful to only look at the distance between the price and the ATC at the MC = MR output. Students often make the mistake of measuring the distance between the demand curve and the MC = MR point, viewing that difference as the profit per unit. Remember, profit is calculated by subtracting the cost from the revenue.

**Bear in Mind**

You must be able to draw a monopoly graph, including profit-maximizing output, the price set in the market, and the area of economic profit. The free-response portion of the AP microeconomics exam almost always includes a question requiring you to draw a graph for a firm in one of the four market structures, as well as several multiple-choice questions involving the monopoly. Sketching a graph can help you visualize the market and improve your chance of success in correctly answering those questions.

Remember, the firm is focused on maximizing total profit, not profit per unit. Also, note that the monopoly is limited in the price it can charge. Many people mistakenly believe a monopoly can charge any price it wants, but it is still constrained by the demand curve. The firm will set the price at the point on the demand curve at the output where MC = MR.

**Long-Run Economic Profit**

The perfectly competitive firm could earn short-run economic profit. But in the long run, the profit motive draws other firms into the industry, lowering the price and the marginal revenue to the firm until economic profit is reduced to zero. The monopolist, however, can sustain economic profit in the long run due to the barriers to entry. Because no new firms are able to enter the industry, no long-run adjustment occurs for monopolies.

**Loss Minimization and the Shutdown Decision**

![Graph](image)

*The loss minimizing position of a pure monopolist*
While the monopoly can earn a profit, it is also possible for the firm to sustain a loss. A loss occurs when the firm’s ATC is greater than the price (on the demand curve) at the MC = MR output. If the firm incurs a loss, should it remain in operation? If the price is greater than the firm’s average variable cost, the firm should remain in operation. But if the firm cannot even recover the variable costs to produce the additional output, the firm should shut down. It is important to note that because there is no long-run adjustment of other firms leaving the industry, the firm has to make its own decision of whether to shut down in the long run. If the firm is convinced that losses will persist in the long run, the firm will likely shift its resources to a more profitable opportunity or shut down altogether.

Changes in Production Costs

As with the competitive firm, changes in costs for the monopoly shift the cost curves directly up and down, because the curves represent the costs at each output. If a per-unit (or variable) cost increases, the marginal cost, average variable cost, and average total cost all increase. Because the new marginal cost equals marginal revenue at a lower output, the firm will produce fewer products at the higher cost. The price, set on the demand curve above where MC = MR, will be higher as a result of the lower output. If per-unit costs decrease, such as lower wages or lower-cost resources, the MC, AVC, and ATC all shift downward, the firm increases production, and the price falls.

If a lump-sum (or fixed) cost increases, only the average fixed cost and average total cost increase. Because marginal cost did not change, output and price do not change. With a higher average total cost, the firm’s profit is lower but nothing else changes. If a lump-sum cost decreases, such as a firm receiving a subsidy or lower property tax, the AFC and ATC shift down. While the output and price remain the same, the firm’s profit increases.

Comparing the Perfectly Competitive and Monopoly Models

Inefficiency of a pure monopoly relative to a purely competitive industry

The perfectly competitive model and the monopoly model, the extremes of the four market structures, demonstrate significant differences in efficiency, output, and price.

First, while both productive and allocative efficiency are achieved in the perfectly competitive industry (because firms produce at the lowest cost where MC = ATC and the product’s value to
society equals the cost of making it where \( P = MC \), neither is achieved for the monopoly. The monopolist produces where \( MC = MR \) to maximize profit, at an output lower than that required to achieve productive efficiency. Price exceeds both marginal cost and minimum ATC. Because productive efficiency is not met, allocative efficiency cannot be met by the monopoly. Deadweight loss is illustrated by the triangle to the left of the point where \( MC = D \) for the monopoly. This is the loss of efficiency due to monopoly output and represents the loss of consumer and producer surplus.

Second, a monopoly produces fewer products and charges a higher price than a perfectly competitive industry. Monopolists maximize profit at the output where \( MC = MR \), which is less than the allocatively efficient output of \( MC = D \). The monopolist then sets the price on the demand curve, which is higher than the perfectly competitive firm would charge.

Third, a monopoly can sustain long-run profit because the price is higher than ATC and barriers prevent firms from entering to bring the price down. Perfectly competitive firms may enjoy a short-run profit, but in the long run, the entry of new firms lowers the price, translating to lower marginal revenue to the firm, until economic profit returns to zero.

Government Response to Monopolies
Because of the inefficiency, higher prices, and lower output associated with monopolies, government has an interest in intervening in some monopoly markets. The government can file charges under anti-trust laws if a firm engages in anti-competitive behaviors, prohibiting the firm from continuing the behavior or breaking it into several competing firms. In the case of a natural monopoly, where society benefits from a monopoly due to economies of scale, the government may regulate the firm’s price and product quality. Other monopolies which do not cause significant economic problems, such as the only ice skating rink in town, may be allowed to continue in operation without regulation.

Price Discrimination
Up to this point, we have assumed that the firm charges all customers the same price for the product. Monopolists are able to discriminate, increasing profit by charging different customers different prices for the same good. You have likely seen price discrimination, such as a special price for movie tickets for children and senior citizens or discount cards for frequent shoppers at a store. Price-discriminating monopolists charge a lower price for consumers who are more sensitive to price (elastic demand), while customers who are less sensitive to price are charged the full higher price. Price discrimination is common and legal in the United States, as long as it is not used to prevent entry of firms into the industry.

The Regulated Monopoly
Natural monopolies, such as public utilities, are regulated by state and local governments to limit prices and ensure product quality. Because the monopolist reduces output to maximize profit, sets a higher price, and does not achieve productive or allocative efficiency, governments attempt to improve the outcome for society through regulation.
In this figure, the firm maximizes its profit by setting an output of $Q_m$ and a price of $P_m$. However, in order to achieve allocative efficiency, the government may set a price ceiling at the point where $MC = D (= P)$. At that price ceiling of $P_r$, the marginal revenue curve becomes the price (as we saw for perfect competition), and the monopoly firm will produce $Q_r$ units of output—where marginal revenue now equals the marginal cost but at a lower price and higher output than it would have produced as an unregulated monopoly. The marginal cost also equals the price at this output, signifying allocative efficiency.

But notice that this arrangement leaves this particular firm producing at a price lower than ATC at this output. The firm incurs a loss and will have to decide whether to even stay in business in the short run. In the long run, if the firm cannot raise its price or lower its costs, it will not remain in business. The government could offer the firm a subsidy to cover those costs, in order to encourage the firm to remain in operation. Or perhaps the government could allow the firm to engage in price discrimination to charge a higher price to those customers with the most inelastic demand for the product.

Often, regulatory commissions instead set the price ceiling at the fair-return price, where $ATC = D$. At that output, the firm achieves a normal profit but not an economic profit. The price is lower and the output higher than it would be under an unregulated monopoly but not as much as if the regulators set the price ceiling at the socially optimal price of $P = MC$. But this solution avoids the need for a subsidy to keep the firm in business.

**Multiple-Choice Questions**

1. Which of the following characteristics correctly describe a monopoly?
   
   I. The firm is the single seller in the industry.
   II. Barriers to entry exist in the industry.
   III. Unregulated monopolies are illegal under United States law.
   IV. The firm determines its own price and output.

   (A) I and II only
   (B) I and III only
   (C) I, II, and III only
   (D) I, II, and IV only
   (E) I, II, III, and IV
2. Why are monopoly firms price makers?
   (A) Monopolies produce at a lower cost than perfectly competitive firms.
   (B) Monopoly firms enjoy barriers to entry.
   (C) Monopoly firms face a perfectly elastic demand curve.
   (D) Monopolies are more efficient than perfectly competitive firms.
   (E) Monopolies produce goods that competitive firms cannot produce.

3. The monopolist’s demand curve is
   (A) downward-sloping.
   (B) elastic between all points.
   (C) inelastic between all points.
   (D) vertical.
   (E) horizontal.

4. The monopolist’s marginal revenue is lower than the product price because the
   (A) firm must accept the price set by the industry.
   (B) firm achieves efficiency when revenues are lower than prices.
   (C) firm must lower the price of all of its products in order to sell more.
   (D) firm becomes less efficient as output increases.
   (E) firm’s costs of production constantly increase as output increases.

5. Why do unregulated monopolists not produce in the inelastic portion of the demand curve?
   (A) The marginal revenue is negative, causing total revenue to decrease.
   (B) That output will not bring about allocative efficiency.
   (C) The marginal revenue is lower than the price, causing price to fall.
   (D) The marginal cost is lower than the marginal revenue in that range.
   (E) Inelastic demand indicates consumers will not buy the additional output.

Questions 6–9 refer to the graph below, which shows the costs and revenues for a profit-maximizing monopoly firm.

![Monopoly Graph]

Chapter 10: Pure Monopoly
6. This monopoly firm is
(A) earning an economic profit.
(B) earning a normal profit, but not an economic profit.
(C) earning short-run profit but will earn no economic profit in the long run.
(D) experiencing a loss but should remain in business in the short run.
(E) experiencing a loss and should shut down.

7. The deadweight loss associated with reducing output for the monopoly is the
(A) triangle to the left of MC = D, on the Q1 line from P1 to P4.
(B) triangle below MC = D, on the P3 line from Q2 to Q4.
(C) rectangle between P1 and P3, from the left axis to the Q1 line.
(D) rectangle between P1 and P4, from the left axis to the Q1 line.
(E) triangle below the demand curve, on the P3 line from Q1 to Q4.

8. To reach allocative efficiency, government would set a price ceiling at
(A) P1.
(B) P2.
(C) P3.
(D) P4.
(E) MR = ATC.

9. At what output would this firm achieve productive efficiency?
(A) Q1
(B) Q2
(C) Q3
(D) Q4
(E) Monopolies cannot achieve productive efficiency.

10. Why do monopolies not produce at the point of productive efficiency?
(A) The monopoly focuses on achieving allocative efficiency.
(B) The firm reduces output in order to raise the price.
(C) The firm maximizes profit by producing where ATC = D.
(D) The monopoly focuses on minimizing the marginal cost.
(E) Monopolies cannot achieve productive efficiency.

11. Which statement is true for a monopoly but not for a perfectly competitive firm?
(A) The firm maximizes profit where marginal revenue equals marginal cost.
(B) The firm’s marginal revenue equals the product price.
(C) The firm achieves allocative efficiency where it maximizes profit.
(D) The firm produces where MC = MR = ATC.
(E) The firm sustains long-run economic profit.

12. Price discrimination occurs when a firm charges different prices based on
(A) Changes in the average total cost.
(B) Changes in the marginal cost.
(C) Changes in the marginal revenue.
(D) The excise tax rate the government sets.
(E) Customers’ sensitivity to the higher price.
Free-Response Questions

1. Perfectly competitive and monopoly industries differ in several important ways.
   (a) Draw correctly labeled side-by-side graphs for the perfectly competitive industry and a typical firm that is earning short-run economic profit. On your graph, show the following:
      (i) the price and output for the industry
      (ii) the price and output for the individual firm
      (iii) the area of economic profit
   (b) Draw a correctly labeled graph for a profit-maximizing monopoly. On your graph, show the following:
      (i) the price and output for the firm
      (ii) the area of economic profit
   (c) Explain this difference between perfectly competitive and monopoly firms.
      (i) the relationship between price and marginal revenue for the perfectly competitive firm and the reason for that relationship
      (ii) the relationship between price and marginal revenue for the monopoly firm and the reason for that relationship
   (d) Explain these differences between perfectly competitive and monopoly firms.
      (i) Explain how and why economic profit is likely to change in the long run for the perfectly competitive firm.
      (ii) Explain how and why economic profit is likely to change in the long run for the monopoly firm.

2. Assume Chai Pharmaceuticals holds a patent for an important medication, preventing competing firms from producing that medication. Chai Pharmaceuticals is a profit-maximizing firm earning an economic profit.
   (a) Draw a correctly labeled graph showing the following for Chai Pharmaceuticals:
      (i) The output
      (ii) The price
      (iii) The area of economic profit
      (iv) The area of deadweight loss
   (b) Explain what deadweight loss represents.
   (c) Is Chai Pharmaceuticals producing at a productively efficient output? Explain.
   (d) Is Chai Pharmaceuticals producing at an allocatively efficient output? Explain.

3. The graph that follows illustrates the costs and revenues for Cisco's Widgets, a profit-maximizing monopoly that does not price discriminate.
(a) Using the labeling in the graph, identify each of the following:
   (i) the output at which profit is maximized
   (ii) the output at which total revenue is maximized
   (iii) the output that is socially optimal

(b) Assume the per-unit (variable) cost of materials used to produce Widgets rises.
   (i) What will happen to the price of Widgets?
   (ii) What will happen to the output for Widgets?
   (iii) What will happen to the profit for Cisco’s Widgets?

(c) Using the labeling in the graph, assume that the government wants to encourage the firm
to produce at the socially optimal output.
   (i) At what price should the government set a price ceiling to encourage
       socially optimal output?
   (ii) At the socially optimal output, is this firm earning an economic profit or
        experiencing a loss? Explain.

Multiple-Choice Explanations
1. (D) Unregulated monopolies are allowed to exist under U.S. law and are quite common where demand does not support additional firms.
2. (B) Because a monopoly has no competition, the firm sets its own price.
3. (A) The monopolist faces a downward-sloping demand curve because the firm must lower prices to sell more. Demand is elastic where marginal revenue is positive and inelastic where marginal revenue is negative.
4. (C) Because the monopoly must lower its price to sell more products, it must lower the price for all units, including the first units produced.
5. (A) When marginal revenue is negative, it reduces total revenue, and because marginal cost is increasing, the firm cannot maximize profit in that range.
6. (A) This firm is earning an economic profit because price is higher than ATC.
7. (A) The deadweight loss represents the lost consumer and producer surplus associated with the firm's decision to reduce its output.
8. (B) The firm achieves allocative efficiency where MC = D. If the government sets the price ceiling at that point, the firm’s marginal revenue becomes that price, and the firm produces where MC = MR to maximize profit and achieve allocative efficiency at the same point.
9. (B) Productive efficiency is achieved where marginal cost crosses ATC at its lowest point. There, the firm produces at its lowest average cost per unit.

10. (B) The monopoly maximizes profit by reducing output and raising the price, so the firm does not produce at its productively efficient output.

11. (E) The monopoly can earn long-run economic profit because barriers to entry prevent other firms from entering the market.

12. (E) A price discriminating monopolist charges the highest price for customers who are not sensitive to the higher price and lower prices to customers who are sensitive to the price in order to increase its total revenue.

Free-Response Explanations

1. **17 points (5 + 4 + 4 + 4)**
   (a) 5 points:
   - 1 point is earned for correctly identifying industry price and output.
   - 1 point is earned for showing a horizontal demand curve for the firm, set at the price determined by the industry.
   - 1 point is earned for identifying price on the firm’s horizontal demand curve.
   - 1 point is earned for setting output where MC = MR.
   - 1 point is earned for showing the area of profit.
   
   (b) 4 points:
   - 1 point is earned for showing a correctly labeled monopoly with a downward-sloping demand curve and the marginal revenue curve below the demand curve.
   - 1 point is earned for setting output where MC = MR.
   - 1 point is earned for setting price on the demand curve above where MC = MR.
   - 1 point is earned for showing the area of profit.

   (c) 4 points:
   - 1 point is earned for stating that price and marginal revenue are equal for the perfectly competitive firm.
   - 1 point is earned for explaining that in perfect competition every product is sold for the same price, so the increase in revenue for each product sold is the price.
   - 1 point is earned for stating that marginal revenue is lower than price for a monopoly.
   - 1 point is earned for explaining that the monopoly must lower the price for all of the products in order to sell more.

   (d) 4 points:
   - 1 point is earned for stating that economic profit falls to zero in the long run for the perfectly competitive firm.
   - 1 point is earned for explaining that profit draws new firms into the industry.
   - 1 point is earned for stating that long-run economic profit remains for a monopoly.
   - 1 point is earned for explaining that barriers to entry prevent firms from entering the industry.

2. **10 points (5 + 1 + 2 + 2)**
   (a) 5 points:
   - 1 point is earned for a correctly labeled graph with a downward-sloping demand curve and marginal revenue lower than demand.
   - 1 point is earned for correctly setting output where MC = MR.
   - 1 point is earned for setting price on the demand curve above the MC = MR output.
   - 1 point is earned for correctly identifying the area of economic profit.
• 1 point is earned for correctly identifying the area of deadweight loss.

(b) 1 point:
• 1 point is earned for stating that deadweight loss represents the area of consumer and producer surplus lost due to the monopoly restricting output.

(c) 2 points:
• 1 point is earned for stating that the firm is not producing at productive efficiency.
• 1 point is earned for explaining that the firm is producing where MC = MR, not where MC = ATC; with the restricted output, ATC is not at its minimum.

(d) 2 points:
• 1 point is earned for stating that the firm is not producing at allocative efficiency.
• 1 point is earned for explaining that the firm is producing where MC = MR, not where MC = P; with the restricted output, price is greater than the marginal cost.

3. **9 points (3 + 3 + 3)**

(a) 3 points:
• 1 point is earned for stating that profit is maximized at Q1.
• 1 point is earned for stating that total revenue is maximized at Q2.
• 1 point is earned for stating that socially optimal output is at Q3.

(b) 3 points:
• 1 point is earned for stating that the price of Widgets will increase.
• 1 point is earned for stating that the output for Widgets will decrease.
• 1 point is earned for stating that the profit for Cisco’s Widgets will decrease.

(c) 3 points:
• 1 point is earned for stating that the government should set the price ceiling at P2.
• 1 point is earned for stating that the firm is earning an economic profit at that output.
• 1 point is earned for explaining that the firm’s profit results from the price being higher than the average total cost at that output.