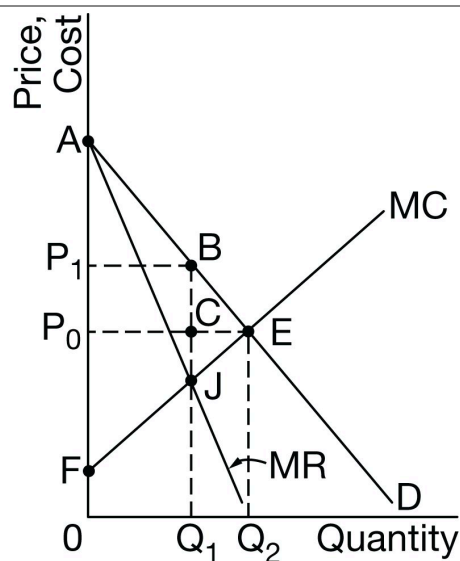


Unit 4.1, 4.2 and 4.3 Practice Test Questions



Assume that the market is a profit-maximizing monopoly.

1.

Which of the following areas shows the consumer surplus?

- (A) AP_0E
- (B) AP_1B
- (C) AFE
- (D) BJE
- (E) P_0FE

**Answer B**

Correct. The profit-maximizing monopolist would produce Q_1 where $MR = MC$ and would set the price at P_1 . The consumer surplus is the area that is under the demand curve and above the monopoly price line at Q_1 , which is AP_1B .

Unit 4.1, 4.2 and 4.3 Practice Test Questions

2. Which of the following areas shows the producer surplus and the deadweight loss?
- (A) The producer surplus is area P_1BCP_0 , and the deadweight loss is area BJE.
 - (B) The producer surplus is area P_1BJF , and the deadweight loss is area BJE. ✓
 - (C) The producer surplus is area P_1BQ_10 , and the deadweight loss is area BJE.
 - (D) The producer surplus is area P_1BQ_10 , and the deadweight loss is area BCE.
 - (E) The producer surplus is area P_0EA , and the deadweight loss is area CEJ.

Answer B

Correct. With monopoly, the firm restricts output and raises price. The producer captures surplus from the consumer (P_0P_1BC), so its total producer surplus would be P_1BJF . Additionally, there is a deadweight loss equal to area BJE.

3. Which of the following statements concerning a natural monopoly is true?
- (A) Average total cost is always less than marginal cost in the long run.
 - (B) At the allocatively efficient level of output, monopoly profit and deadweight loss are both equal to zero.
 - (C) If the monopolist chooses to produce the quantity at which price is equal to average cost, it would earn a normal profit. ✓
 - (D) The monopolist can earn positive economic profits by producing the allocatively efficient output in the short run.
 - (E) Production efficiency could be improved if another firm were to enter and compete with the single monopolist.

Answer C

Correct. With a natural monopoly, there are economies of scale (falling long-run average cost) over the range of the effective demand. Thus, a single firm can supply the entire market at a lower average total cost than two or more competing firms sharing the market. If the monopoly chooses to set the price equal to average total cost and avoid regulation, it would earn a normal or zero economic profit.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

4. Which of the following is true for a monopolist that engages in perfect price discrimination?
- (A) The firm sells the profit-maximizing quantity of the regular monopolist but charges each consumer a price higher than the regular monopoly price.
 - (B) There is more consumer surplus than exists with a regular monopoly.
 - (C) The monopolist further restricts output compared to the regular monopoly, creating greater deadweight loss.
 - (D) The monopolist sells the allocatively efficient quantity of output. ✓
 - (E) The monopolist no longer faces a downward-sloping demand curve, becoming a price taker.

Answer D

Correct. The perfectly price-discriminating monopolist sells each unit of output at the maximum price the consumer is willing to pay, as shown by the demand curve. The firm continues to sell output demand equals marginal cost, which is the allocatively efficient output level. Since each consumer pays the maximum price, he or she is willing to pay for the product and there is no consumer surplus. All surplus is producer surplus.

5. Which of the following statements relating to a firm in an imperfectly competitive market and a firm in a perfectly competitive market is true?
- (A) An imperfectly competitive firm does not experience diminishing returns, while a perfectly competitive firm experiences diminishing returns.
 - (B) An imperfectly competitive firm will always earn economic profits, while a perfectly competitive firm always earns zero economic profits.
 - (C) An imperfectly competitive firm and a perfectly competitive firm have a marginal revenue that equals the product price.
 - (D) When an imperfectly competitive firm raises the price, it will likely continue to sell some units of output, but when a perfectly competitive firm raises the price, it will sell no output. ✓
 - (E) Both imperfectly competitive and perfectly competitive firms face no barriers to entry.

Answer D

Correct. The imperfectly competitive firm faces a downward-sloping demand curve; when raising price, the firm will sell less output but continue to sell some output. The perfectly competitive firm is a price taker and will sell no output if it charges a price higher than the market price.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

6. Which of the following statements relating to a firm in an imperfectly competitive market and a firm in a perfectly competitive market is true?
- (A) Firms in both types of markets will likely advertise the merits of their products to increase sales.
 - (B) Firms in both types of markets will increase price to increase total revenues when their demand is inelastic.
 - (C) An imperfectly competitive firm must lower its price to increase sales, while a perfectly competitive firm can increase sales by increasing output at the current price. ✓
 - (D) Barriers to entry give both imperfectly competitive and perfectly competitive firms market power to raise price.
 - (E) As their product becomes different from their competitors' product, both an imperfectly competitive firm and a perfectly competitive firm will face less elastic consumer demand.

Answer C

Correct. The imperfectly competitive firm is a price maker, and it faces a downward-sloping demand curve. The perfectly competitive firm is a price taker, and it faces a perfectly elastic (horizontal) demand curve. Thus, the imperfectly competitive firm must lower price to increase sales; the perfectly competitive firm can increase its sales at the given market price by increasing output.

7. Assume a profit-maximizing monopolist is able to price discriminate, dividing its consumers into two distinct groups charging each a different price. Based on this information, which of the following is true?
- (A) The monopolist would earn greater profit charging each consumer the same price, not charging two different prices.
 - (B) The price discrimination can only be successful if one group can resell the product but the other group cannot.
 - (C) The group with the more elastic demand will pay the lower price. ✓
 - (D) The consumers with less willingness to pay will pay the higher price.
 - (E) The group with greater production costs will pay a lower price.

Answer C

Correct. By charging each group a different price, based on willingness to pay, the producer makes a greater profit. The group with the greater willingness to pay, or less elastic demand, pays a higher price, and the group that has the more elastic demand will pay the lower price.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

8. 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. If the question prompts you to “Calculate,” you must show how you arrived at your final answer.
- (a) Draw a correctly labeled graph for a single-price monopoly and show the profit-maximizing quantity, labeled Q_1 .
- (b) Assume the monopoly now engages in perfect price discrimination. On your graph in part (a), show the profit-maximizing quantity for the price-discriminating monopoly, labeled Q_2 .
- (c) Based on your answer in part (b), what will happen to the consumer surplus? Explain.
- (d) Is the output produced by the perfectly price-discriminating monopolist allocatively efficient? Explain.
- Respond to all parts of the question.

Part (a)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.



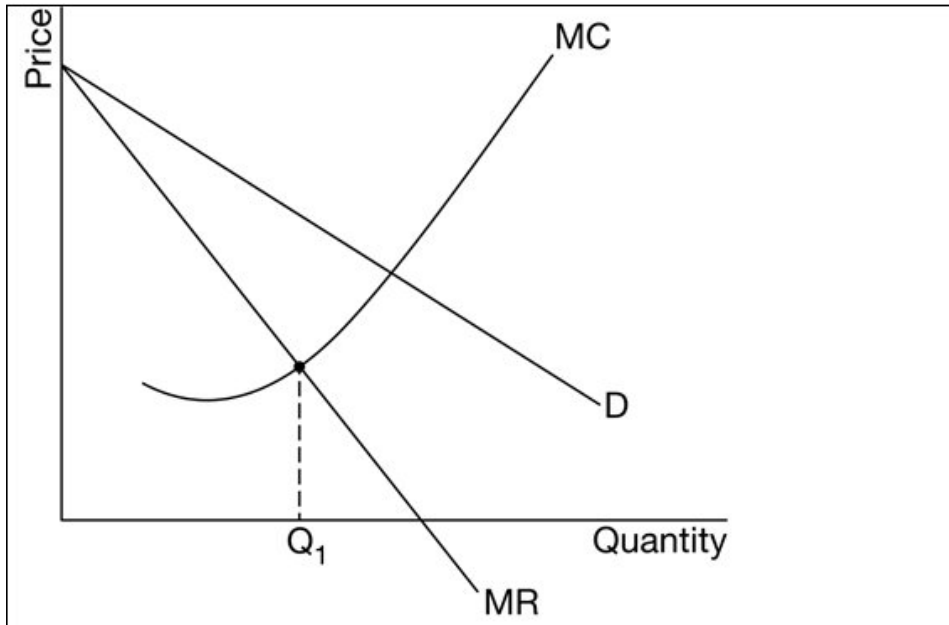
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The response accurately includes both of the criteria below.

- ☐ A correctly labeled graph of the firm with a downward-sloping demand curve and a downward-sloping marginal revenue curve below it.
- ☐ The profit-maximizing quantity labeled Q_1 at $MR = MC$.

Solution

Unit 4.1, 4.2 and 4.3 Practice Test Questions

**Part (b)**

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

A response that earns the point must correctly identify the profit maximizing quantity for the price discriminating monopoly is Q_2 .



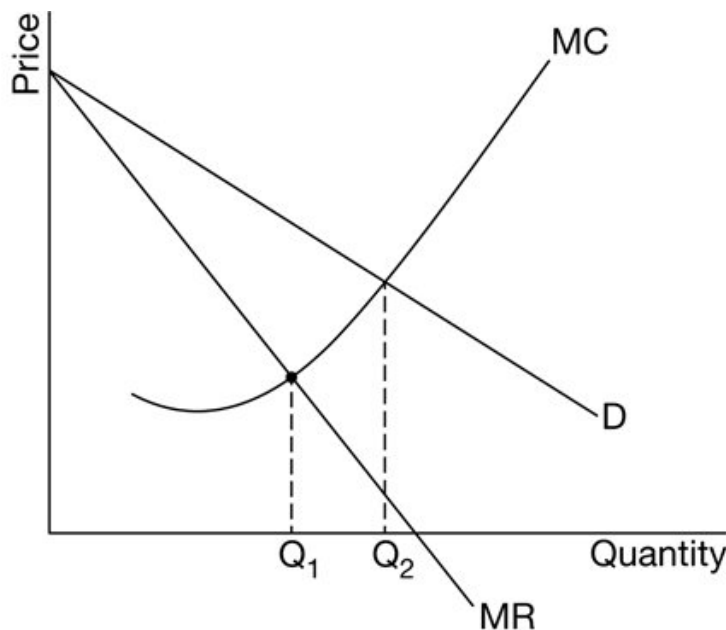
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The response correctly labels the profit-maximizing quantity for the price-discriminating monopoly, Q_2 .

Solution

Unit 4.1, 4.2 and 4.3 Practice Test Questions

**Part (c)**

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

The response must state that both the consumer surplus will decrease to zero and explain why in order to receive the point.



0

1

The response states that the consumer surplus will decrease to zero and explains that the consumer surplus for the single-price monopolist is the area below the demand curve and above the price. Since the perfectly price-discriminating monopolist will charge the price set by the demand curve for *every* quantity of output, there will be no consumer surplus.

Part (d)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

The response must state that both the perfectly price-discriminating monopolist is allocatively efficient and explain why in order to receive the point.



0

1

Unit 4.1, 4.2 and 4.3 Practice Test Questions

The response states that the perfectly price-discriminating monopolist is allocatively efficient and explains that the perfectly price-discriminating monopolist will produce the quantity where $P = MC$.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

9. 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. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

Electrifide Co. operates as a natural monopoly providing electricity for a particular region of the country. Electrify has a constant marginal cost of production.

(a) Draw a correctly labeled graph of Electrify and show each of the following.

- (i) The profit-maximizing quantity, labeled Q_M
- (ii) The profit-maximizing price, labeled P_M
- (iii) The allocatively efficient quantity, labeled Q_A
- (iv) The deadweight loss, shaded completely

(b) Suppose the government wants the monopolist to produce the socially optimal quantity of electricity in the market for electricity. Would granting a per-unit subsidy or imposing a per-unit tax on electricity lead the monopolist to produce closer to the socially optimal output? Explain.

(c) Suppose instead of granting a subsidy or imposing a tax, the government is considering regulating the price the monopolist can charge.

- (i) If the government's goal is to have the monopolist earn a normal profit, indicate on your graph from part (a) the price that the government would set, labeled P_N , and the resulting equilibrium quantity, labeled Q_N .
- (ii) If instead the government wants to use price regulation to get the monopolist to produce the socially optimal level of output, what price would the government set?
- (iii) Explain what would happen to Electrify in the long run as a result of the price regulation in part (c) (ii).

Respond to all parts of the question.

Part (a)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.



0	1	2	3	4	5	6
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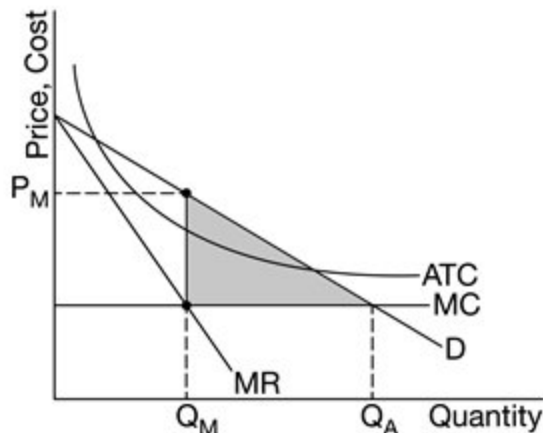
The response accurately includes all six of the criteria below.

- ☐ A correctly labeled graph of the natural monopoly, with a downward-sloping demand curve and a downward-sloping MR curve below the demand curve
- ☐ A downward-sloping average total curve (ATC) with a constant (horizontal) marginal cost curve below ATC
- ☐ The profit-maximizing quantity, labeled Q_M , where $MR=MC$
- ☐ The profit-maximizing price, labeled P_M , from the demand curve at Q_M

Unit 4.1, 4.2 and 4.3 Practice Test Questions

- ☐ The allocatively efficient quantity, labeled Q_A
- ☐ The deadweight loss, shaded completely

Solution



Part (b)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

The response must both state a per-unit subsidy and explain why to earn the point.



0	1
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The response states a per-unit subsidy and explains that the per-unit subsidy reduces the marginal cost, which increases the quantity produced and moves production closer to the allocatively efficient output.

Part (c)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

A response that earns the point for part (c)(i) must show on the graph from part (a) the price that the government would set, labeled P_N and the resulting equilibrium quantity, labeled Q_N



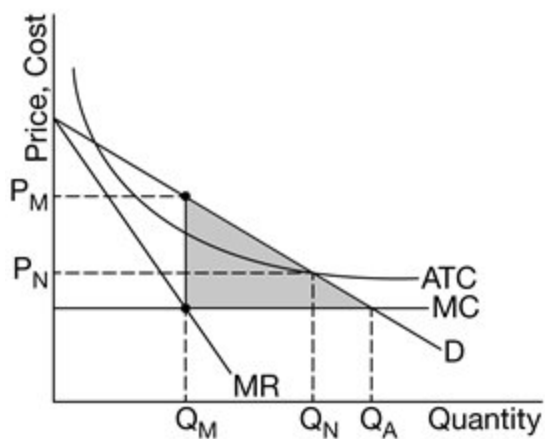
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The response accurately includes three of the criteria below.

- ☐ Shows on the graph from part (a) the price that the government would set, labeled P_N , the resulting equilibrium quantity, labeled Q_N

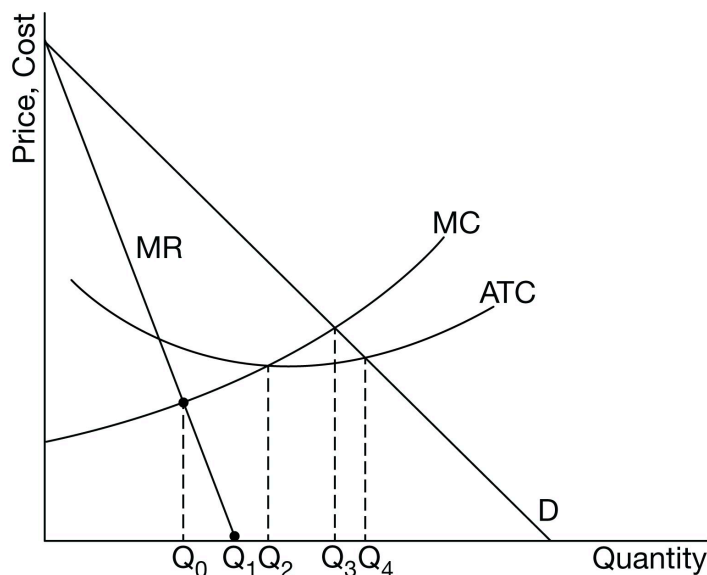
Unit 4.1, 4.2 and 4.3 Practice Test Questions

- ☐ States that the government would set the price equal to the marginal cost of production.
- ☐ Explains that the monopolist will exit the market in the long run because the regulated price is below the monopolist's average total cost and it would be operating at a loss.

Solution

Unit 4.1, 4.2 and 4.3 Practice Test Questions

10.



Based on the information in the graph above, what are the profit-maximizing output quantities for a single-price monopolist and for a monopolist that engages in perfect price discrimination?

- (A) For a single-price monopolist, Q_0 . With perfect price discrimination, Q_1 .
- (B) For a single-price monopolist, Q_0 . With perfect price discrimination, Q_3 . ✓
- (C) For a single-price monopolist, Q_1 . With perfect price discrimination, Q_3 .
- (D) For a single-price monopolist, Q_2 . With perfect price discrimination, Q_4 .
- (E) For a single-price monopolist, Q_0 . With perfect price discrimination, Q_4 .

Answer B

Correct. Profit maximization requires the firm to produce where marginal revenue equals marginal cost. For a single-price monopoly, marginal revenue is less than the price. In the graph above, the single-price profit-maximizing firm would produce at Q_0 . For a firm that can perfectly price discriminate, the marginal revenue curve and the demand curve are the same curve. Therefore, if the profit-maximizing firm could perfectly price discriminate, it would produce Q_3 .

Unit 4.1, 4.2 and 4.3 Practice Test Questions

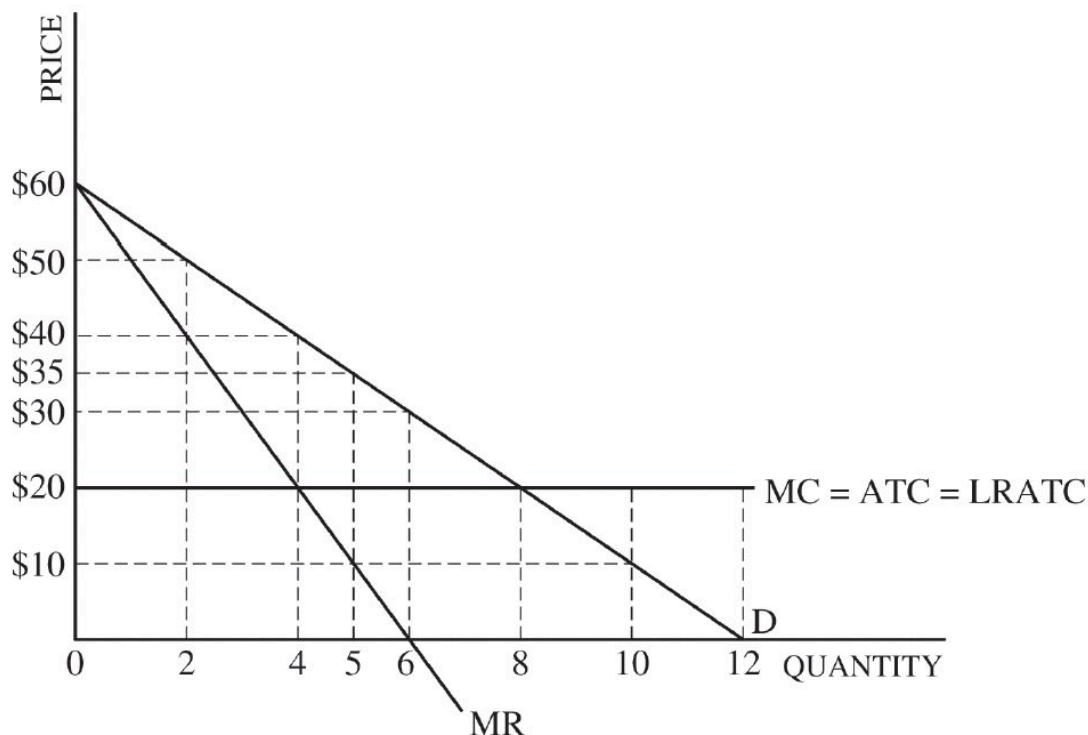
11. If Zeta, a single producer, had exclusive control of a key resource needed to produce good Z, a likely result would be which of the following?
- (A) Good Z would be produced in a perfectly competitive market.
 - (B) Slight differences in output would lead to good Z being in a monopolistically competitive market.
 - (C) There would be a barrier to entry, and Zeta would have a monopoly on good Z. ✓
 - (D) Only a few firms would produce good Z, so there would be an oligopoly.
 - (E) Zeta must have decreasing returns to scale and operate as a natural monopoly in producing good Z.

Answer C

Correct. For a monopoly to persist, there needs to be a barrier to entry. Exclusive control of a vital resource would serve as such a barrier to entry and prevent new firms from entering the market to produce good Z.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

12. The graph below shows the demand curve (D), marginal revenue curve (MR), marginal cost curve (MC), average total cost curve (ATC), and long-run average total cost curve (LRATC) for a monopolist.



- Using the numbers given in the graph, identify each of the following for the profit-maximizing monopolist.
 - The quantity produced
 - The price
 - The allocatively efficient quantity
- At the profit-maximizing quantity from part (a)(i), is the monopolist experiencing economies of scale? Explain.
- Now assume that the monopolist produces 10 units. Using the numbers given in the graph, calculate each of the following. Show your work.
 - The monopolist's economic profit
 - The consumer surplus
 - The deadweight loss
- At what quantity is demand unit elastic?
- Suppose the monopolist perfectly price discriminates and chooses the quantity that maximizes profit. Determine the dollar value of each of the following.
 - The monopolist's profit

Unit 4.1, 4.2 and 4.3 Practice Test Questions

ii. The consumer surplus

Respond to all parts of the question.

Part A

3 points:

- One point is earned for identifying the profit-maximizing quantity, $Q = 4$.
- One point is earned for identifying the profit-maximizing price, $P = \$40$.
- One point is earned for identifying the allocatively efficient output, $Q = 8$.



0	1	2	3
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Student receives 3/3 point(s)

- One point is earned for identifying the profit-maximizing quantity, $Q = 4$.
- One point is earned for identifying the profit-maximizing price, $P = \$40$.
- One point is earned for identifying the allocatively efficient output, $Q = 8$.

Part B

1 point

- One point is earned for stating that the firm is not experiencing economies of scale and for explaining that the LRATC is not downward sloping as output increases or LRATC remains constant as output increases.



0	1
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Student receives 1/1 point(s)

1 point

- One point is earned for stating that the firm is not experiencing economies of scale and for explaining that the LRATC is not downward sloping as output increases or LRATC remains constant as output increases.

Part C

3 points:

Unit 4.1, 4.2 and 4.3 Practice Test Questions

- One point is earned for correctly showing the calculation for the monopolist's economic profit.

$$\pi = (P - ATC) \times Q = (10 - 20) \times 10 = -\$100$$

Or loss of \$100

Other correct calculations are acceptable.

- One point is earned for correctly showing the calculation of consumer surplus.

$$CS = 1/2 (60 - 10) \times 10 = \$250$$

Other correct calculations are acceptable.

- One point is earned for correctly showing the calculation of the deadweight loss.

$$DWL = 1/2 (20 - 10) \times (10 - 8) = \$10$$

Other correct calculations are acceptable.



0	1	2	3
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Student receives 3/3 point(s)

3 points:

- One point is earned for correctly showing the calculation for the monopolist's economic profit.

$$\pi = (P - ATC) \times Q = (10 - 20) \times 10 = -\$100$$

Or loss of \$100

Other correct calculations are acceptable.

- One point is earned for correctly showing the calculation of consumer surplus.

$$CS = 1/2 (60 - 10) \times 10 = \$250$$

Other correct calculations are acceptable.

- One point is earned for correctly showing the calculation of the deadweight loss.

$$DWL = 1/2 (20 - 10) \times (10 - 8) = \$10$$

Other correct calculations are acceptable.

Part D

Unit 4.1, 4.2 and 4.3 Practice Test Questions

1 point

- One point is earned for identifying the quantity at which demand is unit elastic, 6.



0	1
---	---

Student receives 1/1 point(s)

1 point

- One point is earned for identifying the quantity at which demand is unit elastic, 6.

Part E

2 points:

- One point is earned for correctly determining the monopolist's profit.

$$1/2[(60-20) \times 8] = \$160$$

- One point is earned for correctly determining the consumer surplus as zero.



0	1	2
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Student receives 2/2 point(s)

2 points:

- One point is earned for correctly determining the monopolist's profit.

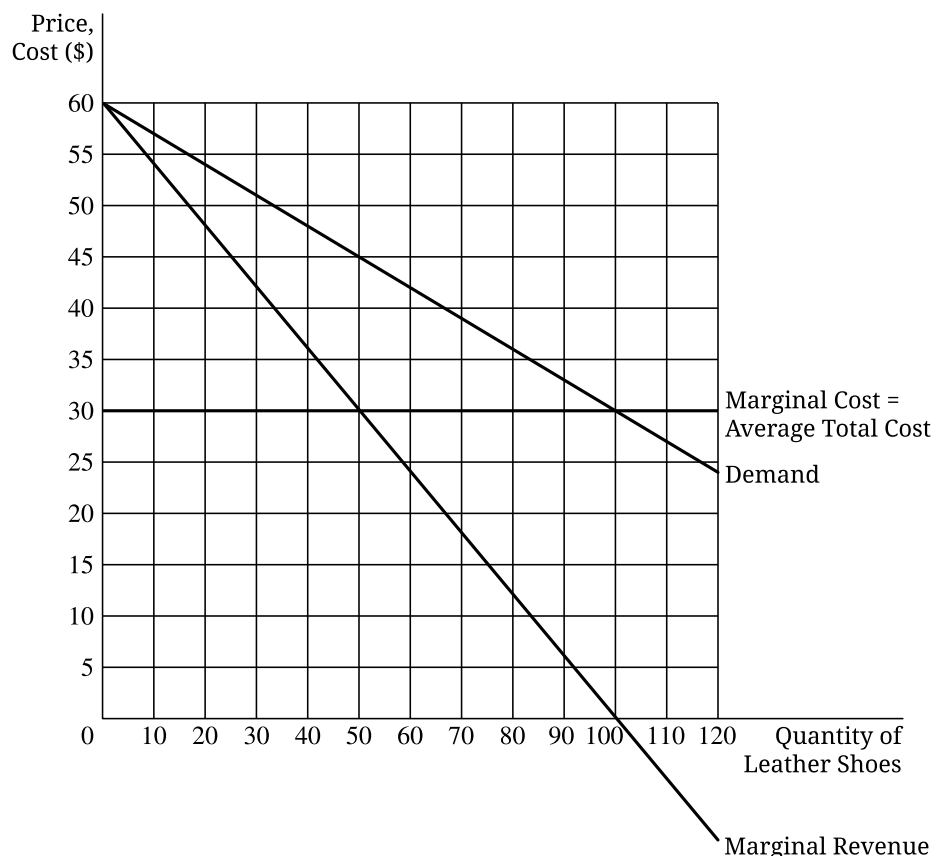
$$1/2[(60-20) \times 8] = \$160$$

- One point is earned for correctly determining the consumer surplus as zero.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

13. 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. If the question prompts you to “Calculate,” you must show how you arrived at your final answer.

The provided graph shows cost, revenue, and demand curves for a single-price monopolist that sells leather shoes. The fixed cost is zero, and the marginal cost is constant.



- Identify the monopolist's profit-maximizing quantity and price.
- Calculate the monopolist's economic profit at the profit-maximizing quantity. Show your work.
- If the monopolist decides to produce 10 additional units beyond the profit-maximizing quantity identified in part (a), would total revenue increase, decrease, or remain the same? Explain.
- Suppose the government breaks up the monopoly, resulting in a perfectly competitive market for leather shoes.
 - Identify the new equilibrium quantity and price.
 - Calculate the total economic surplus. Show your work.

Respond to all parts of the question.

Part A

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

Unit 4.1, 4.2 and 4.3 Practice Test Questions



0	1
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The response accurately includes the criterion below.

- ☐ States that the profit-maximizing quantity is 50 units and the profit-maximizing price is \$45.

Part B

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

The response must show appropriate work in order to receive the point.



0	1
---	---

The response accurately includes the criterion below

Calculates the profit as \$750 and shows the work.

$$\begin{aligned}
 \text{Profit} &= (\text{Price} - \text{Average Total Cost}) \times \text{Quantity} \\
 &= (\$45 - \$30) \times 50 \\
 &= \$15 \times 50 \\
 &= \$750
 \end{aligned}$$



OR

$$\begin{aligned}
 \text{Profit} &= \text{Total Revenue} - \text{Total Cost} \\
 &= (\$45 \times 50) - (\$30 \times 50) \\
 &= \$2,250 - \$1,500 \\
 &= \$750
 \end{aligned}$$

Part C

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.



0	1
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The response accurately includes the criterion below.

States that total revenue will increase and explains with **ONE** of the following.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

- ☐ ◦ Marginal revenue is positive between 50 and 60 units.
- The demand is elastic in this range of output.

Part D

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

The response must show appropriate work in order to receive the point.



0	1	2
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The response accurately includes two of the criteria below.

- ☐ Identifies the equilibrium quantity as 100 and the equilibrium price as \$30.

Calculates the total economic surplus as \$1,500 and shows the work.

Total Economic Surplus = Consumer Surplus + Producer Surplus

- ☐ Total Economic Surplus = $[\frac{1}{2} \times (\$60 - \$30) \times 100] + \$0$
 $= [\frac{1}{2} \times (\$30) \times 100]$
 $= \$1,500$

Unit 4.1, 4.2 and 4.3 Practice Test Questions

14. Assume that Clark Electronics has a monopoly in the production and sale of a new device for detecting and destroying a computer virus. Clark Electronics currently incurs short-run losses, but it continues to operate.
- What must be true for Clark to continue to operate in the short run?
 - Draw a correctly labeled graph, and show each of the following for Clark.
 - The profit-maximizing price and output
 - Area of loss
 - Assume Clark is maximizing profit. What will happen to its total revenue if Clark raises its price? Explain.*
 - If demand for the new device increases, explain what will happen to each of the following in the short run.*
 - Profit-maximizing output*
 - Total cost*

Respond to all parts of the question.

Part A

1 point:

- One point is earned for stating that the firm must be covering its AVC (or TVC), or $P > AVC$.



0	1
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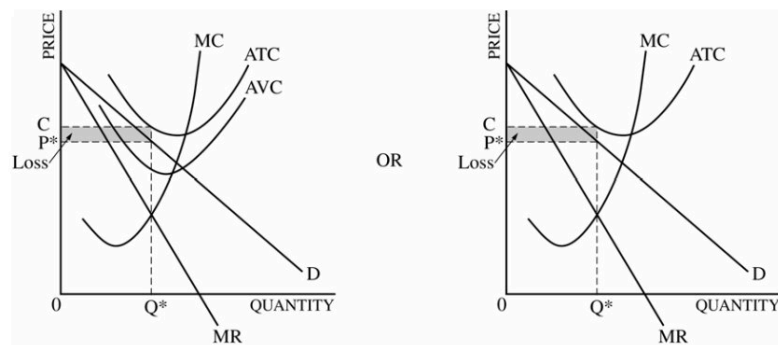
Student receives 1/1 point(s)

1 point:

- One point is earned for stating that the firm must be covering its AVC (or TVC), or $P > AVC$.

Part B

Unit 4.1, 4.2 and 4.3 Practice Test Questions



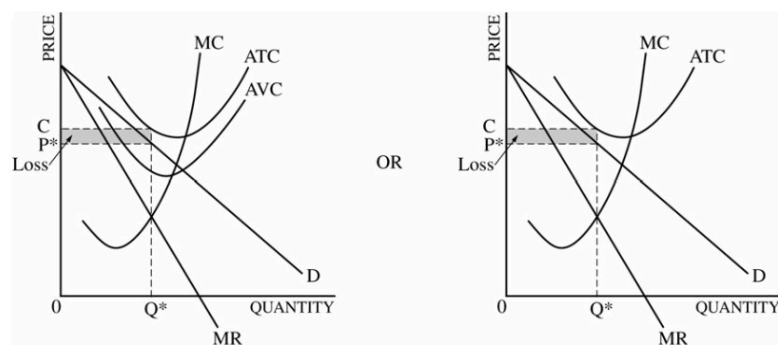
4 points:

- One point is earned for a correctly labeled graph with MR below the demand curve.
- One point is earned for identifying profit-maximizing quantity at $MR=MC$.
- One point is earned for identifying price on the demand curve above equilibrium quantity and below ATC.
- One point is earned for showing the correct loss area.



0	1	2	3	4
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Student receives 4/4 point(s)



4 points:

- One point is earned for a correctly labeled graph with MR below the demand curve.
- One point is earned for identifying profit-maximizing quantity at $MR=MC$.
- One point is earned for identifying price on the demand curve above equilibrium quantity and below ATC.
- One point is earned for showing the correct loss area.

Part C

Unit 4.1, 4.2 and 4.3 Practice Test Questions

2 points:

- One point is earned for indicating that total revenue will fall.
- One point is earned for explaining that demand is elastic or MR is positive.



0	1	2
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Student receives 2/2 point(s)

2 points:

- One point is earned for indicating that total revenue will fall.
- One point is earned for explaining that demand is elastic or MR is positive.

Part D

4 points:

- One point is earned for indicating that the profit-maximizing output will increase.
- One point is earned for explaining that the marginal revenue curve will shift to the right.
- One point is earned for concluding that total cost will increase.
- One point is earned for explaining that output increases.



0	1	2	3	4
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Student receives 4/4 point(s)

4 points:

- One point is earned for indicating that the profit-maximizing output will increase.
- One point is earned for explaining that the marginal revenue curve will shift to the right.
- One point is earned for concluding that total cost will increase.
- One point is earned for explaining that output increases.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

- 15.** Assume that a monopolist is producing in the inelastic portion of its demand curve. Which of the following will occur if the monopolist decreases its price?
- (A) Marginal revenue will decrease, but profits will increase.
 - (B) Marginal revenue will increase, but profits will decrease.
 - (C) Total revenue will decrease, but profits will increase.
 - (D) Both total revenue and profits will decrease.** ✓
 - (E) Both total revenue and profits will increase.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

16. 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. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

As the only gas station in a small town, FillUp has a local monopoly on the sale of gasoline. FillUp is currently earning positive economic profit.

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

(i) FillUp's profit-maximizing quantity, labeled Q_F

(ii) FillUp's profit-maximizing price, labeled P_F

(iii) The deadweight loss associated with FillUp's profit-maximizing quantity, shaded completely

(iv) The maximum quantity at which FillUp would earn zero economic profit, labeled Q_Z

(b) Assume that FillUp's fixed costs increase because of a new lease on its property and FillUp stays in business. Will each of the following increase, decrease, or remain unchanged at FillUp's profit-maximizing quantity?

(i) The deadweight loss. Explain.

(ii) FillUp's economic profit

(c) Assume the demand for gasoline decreases because people bike to work more often.

(i) What must be true for FillUp to continue to operate in the short run?

(ii) What happens to FillUp's profit-maximizing quantity and price in the short run assuming the firm continues to operate?

Respond to all parts of the question.

Part A

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

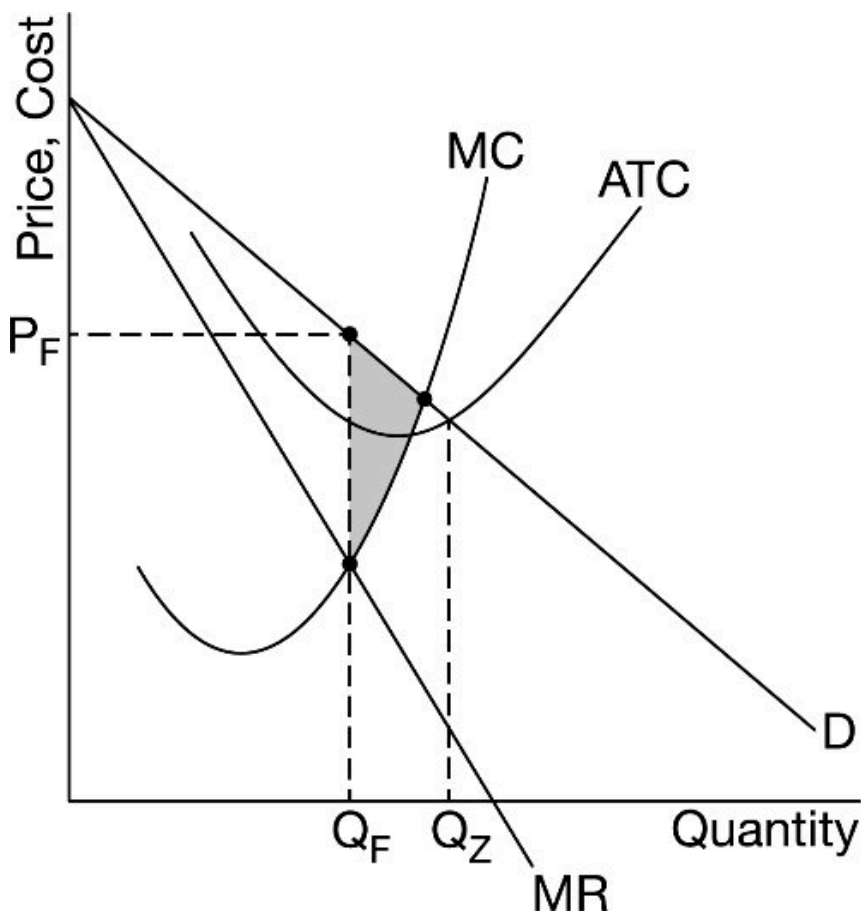


0	1	2	3	4	5
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The response accurately includes five of the criteria below.

- ☐ A correctly labeled graph of the monopoly showing downward-sloping demand (D) and marginal revenue (MR) curves with the MR curve below the demand curve.
- ☐ The profit-maximizing quantity, labeled Q_F , where $MR = MC$
- ☐ The profit-maximizing price, labeled P_F , from the demand curve at Q_F and above the average total cost curve (ATC).
- ☐ The area representing the deadweight loss, completely shaded.
- ☐ The quantity where economic profits are zero, labeled Q_Z , where ATC intersects the demand curve.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

Solution**Part B**

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.



0	1	2
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The response accurately includes both criteria below.

- ☐ States that the deadweight loss will remain unchanged and for explaining that changes in fixed costs do not change the profit-maximizing quantity of the firm, or fixed costs do not affect MC.
- ☐ States that FillUp's economic profit will decrease.

Part C

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

Unit 4.1, 4.2 and 4.3 Practice Test Questions



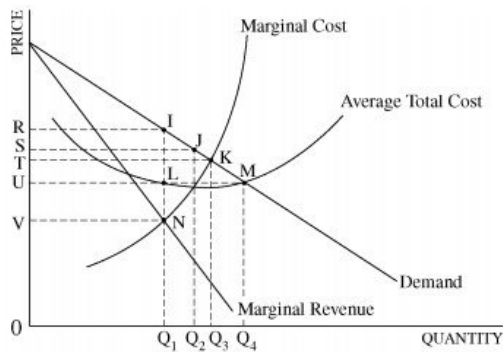
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The response accurately includes both criteria below.

- ☐ States that the price must be greater than AVC at the profit-maximizing level of output.
- ☐ States that the profit-maximizing quantity and price will both decrease.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

The following questions are based on the graph below, which shows the cost and revenue curves of a monopoly firm.



17. If this were a perfectly competitive industry with the same costs as shown on the graph, the equilibrium price and output would be which of the following?

(A)

Price	Output
OR	Q ₁

(B)

Price	Output
OS	Q ₂

(C)

Price	Output	✓
OT	Q ₃	

(D)

Price	Output
OU	Q ₁

(E)

Price	Output
OU	Q ₄

Unit 4.1, 4.2 and 4.3 Practice Test Questions

18. The economic profit of the profit-maximizing monopolist is given by the area

- (A) RSJI
- (B) R0Q₁I
- (C) RULI
- (D) RVNI
- (E) U0Q₄M



Unit 4.1, 4.2 and 4.3 Practice Test Questions

19. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include diagrams, if useful or required, in explaining your answers. All diagrams should be clearly labeled.
- Using one graph for a monopoly firm and one for a perfectly competitive firm, draw and label the demand curve and the marginal revenue-curve for each of these firms.
 - For the perfectly competitive (a price taker) firm, explain why the relationship between demand and marginal revenue exists.
 - For the monopoly firm, explain why the relationship between demand and marginal revenue exists.

Respond to all parts of the question.

Part A

2 Points

- 1 - for correct graph showing the relationship between demand and marginal revenue for the competitive firm
- 1 - for correct graph showing the relationship between demand and marginal revenue for the monopoly firm



0	1	2
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The student earns all of the following points:

- 1 - for correct graph showing the relationship between demand and marginal revenue for the competitive firm
- 1 - for correct graph showing the relationship between demand and marginal revenue for the monopoly firm

Part B

1 Point

- 1 - for $D=MR$; the firm is a price taker and can sell all output at the market price



0	1
---	---

The student earns all of the following points:

- 1 - for $D=MR$; the firm is a price taker and can sell all output at the market price

Unit 4.1, 4.2 and 4.3 Practice Test Questions

Part C

2 Points

- 1 - for $D(\text{or } P) > MR$ Explaining that the monopoly has control over price
- 1 - for indicating that to sell additional units, price must be lowered on all units



0	1	2
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The student earns all of the following points:

- 1 - for $D(\text{or } P) > MR$ Explaining that the monopoly has control over price
- 1 - for indicating that to sell additional units, price must be lowered on all units

20. Which of the following statements is true for a perfectly competitive firm but **not** true for a monopoly?

(A) The firm's price is equal to its average revenue.

(B) The firm cannot affect the market price for its good.



(C) It is difficult for other firms to enter the industry.

(D) The demand for the firm's product is unit elastic.

(E) The firm must lower its price in order to sell more of its product.

21. Imperfectly competitive markets do not achieve allocative efficiency because profit maximization for each firm occurs when which of the following is true?

(A) Price equals average total cost.

(B) Price is greater than marginal cost.



(C) Price equals marginal revenue.

(D) Price is less than marginal benefit.

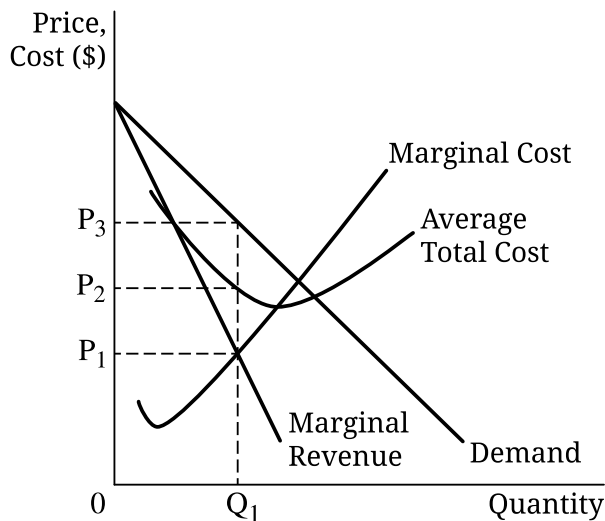
(E) Price is less than marginal revenue.

Answer B

Correct. Allocative efficiency requires that price equals marginal cost and profit maximization requires that marginal revenue equals marginal cost. Since price is greater than marginal revenue and therefore marginal cost at the profit-maximizing quantity in imperfectly competitive markets, such markets do not achieve allocative efficiency.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

22.



The graph shows the cost and revenue curves for a profit-maximizing firm. Which of the following is true about the firm?

- (A) The firm operates in a perfectly competitive market, producing the allocatively efficient quantity and charging P_1 .
- (B) The firm is a monopolist, producing the allocatively efficient quantity and charging P_1 .
- (C) The firm is a natural monopoly, producing Q_1 and earning positive economic profit.
- (D) The firm operates in an imperfectly competitive market, producing Q_1 and earning positive economic profit. ✓
- (E) The firm operates in a monopolistically competitive market, producing Q_1 and earning negative economic profit.

Answer D

Correct. The firm operates in an imperfectly competitive market, as evidenced by the downward-sloping demand curve it faces. The firm will maximize profit by producing where marginal revenue equals marginal cost (at Q_1) and charge price P_3 . The firm will earn positive economic profit of $(P_3 - P_2) \times Q_1$, since $P_3 > P_2$ (where P_2 is ATC at Q_1).

Unit 4.1, 4.2 and 4.3 Practice Test Questions

23. Due to a new technology, Brunelle Inc. enjoys monopoly power. Brunelle does not engage in price discrimination.
- Explain why the demand curve lies above the marginal revenue curve for Brunelle.
 - Assume that Brunelle is earning short-run economic profits. Using a correctly labeled graph, show the following for Brunelle.
 - Profit-maximizing level of output, labeled as Q^*
 - Profit-maximizing price, labeled as P^*
 - Economic profits, as a shaded area
 - If Brunelle wants to maximize its total revenues instead of profits, using the graph from part (b) show the following.
 - Revenue-maximizing level of output, labeled as Q^r
 - Revenue-maximizing price, labeled as P^r
 - Given your answer in part (b), indicate whether Brunelle is producing the allocatively efficient level of output. Explain.
 - Explain what will happen to Brunelle's demand curve as other firms adopt the same technology.

Respond to all parts of the question.

Part A

1 point: Brunelle must lower its price on all units to sell additional units. Thus, the additional revenue from the last unit sold is the price *minus* the loss on units that would otherwise sell at a higher price.



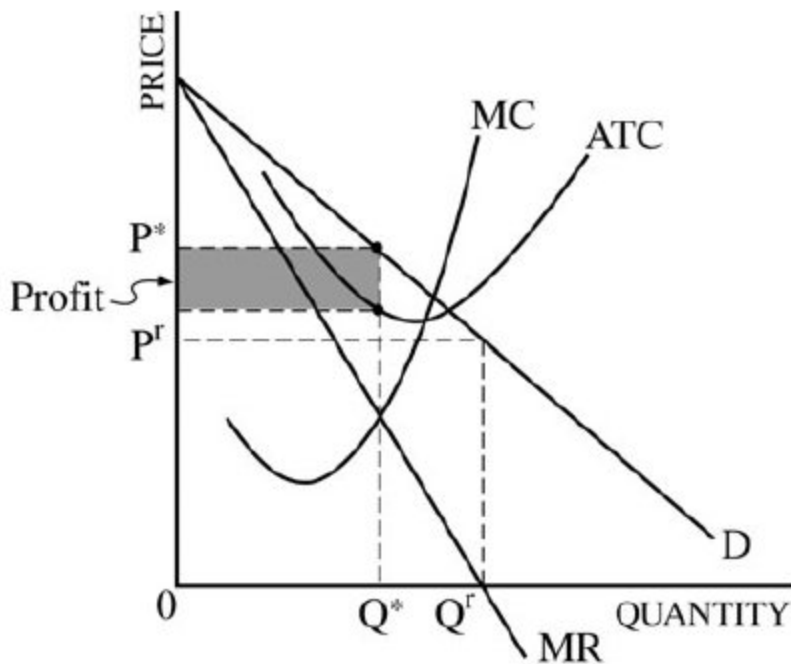
0	1
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Student receives 1/1 point(s)

1 point: Brunelle must lower its price on all units to sell additional units. Thus, the additional revenue from the last unit sold is the price *minus* the loss on units that would otherwise sell at a higher price.

Part B

Unit 4.1, 4.2 and 4.3 Practice Test Questions



1 point – Correctly labeled graph with downward-sloping demand and marginal revenue below demand

1 point - For Q^* at $MC=MR$

1 point - For P^* at the height of the demand curve above $MC=MR$

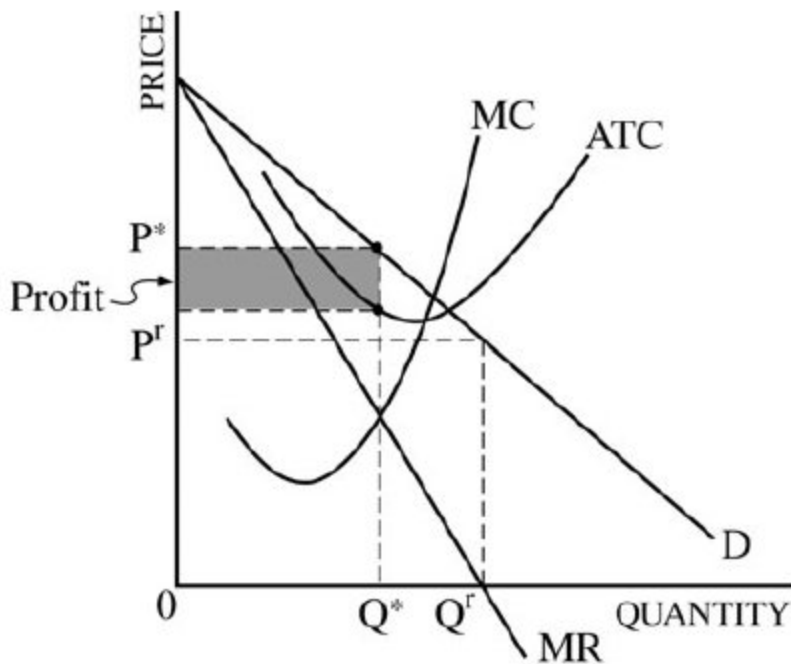
1 point - For shading the correct area of profit $(P^*-ATC)Q^*$

✓

0	1	2	3	4
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Student receives 4/4 point(s)

Unit 4.1, 4.2 and 4.3 Practice Test Questions



1 point – Correctly labeled graph with downward-sloping demand and marginal revenue below demand

1 point - For Q^* at $MC=MR$

1 point - For P^* at the height of the demand curve above $MC=MR$

1 point - For shading the correct area of profit $(P^*-ATC)Q^*$

Part C

1 point - For Identifying Q_r at $MR=0$

1 point - For identifying P_r at the height of the demand curve above Q_r



0	1	2
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Student receives 2/2 point(s)

1 point - For Identifying Q_r at $MR=0$

1 point - For identifying P_r at the height of the demand curve above Q_r

Part D

1 point: Brunelle is not producing the allocatively efficient level of output because $P > MC$ ($MSB > MSC$)

Unit 4.1, 4.2 and 4.3 Practice Test Questions



0	1
---	---

Student receives 1/1 point(s)

1 point: Brunelle is not producing the allocatively efficient level of output because $P > MC$ ($MSB > MSC$)

Part E

1 point: Brunell's demand curve will shift inward to the left



0	1
---	---

Student receives 1/1 point(s)

1 point: Brunell's demand curve will shift inward to the left

24. The condition for allocative efficiency is violated when

(A) firms are price makers(price searchers)



(B) short-run profits exist in a competitive industry

(C) price equals average total cost

(D) the market demand curve is inelastic in a competitive industry

(E) the market demand curve is elastic in a competitive industry

25. Which of the following is true if a monopolist's marginal revenue is negative at the current level of output?

(A) Demand for its product is unit elastic.

(B) Demand for its product is price elastic.

(C) Demand for its product is price inelastic.



(D) Marginal cost is equal to price.

(E) Marginal revenue is equal to price.

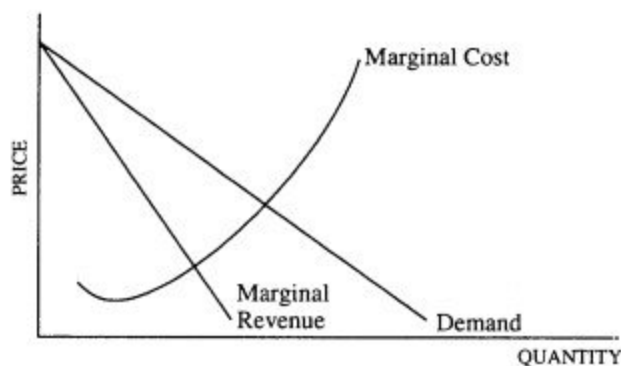
Unit 4.1, 4.2 and 4.3 Practice Test Questions

26. Which of the following is true in the inelastic region of a monopolist's demand curve as output increases?
- (A) Marginal revenue and total revenue are negative.
 - (B) Marginal revenue is increasing and total revenue is positive.
 - (C) Marginal revenue is decreasing and total revenue is negative.
 - (D) Marginal revenue is positive and total revenue is increasing.
 - (E) Marginal revenue is negative and total revenue is decreasing. ✓

Answer E

Correct. Marginal revenue is zero when total revenue is maximized. This occurs at the point of unit elasticity on the demand curve. Moving down the demand curve from the point of unit elasticity, the region of inelastic demand begins, marginal revenue is negative, and total revenue decreases. The monopolist will avoid producing along the inelastic portion of the demand curve by decreasing output until marginal revenue is zero or positive.

27.

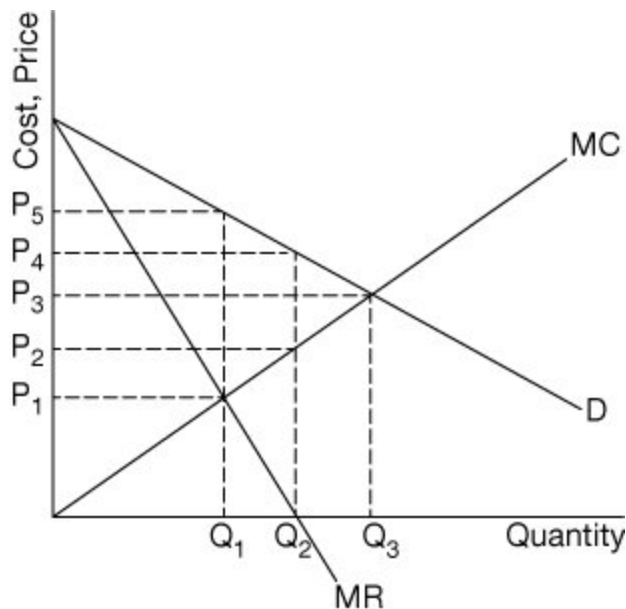


The graph above shows a firm's cost and revenue curves. This profit-maximizing firm will

- (A) produce where demand is inelastic
- (B) charge a higher price than that necessary to maximize revenues ✓
- (C) have many profit-maximizing price and quantity combinations
- (D) be unable to increase sales and total revenues by lowering its price
- (E) never have a region of falling average total cost

Unit 4.1, 4.2 and 4.3 Practice Test Questions

28.



Given the information in the graph provided, what is the monopolist's profit-maximizing quantity and price combination?

- (A) Q_1, P_1
- (B) Q_3, P_3
- (C) Q_2, P_2
- (D) Q_2, P_4
- (E) Q_1, P_5

**Answer E**

Correct. To maximize profits, firms should produce the quantity at which marginal revenue equals marginal cost ($MR = MC$). This is achieved when the firm produces Q_1 . The monopolist sets the price from the demand curve at P_5 .

Unit 4.1, 4.2 and 4.3 Practice Test Questions

29.



Which of the following statements about the firm whose cost and revenue curves are shown above is correct?

- (A) Its profit-maximizing price is \$5.
- (B) Its profit-maximizing output level is 200 units.
- (C) Its maximum profit is \$4,000.
- (D) If it produces 250 units, it will earn no economic profits.
- (E) At the profit-maximizing level of output, its total cost is \$1,000.

Unit 4.1, 4.2 and 4.3 Practice Test Questions**30.**

- a. Draw a correctly labeled graph showing a typical monopoly that is maximizing profit and indicate each of the following.
 - i. Price
 - ii. Quantity of output
 - iii. Profit
- b. Describe and explain the relationship between the monopolist's demand curve and marginal revenue curve.
- c. *Label each of the following on your graph in part (a).*
 - i. *Consumer surplus*
 - ii. *Deadweight loss*

Respond to all parts of the question.

Part A

Part a: For the monopolist, a correctly labeled graph should show a downward-sloping demand curve with a marginal revenue curve that lies below the demand curve. The monopolist's profit-maximizing output is found at the intersection of marginal revenue and marginal cost. The price is found on the demand curve, above the quantity produced. The firm's profits are represented by the rectangle that has a height (or vertical distance) of $(P - ATC)$ multiplied by the profit-maximizing output or Q .

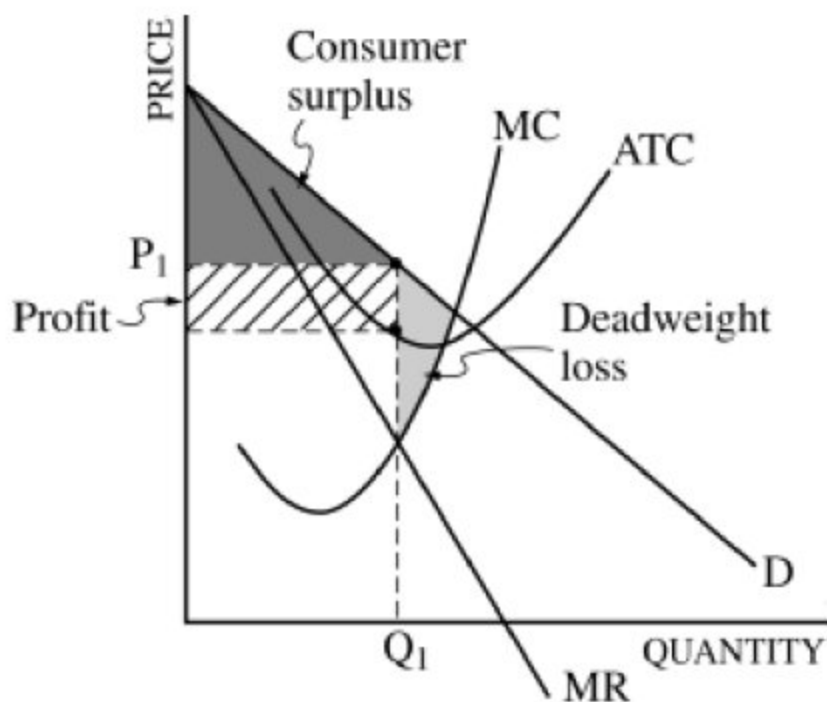
1 point for correctly labeled graph with downward-sloping demand curve AND marginal revenue curve below demand.

1 point for indicating Q at $MR=MC$.

1 point for finding the appropriate P on the demand curve directly above $MR=MC$ output.

1 point for area of profit (must use P , ATC , and Q).

Unit 4.1, 4.2 and 4.3 Practice Test Questions



✓

0	1	2	3	4
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Student receives 4/4 point(s)

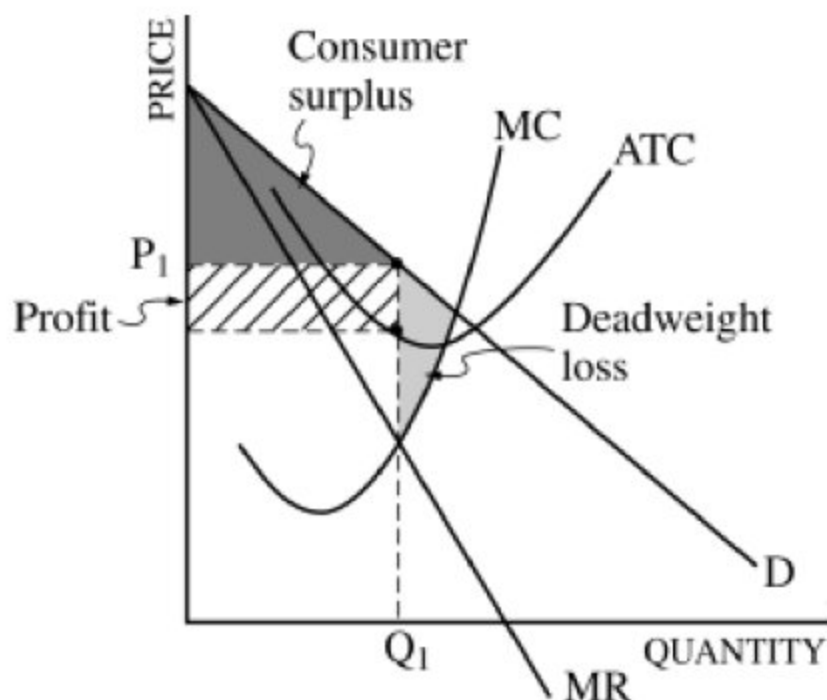
1 point for correctly labeled graph with downward-sloping demand curve AND marginal revenue curve below demand.

1 point for indicating Q at $MR=MC$.

1 point for finding the appropriate P on the demand curve directly above $MR=MC$ output.

1 point for area of profit (must use P , ATC , and Q).

Unit 4.1, 4.2 and 4.3 Practice Test Questions

**Part B**

Part b: Marginal revenue is less than price since to sell additional units of output, the monopolist must lower price on all units of output sold.

1 point - the monopolist must lower its price on all units to sell additional quantities so $MR < P$.



0	1
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Student receives 1/1 point(s)

1 point - the monopolist must lower its price on all units to sell additional quantities so $MR < P$.

Part C

Part c: Consumer surplus is the area bounded vertically by the difference between the demand curve (willingness to pay) and the monopolist's price over the number of units sold by the monopolist. The deadweight loss from monopoly is the combination of consumer and producer surplus that is lost when comparing the monopoly output to the output that would be produced under competitive conditions (where $P = MC$).

1 point for indicating correct area for consumer surplus.

1 point for indicating correct area for deadweight loss.

Unit 4.1, 4.2 and 4.3 Practice Test Questions



0	1	2
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Student receives 2/2 point(s)

1 point for indicating correct area for consumer surplus.

1 point for indicating correct area for deadweight loss.

31. Which of the following is necessarily true of the profit-maximizing equilibrium of a monopolist who sets a single price?

(A) Price equals average total cost.

(B) Price is greater than marginal cost.



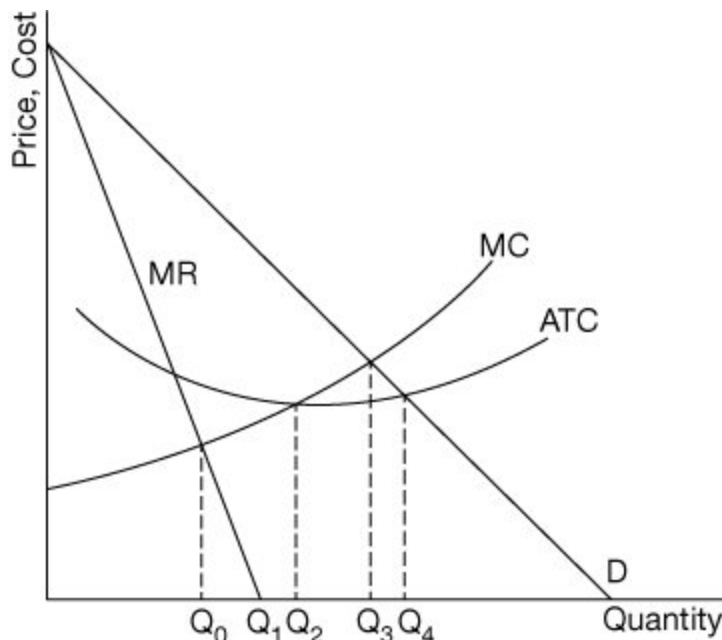
(C) Average total cost is at its minimum level.

(D) Marginal revenue is greater than marginal cost.

(E) Marginal cost is minimized.

Unit 4.1, 4.2 and 4.3 Practice Test Questions

32.



The graph above shows the demand (D), marginal revenue (MR), marginal cost (MC), and average total cost (ATC) curves for a monopoly. Based on the information in the graph provided, what is the profit-maximizing quantity for a monopolist that engages in perfect price discrimination?

- (A) Q_0
- (B) Q_1
- (C) Q_2
- (D) Q_3
- (E) Q_4

**Answer D**

Correct. Q_3 is where P (demand line) is equal to MC . This is where the firm is allocatively efficient and practicing perfect price discrimination. With perfect price discrimination, a monopolist produces the quantity where price equals marginal cost (just as a competitive market would) but extracts all economic surplus associated with its product and eliminates all deadweight loss.