Chapter 14: ADVANCED PRICING TECHNIQUES

Multiple Choice

14-1 A firm faces the demand for its product, \( P = 100 - 0.5Q \), as shown in the figure below. It produces under conditions of constant costs in the long run, and \( LMC = LAC = $12 \) per unit.

If the firm must set a uniform price for the good, what price will it set to maximize its profit in the long run?

a. $12
b. $24
c. $25
d. $30
e. none of the above

Answer: e
Difficulty: 02 Medium
Topic: Price Discrimination: Capturing Consumer Surplus
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-01

14-2 A firm faces the demand for its product, \( P = 100 - 0.5Q \), as shown in the figure below. It produces under conditions of constant costs in the long run, and \( LMC = LAC = $12 \) per unit.
At the profit-maximizing uniform price, the firm earns economic profit of __________ when it engages in uniform pricing.

a. $3,872  
b. $4,728  
c. $4,874  
d. $5,428  
e. none of the above

Answer: a  
Difficulty: 03 Hard  
Topic: Price Discrimination: Capturing Consumer Surplus  
AACSB: Analytic  
Blooms: Apply  
Learning Objective: 14-01

14-3  A firm faces the demand for its product, \( P = 100 - 0.5Q \), as shown in the figure below. It produces under conditions of constant costs in the long run, and \( LMC = LAC = $12 \) per unit.

[Graph showing demand curve \( P = 100 - 0.5Q \) and supply curve \( LMC = LAC = $12 \) per unit]

Under uniform pricing, consumers enjoy $______ of consumer surplus.

a. $1,872  
b. $1,936  
c. $2,474  
d. $2,500  

Answer: b  
Difficulty: 03 Hard  
Topic: Price Discrimination: Capturing Consumer Surplus  
AACSB: Analytic  
Blooms: Apply  
Learning Objective: 14-01

14-4  A firm faces the demand for its product, \( P = 100 - 0.5Q \), as shown in the figure below. It produces under conditions of constant costs in the long run, and \( LMC = LAC = $12 \) per unit.
Under uniform pricing, the firm loses sales on _______ units that could be profitably sold if buyers paid their demand prices instead of facing the uniform price.

a. 44  

b. 50  

c. 88  

d. 112  

Answer: d  

Difficulty: 03 Hard  

Topic: Price Discrimination: Capturing Consumer Surplus  

AACSB: Analytic  

Bloom: Apply  

Learning Objective: 14-01

14-5 A firm faces the demand for its product, \( P = 100 - 0.5Q \), as shown in the figure below. It produces under conditions of constant costs in the long run, and \( LMC = LAC = $12 \) per unit.

If the firm can practice first-degree price discrimination, it will be able to collect $_______ in total revenue under perfect price discrimination.

a. $1,872  

b. $1,936  

c. $7,744  

d. $9,856  

e. none of the above  

Answer: c  

Chapter 14: ADVANCED PRICING TECHNIQUES

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Chapter 14: ADVANCED PRICING TECHNIQUES

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14-6. A firm faces the demand for its product, \( P = 100 - 0.5Q \), as shown in the figure below. It produces under conditions of constant costs in the long run, and \( LMC = LAC = $12 \) per unit.

If the firm can practice first-degree price discrimination, it can make a maximum profit of
a. $1,872.
b. $1,936.
c. $7,744.
d. $9,856.

Answer: c

Difficulty: 03 Hard
Topic: First-Degree (Or Perfect) Price Discrimination
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-02

14-7. A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by \( D_D \) in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by \( D_N \) in the figure below. The firm’s variable costs are constant (\( SMC = AVC = $12 \)) and its total fixed cost is $250,000. The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.
Suppose the marketing director ignores the nighttime market and wishes to extract all consumer surplus from the daytime buyers. The optimal access charge is $_________ and the optimal usage fee is $______ per unit.

a. \( A^* = \$1,000 \) and \( f^* = \$12 \)
b. \( A^* = \$2,400 \) and \( f^* = \$12 \)
c. \( A^* = \$7,744 \) and \( f^* = \$12 \)
d. \( A^* = \$9,856 \) and \( f^* = \$12 \)

Answer: c
Difficulty: 03 Hard
Topic: Second-Degree Price Discrimination Methods
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-03

A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by \( D_D \) in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by \( D_N \) in the figure below. The firm’s variable costs are constant (\( SMC = AVC = \$12 \)) and its total fixed cost is $250,000. The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.
Suppose the marketing director ignores the nighttime market and wishes to extract all consumer surplus from the daytime buyers. By setting the optimal access charge and user fee, the firm will earn $_________ of profit on each one of the 50 daytime buyers.

a. $1,872.
b. $1,936.
c. $7,744.
d. $9,856.

Answer: c

Difficulty: 03 Hard

Topic: Second-Degree Price Discrimination Methods

AACSB: Analytic

Blooms: Apply

Learning Objective: 14-03

14-9. A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by \( D_d \) in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by \( D_n \) in the figure below. The firm’s variable costs are constant (\( SMC = AVC = $12 \)) and its total fixed cost is $250,000. The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.

Now suppose the marketing director wishes to serve both daytime and nighttime buyers, what is the \( MR_f \) function?

a. \( MR_f = 5,000 - 200f \)
b. \( MR_f = 7,500 - 250f \)
c. \( MR_f = 8,000 - 250f \)
d. \( MR_f = 7,500 - 200f \)

Answer: a

Difficulty: 03 Hard

Topic: Second-Degree Price Discrimination Methods

AACSB: Analytic

Blooms: Apply

Learning Objective: 14-03
14-10. A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by \( D_D \) in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by \( D_N \) in the figure below. The firm’s variable costs are constant \( (SMC = AVC = $12) \) and its total fixed cost is $250,000. The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.

Assuming the firm will serve both daytime and nighttime buyers, what is the \( MC_f \) function?

a. \( MC_f = -1,800 \)
b. \( MC_f = -2,000 \)
c. \( MC_f = 8,000 - 250f \)
d. \( MC_f = 7,500 + 200f \)
e. none of the above

Answer: a

Difficulty: 03 Hard

Topic: Second-Degree Price Discrimination Methods

AACSB: Analytic

Blooms: Apply

Learning Objective: 14-03

14-11. A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by \( D_D \) in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by \( D_N \) in the figure below. The firm’s variable costs are constant \( (SMC = AVC = $12) \) and its total fixed cost is $250,000. The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.
Assuming both daytime and nighttime markets are served, the optimal per unit usage fee ($f^*$) is

a. $f^* = $24
b. $f^* = $34
c. $f^* = $44
d. $f^* = $54
e. $f^* = $64

Answer: b

Difficulty: 03 Hard
Topic: Second-Degree Price Discrimination Methods
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-03

14-12. A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by $D_D$ in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by $D_N$ in the figure below. The firm’s variable costs are constant ($SMC = AVC = $12) and its total fixed cost is $250,000.

The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.
Assuming both daytime and nighttime markets are served, the optimal fixed access charge \( A^* \) is

- a. \( A^* = $1,472 \)
- b. \( A^* = $2,178 \)
- c. \( A^* = $3,872 \)
- d. \( A^* = $4,356 \)
- e. \( A^* = $7,744 \)

Answer: b

Difficulty: 03 Hard

Topic: Second-Degree Price Discrimination Methods

AACSB: Analytic

Blooms: Apply

Learning Objective: 14-03

14-13. A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by \( D_D \) in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by \( D_N \) in the figure below. The firm’s variable costs are constant \( (SMC = AVC = $12) \) and its total fixed cost is $250,000. The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.
How much profit will the firm earn by charging the optimal access charge and optimal access fee (remember that there are 50 daytime and 50 nighttime buyers)?

a. $80,600  
b. $90,600  
c. $124,600  
d. $185,600  
e. $215,600

Answer: d  
Difficulty: 03 Hard  
Topic: Second-Degree Price Discrimination Methods  
AACSB: Analytic  
Blooms: Apply  
Learning Objective: 14-03

14-14. A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by $D_D$ in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by $D_N$ in the figure below. The firm’s variable costs are constant ($SMC = AVC = $12) and its total fixed cost is $250,000. The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.

![Diagram of demand curves for daytime and nighttime buyers]

Should the firm bother to sell output to the nighttime market?

a. Yes, because only $77,200 of profit is earned by serving only the daytime buyers.  
b. Yes, because only $137,200 of profit is earned by serving only the daytime buyers.  
c. No, because $240,000 of profit is earned by serving only the daytime buyers.  
d. No, because $300,000 of profit is earned by serving only the daytime buyers.

Answer: b  
Difficulty: 03 Hard  
Topic: Second-Degree Price Discrimination Methods  
AACSB: Analytic  
Blooms: Apply  
Learning Objective: 14-03

14-15 A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by $D_D$ in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by $D_N$ in the figure below. The firm’s variable costs are constant ($SMC = AVC = $12) and its total fixed cost is $250,000.
The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.

A firm selling in two markets is practicing price discrimination
a. anytime it charges different consumers different prices.
b. when it is charging different consumers different prices and the price difference is not based upon cost differences.
c. when it refuses to sell the good to some group of consumers.
d. all of the above
e. none of the above
Answer: b
Difficulty: 01 Easy
Topic: Price Discrimination: Capturing Consumer Surplus
AACSB: Reflective Thinking
Blooms: Remember
Learning Objective: 14-01

14-16 A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by \( D_0 \) in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by \( D_N \) in the figure below. The firm’s variable costs are constant (\( SMC = AVC = \$12 \)) and its total fixed cost is \( \$250,000 \). The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.
A firm sells its product to two groups of buyers: daytime buyers and nighttime buyers. There are 50 daytime buyers, all of whom have identical demands given by $D_D$ in the figure below. There are 50 nighttime buyers, all of whom have identical demands given by $D_N$ in the figure below. The firm’s variable costs are constant ($SMC = AVC = $12) and its total fixed cost is $250,000. The marketing director must devise a two-part pricing plan that will maximize the firm’s profit.

**Panel A - One Daytime buyer’s demand**

To maximize profit a price discriminating firm should
a. produce the output at which total marginal revenue equals marginal cost.
b. allocate the optimal output so the elasticity is the same in each market.
c. allocate the output so that marginal revenue is the same in each market.
d. both a and c

e. all of the above

Answer: d

Difficulty: 02 Medium

Topic: Price Discrimination: Capturing Consumer Surplus

AACSB: Reflective Thinking

Blooms: Understand

Learning Objective: 14-01

**Panel B - One Nighttime buyer’s demand**

If a firm is selling a product in two markets, A and B, and the marginal revenue in A is $25 and the marginal revenue in B is $20, the firm should
a. charge a higher price in A where MR is higher
b. charge a lower price in B where MR is lower

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c. sell more in B and less in A
d. sell more in A and less in B
e. both a and c

Answer: d

Difficulty: 02 Medium

Topic: Price Discrimination: Capturing Consumer Surplus

AACSB: Reflective Thinking

Blooms: Understand

Learning Objective: 14-01

14-18 To successfully practice price discrimination
a. the firm must be a pure monopoly
b. the firm must possess market power
c. it must be difficult for consumers in one market to sell to consumers in the other market
d. both a and c
e. both b and c

Answer: e

Difficulty: 02 Medium

Topic: Price Discrimination: Capturing Consumer Surplus

AACSB: Reflective Thinking

Blooms: Understand

Learning Objective: 14-01

14-19 In order to maximize profit, a firm that sells its output in two markets will allocate total output between the two markets so that:
a. marginal revenue is equal in the two markets
b. marginal revenue for the firm is equal to the sum of the marginal revenues
c. marginal revenue for the firm is equal to the sum of the marginal costs
d. both a and b
e. none of the above

Answer: a

Difficulty: 01 Easy

Topic: Price Discrimination: Capturing Consumer Surplus

AACSB: Reflective Thinking

Blooms: Understand

Learning Objective: 14-01

14-20 A news magazine offers students a discount on the regular subscription rate. The total number of subscriptions is optimal, and, at the current prices, the marginal revenue from the last subscription sold to a student is $6, while the marginal revenue from the last subscription sold to a regular customer is $10. In order to maximize profit, the magazine should
a. stop offering students a discount on the regular subscription rate.
b. offer students a higher discount (lower the price to students).
c. offer students a lower discount (raise the price to students).
d. offer all customers the same discount received by the students.

c.

Answer: c

Difficulty: 02 Medium

Topic: Price Discrimination: Capturing Consumer Surplus

AACSB: Reflective Thinking

Blooms: Understand

Learning Objective: 14-01
A news magazine offers students a discount on the regular subscription rate. The total number of subscriptions is optimal, and, at the current prices, the marginal revenue from the last subscription sold to a student is $6, while the marginal revenue from the last subscription sold to a regular customer is $10. If the magazine sells one more subscription to a regular customer and one less subscription to a student:

a. profit will increase $4
b. profit will increase $16
c. profit will decrease $6
d. profit will decrease $10
e. none of the above

Answer: a

Difficulty: 01 Easy
Topic: Price Discrimination: Capturing Consumer Surplus
AACSB: Reflective Thinking
Blooms: Understand
Learning Objective: 14-01

The following graph shows the demands and marginal revenue in two markets, 1 and 2, for a price discriminating firm along with total marginal revenue, \( MR_T \), and marginal cost.

What total output should the firm produce?

a. 275 units
b. 225 units
c. 175 units
d. 350 units
e. 100 units

Answer: b

Difficulty: 01 Easy
Topic: Price Discrimination: Capturing Consumer Surplus
14-23 The following graph shows the demands and marginal revenue in two markets, 1 and 2, for a price discriminating firm along with total marginal revenue, $MR_T$, and marginal cost.

How should the firm allocate sales between the two markets?

a. 150 in each market
b. 100 in market 1, 175 in 2
c. 150 in market 1, 300 in 2
d. 112.5 in each market
e. 75 in market 1, 150 in 2

Answer: e

Difficulty: 02 Medium
Topic: Price Discrimination: Capturing Consumer Surplus

AACSB: Analytic
Blooms: Apply
Learning Objective: 14-01

14-24 The following graph shows the demands and marginal revenue in two markets, 1 and 2, for a price discriminating firm along with total marginal revenue, $MR_T$, and marginal cost.
What price should the firm charge in each market?

a. \( P_1 = $20, P_2 = $32.50 \)
b. \( P_1 = $35, P_2 = $22.50 \)
c. \( P_1 = $20, P_2 = $20 \)
d. \( P_1 = $27.50, P_2 = $35 \)
e. Impossible to say because market demand is not given

Answer: d

Difficulty: 03 Hard

Topic: Price Discrimination: Capturing Consumer Surplus

AACSB: Analytic

Bloms: Apply

Learning Objective: 14-01

14-25 The following graph shows the demands and marginal revenue in two markets, 1 and 2, for a price discriminating firm along with total marginal revenue, \( MR_T \), and marginal cost.

![Graph showing demands and marginal revenue in two markets](image)

At the optimal price and quantity, what is demand elasticity in each market?

a. \( E_1 = -3.67, E_2 = -2.33 \)
b. \( E_1 = -3, E_2 = -4 \)
c. \( E_1 = -2.5, E_2 = -3.5 \)
d. \( E_1 = -3, E_2 = -3 \)
e. \( E_1 = -1.67, E_2 = -2.33 \)

Answer: a

Difficulty: 03 Hard

Topic: Price Discrimination: Capturing Consumer Surplus

AACSB: Analytic

Bloms: Apply

Learning Objective: 14-01

14-26 The following graph shows the demands and marginal revenue in two markets, 1 and 2, for a price discriminating firm along with total marginal revenue, \( MR_T \), and marginal cost.
What rule do you follow for price determination for a firm that practices price discrimination?

a. elasticity and price are not related
b. price is lower in the higher elasticity market
c. price is higher in the higher elasticity market
d. profit is maximized when both prices and elasticities are equal
e. none of the above

Answer: b

Difficulty: 02 Medium
Topic: Price Discrimination: Capturing Consumer Surplus
AACSB: Reflective Thinking
Blooms: Understand
Learning Objective: 14-01

14-27 A firm is producing two goods (X and Y) that are related in consumption. The demand function for X is:

\[ Q_d = 120 - 4P_X - 10P_Y \]

Which of the following pairs of goods might the firm be producing?

a. cars and gasoline
b. cola and caffeine-free coke
c. newspapers and tennis balls
d. bran cereal and sugar-frosted corn flakes
e. both b and d

Answer: a

Difficulty: 02 Medium
Topic: Pricing Practices for Multiproduct Firms
AACSB: Reflective Thinking
Blooms: Understand
Learning Objective: 14-05

14-28 A firm is producing two goods (X and Y) that are related in consumption. The demand function for X is:

\[ Q_d = 120 - 4P_X - 10P_Y \]
In order to maximize profit, the firm
a. should determine jointly the levels of output for the two goods.
b. should treat the price of Y as given when determining the optimal production of good X.
c. should choose the levels of output for goods X and Y at which total marginal revenue equals total marginal cost.
d. both a and b

e. both a and c
Answer: a
Difficulty: 02 Medium
Topic: Pricing Practices for Multiproduct Firms
AACSB: Reflective Thinking
Blooms: Understand
Learning Objective: 14-05

14-29 In order to maximize profit, a firm producing two goods that are related in consumption should choose the levels of output at which
a. total marginal revenue equals total marginal cost.
b. total marginal revenue equals the marginal cost of each good.
c. the marginal revenue of each good equals total marginal cost.
d. marginal revenue equals marginal cost for each good simultaneously.
Answer: d
Difficulty: 02 Medium
Topic: Pricing Practices for Multiproduct Firms
AACSB: Reflective Thinking
Blooms: Understand
Learning Objective: 14-05

14-30 A firm sells two goods (X and Y) that are related in consumption. The estimated inverse demand and cost functions are:

\[
\begin{align*}
P_X &= 105 - 0.5Q_X - 0.75Q_Y \\
P_Y &= 120 - Q_Y - 0.5Q_X \\
MC_X &= 10 + 0.25Q_X \\
MC_Y &= 16 - 0.5Q_Y
\end{align*}
\]

Good X and Y are:
a. complements
b. substitutes
c. independent
d. normal
e. inferior
Answer: b
Difficulty: 02 Medium
Topic: Pricing Practices for Multiproduct Firms
AACSB: Reflective Thinking
Blooms: Understand
Learning Objective: 14-05

14-31 A firm sells two goods (X and Y) that are related in consumption. The estimated inverse demand and cost functions are:
Chapter 14: ADVANCED PRICING TECHNIQUES

A firm sells two goods (X and Y) that are related in consumption. The estimated inverse demand and cost functions are:

\[
\begin{align*}
P_X &= 105 - 0.5Q_X - 0.75Q_Y \\
P_Y &= 120 - Q_Y - 0.5Q_X \\
MC_X &= 10 + 0.25Q_X \\
MC_Y &= 16 + 0.5Q_Y
\end{align*}
\]

What are the profit-maximizing levels of output for the two goods?

a. \( Q_X = 6, \ Q_Y = 3 \)
b. \( Q_X = 40, \ Q_Y = 40 \)
c. \( Q_X = 58, \ Q_Y = 30 \)
d. \( Q_X = 240, \ Q_Y = 270 \)
e. none of the above

Answer: c

Difficulty: 02 Medium
Topic: Pricing Practices for Multiproduct Firms
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-05

A firm sells two goods (X and Y) that are related in consumption. The estimated inverse demand and cost functions are:

\[
\begin{align*}
P_X &= 105 - 0.5Q_X - 0.75Q_Y \\
P_Y &= 120 - Q_Y - 0.5Q_X \\
MC_X &= 10 + 0.25Q_X \\
MC_Y &= 16 + 0.5Q_Y
\end{align*}
\]

What are the profit-maximizing prices for the two goods?

a. \( P_X = $40, \ P_Y = $32.50 \)
b. \( P_X = $53.50, \ P_Y = $61 \)
c. \( P_X = $80, \ P_Y = $55 \)
d. \( P_X = $112.50, \ P_Y = $87.75 \)
e. none of the above

Answer: b

Difficulty: 02 Medium
Topic: Pricing Practices for Multiproduct Firms
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-05

Gus has 20 acres of land in cultivation and is currently planting both soybeans and peanuts. The last acre planted in soybeans yielded 20 bushels, and the last bushel of soybeans added $0.50 to Gus's total revenue. The last acre planted in peanuts yielded 10 bushels and the last bushel of peanuts added $1 to Gus's total revenue. Gus:

a. is maximizing profit.
b. should devote more acres to soybeans and fewer to peanuts.
c. should devote more acres to peanuts and fewer to soybeans.

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A firm sells two goods (X and Y) that are related in consumption. The estimated demand and cost conditions are:

\[ P_X = 20 - 0.1Q_X - 0.05Q_Y \]
\[ P_Y = 70 - 0.3Q_Y - 0.1Q_X \]
\[ MC_X = 1 + 0.1Q_X \]
\[ MC_Y = 2 + 0.25Q_Y \]

Goods X and Y are
a. complement
b. substitutes
c. independent
d. normal
e. inferior

Answer: b

What are the profit-maximizing levels of output for the two goods?

a. \( Q_X = 20, Q_Y = 10 \)
b. \( Q_X = 41, Q_Y = 24 \)
c. \( Q_X = 56, Q_Y = 24 \)
d. \( Q_X = 51, Q_Y = 74 \)
e. none of the above

Answer: d
14-36 A firm sells two goods (X and Y) that are related in consumption. The estimated demand and cost conditions are:

\[
\begin{align*}
P_X &= 20 - 0.1Q_X - 0.05Q_Y \\
P_Y &= 70 - 0.3Q_Y - 0.1Q_X \\
MC_X &= 1 + 0.1Q_X \\
MC_Y &= 2 + 0.25Q_Y
\end{align*}
\]

What are the profit-maximizing prices for the two goods?

a. \[P_X = 25.60, \quad P_Y = 20.50\]

b. \[P_X = 30, \quad P_Y = 35\]

c. \[P_X = 50, \quad P_Y = 45\]

d. \[P_X = 11.20, \quad P_Y = 42.70\]

Answer: d

Difficulty: 02 Medium
Topic: Pricing Practices for Multiproduct Firms
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-05

14-37 In order to maximize profit, a firm that produces two goods that are related in consumption should chose the levels of output at which:

a. total marginal revenue equals total marginal cost
b. total marginal revenue equals the marginal cost of each good
c. the marginal revenue of each good equals total marginal cost
d. marginal revenue equals marginal cost for each good
e. none of the above

Answer: d

Difficulty: 01 Easy
Topic: Pricing Practices for Multiproduct Firms
AACSB: Reflective Thinking
Blooms: Understand
Learning Objective: 14-05

14-38 Refer to the following:

\[
\begin{align*}
P_X &= 666 - 0.5Q_X - 2Q_Y \\
P_Y &= 484.5 - 1.5Q_Y - 0.25Q_X \\
MC_X &= 20 + 2Q_X \\
MC_Y &= 4 + Q_Y
\end{align*}
\]

Goods X and Y are:

a. normal
b. inferior
c. independent
d. substitutes
e. complements

Answer: d

Difficulty: 02 Medium
Refer to the following:

\[ Px = 666 - 0.5Qx - 2Qy \]
\[ Py = 484.5 - 1.5Qy - 0.25Qx \]
\[ MCx = 20 + 2Qx \]
\[ MCy = 4 + Qy \]

What are the profit-maximizing levels of output for the two goods?

a. \( Qx = 30, \ Qy = 34 \)

b. \( Qx = 63, \ Qy = 66 \)

c. \( Qx = 142, \ Qy = 110 \)

d. \( Qx = 191, \ Qy = 163 \)

Answer: c

Refer to the following:

\[ Px = 666 - 0.5Qx - 2Qy \]
\[ Py = 484.5 - 1.5Qy - 0.25Qx \]
\[ MCx = 20 + 2Qx \]
\[ MCy = 4 + Qy \]

What are the profit-maximizing prices for the two goods?

a. \( Px = $375, \ Py = $284 \)

b. \(Px = $423, \ Py = $712 \)

c. \( Px = $166, \ Py = $324 \)

d. \(Px = $481, \ Py = $588 \)

Answer: a
The Hilton Hotel chain serves both business and vacation travelers. Above, $D_{\text{Business}}$ and $MR_{\text{Business}}$ represent the demand and marginal revenue for business travelers, while $D_{\text{Vacation}}$ and $MR_{\text{Vacation}}$ are the demand and marginal revenue for vacation travelers. What is the profit-maximizing number of BUSINESS travelers to serve?

a. 55  
b. 100  
c. 150  
d. 200  
e. 300  

Answer: a  
Difficulty: 01 Easy  
Topic: Pricing Practices for Multiproduct Firms  
AACSBB: Analytic  
Blooms: Apply  
Learning Objective: 14-05
The Hilton Hotel chain serves both business and vacation travelers. Above, $D_{\text{Business}}$ and $MR_{\text{Business}}$ represent the demand and marginal revenue for business travelers, while $D_{\text{Vacation}}$ and $MR_{\text{Vacation}}$ are the demand and marginal revenue for vacation travelers. What price should the Hilton charge VACATION travelers?

a. $20  
 b. $30  
 c. $50  
 d. $60  
 e. $70

Answer: e  
Difficulty: 02 Medium  
Topic: Pricing Practices for Multiproduct Firms  
AACSB: Analytic  
Blooms: Apply  
Learning Objective: 14-05
The Hilton Hotel chain serves both business and vacation travelers. $D_{\text{Business}}$ and $MR_{\text{Business}}$ represent the demand and marginal revenue for business travelers, while $D_{\text{Vacation}}$ and $MR_{\text{Vacation}}$ are the demand and marginal revenue for vacation travelers. If marginal cost decreases to the point that total marginal revenue ($MR_T$ is not shown in the figure) for Hilton at the profit-maximizing level of total output is $40, what price should the Hilton charge BUSINESS travelers?

a. $60  
b. $80  
c. $100  
d. $120  
e. $140  

Answer: c  
Difficulty: 02 Medium  
Topic: Pricing Practices for Multiproduct Firms  
AACSB: Analytic  
Blooms: Apply  
Learning Objective: 14-05

The WildTimes Bar offers female patrons a lower price for a drink than male patrons. The bar will maximize profit by selling a total of 200 drinks per night. At the current prices, male customers buy 150 drinks, while female customers buy 50 drinks. The marginal revenue from the last drink sold to a male customer is $1.50, while the marginal revenue from the last drink sold to a female customer is $0.50. The bar

a. should lower the price for male customers and raise the price for female customers.  
b. should lower the price for female customers and raise the price for male customers.  
c. should charge the same price regardless of gender.  

Chapter 14: ADVANCED PRICING TECHNIQUES

© 2016 by McGraw-Hill Education. This is proprietary material solely for authorized instructor use. Not authorized for sale or distribution in any manner. This document may not be copied, scanned, duplicated, forwarded, distributed, or posted on a website, in whole or part.
d. is maximizing profit; should keep selling 150 drinks to male customer and 50 drinks to female customers.

Answer: a

Difficulty: 02 Medium
Topic: Pricing Practices for Multiproduct Firms
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-05

14-45 The WildTimes Bar offers female patrons a lower price for a drink than male patrons. The bar will maximize profit by selling a total of 200 drinks per night. At the current prices, male customers buy 150 drinks, while female customers buy 50 drinks. The marginal revenue from the last drink sold to a male customer is $1.50, while the marginal revenue from the last drink sold to a female customer is $0.50. If the bar sells 151 drinks to male customers and 49 drinks to female customers instead, then

a. total revenue will decrease $0.50.
b. profit will decrease $0.50.
c. total revenue will increase $1.
d. total revenue will increase $1.50.
e. both a and b

Answer: c

Difficulty: 01 Easy
Topic: Pricing Practices for Multiproduct Firms
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-05

14-46 A drugstore offers a discount on prescriptions to senior citizens. This suggests that the absolute value of elasticity of demand for senior citizens is

a. greater than one.
b. less than one.
c. greater than the elasticity of demand for other customers.
d. less than the elasticity of demand for other customers.

Answer: c

Difficulty: 01 Easy
Topic: Pricing Practices for Multiproduct Firms
AACSB: Reflective Thinking
Blooms: Understand
Learning Objective: 14-05

14-47 Drill Quest, Inc. manufactures drill bits for the oil industry. Drill Quest uses cost-plus pricing to set the price of its bits. Currently Drill Quest applies a 50 percent markup on average total cost. Average variable cost of producing bits is constant and equal to $6,000 per bit. Total fixed cost at Drill Quest is $550,000. DrillQuest currently produces 690 bits. Statistical estimation of demand for Drill Quest brand bits produces the following linear demand equation (where Q is the number of bits demanded and P is the price of bits):

\[ Q = 1,200 - 0.05P \]

Using cost-plus pricing, Drill Quest prices its bits at $\_\_\_\_\_\_\_\_\_\_ per bit.

a. $10,195

\[ Q = 1,200 - 0.05P \]
b. $12,175

c. $797

d. $6,000

e. $6,797

Answer: a

Difficulty: 03 Hard

Topic: Cost-Plus Pricing

AACSB: Analytic

Blooms: Apply

Learning Objective: 14-06

14-48 Drill Quest, Inc. manufactures drill bits for the oil industry. Drill Quest uses cost-plus pricing to set the price of its bits. Currently Drill Quest applies a 50 percent markup on average total cost. Average variable cost of producing bits is constant and equal to $6,000 per bit. Total fixed cost at Drill Quest is $550,000. DrillQuest currently produces 690 bits. Statistical estimation of demand for Drill Quest brand bits produces the following linear demand equation (where Q is the number of bits demanded and P is the price of bits):

\[ Q = 1,200 - 0.05P \]

Using the cost-plus price, Drill Quest earns profit of (approximately) $___________ by selling 690 bits.

a. $2,895,000
b. $2,345,000
c. $3,500,000
d. $3,895,000
e. $4,895,000

Answer: b

Difficulty: 03 Hard

Topic: Cost-Plus Pricing

AACSB: Analytic

Blooms: Apply

Learning Objective: 14-06

14-49 Drill Quest, Inc. manufactures drill bits for the oil industry. Drill Quest uses cost-plus pricing to set the price of its bits. Currently Drill Quest applies a 50 percent markup on average total cost. Average variable cost of producing bits is constant and equal to $6,000 per bit. Total fixed cost at Drill Quest is $550,000. DrillQuest currently produces 690 bits. Statistical estimation of demand for Drill Quest brand bits produces the following linear demand equation (where Q is the number of bits demanded and P is the price of bits):

\[ Q = 1,200 - 0.05P \]

Use the \( MR = SMC \) approach to finding the profit-maximizing point on the demand for Drill Quest’s bits. The profit-maximizing number of bits to sell is

a. 250
b. 300
c. 350
d. 400
e. 450

Answer: e

Difficulty: 03 Hard

Topic: Cost-Plus Pricing
Drill Quest, Inc. manufactures drill bits for the oil industry. Drill Quest uses cost-plus pricing to set the price of its bits. Currently Drill Quest applies a 50 percent markup on average total cost. Average variable cost of producing bits is constant and equal to $6,000 per bit. Total fixed cost at Drill Quest is $550,000. DrillQuest currently produces 690 bits. Statistical estimation of demand for Drill Quest brand bits produces the following linear demand equation (where Q is the number of bits demanded and P is the price of bits):

\[ Q = 1,200 - 0.05P \]

Use the MR = SMC approach to finding the profit-maximizing point on the demand for Drill Quest’s bits. The profit-maximizing price to charge is $___________ per bit.

a. $15,000
b. $12,500
c. $10,378
d. $10,245
e. $10,000

Answer: a

Difficulty: 03 Hard
Topic: Cost-Plus Pricing
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-06

Drill Quest, Inc. manufactures drill bits for the oil industry. Drill Quest uses cost-plus pricing to set the price of its bits. Currently Drill Quest applies a 50 percent markup on average total cost. Average variable cost of producing bits is constant and equal to $6,000 per bit. Total fixed cost at Drill Quest is $550,000. DrillQuest currently produces 690 bits. Statistical estimation of demand for Drill Quest brand bits produces the following linear demand equation (where Q is the number of bits demanded and P is the price of bits):

\[ Q = 1,200 - 0.05P \]

Use the MR = SMC approach to finding the profit-maximizing point on the demand for Drill Quest’s bits. The maximum possible profit is $___________.

a. $2,895,000
b. $2,345,000
c. $3,500,000
d. $3,895,000
e. $4,895,000

Answer: c

Difficulty: 03 Hard
Topic: Cost-Plus Pricing
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-06

Drill Quest, Inc. manufactures drill bits for the oil industry. Drill Quest uses cost-plus pricing to set the price of its bits. Currently Drill Quest applies a 50 percent markup on average total cost. Average variable cost of producing bits is constant and equal to $6,000 per bit. Total fixed cost at
Drill Quest is $550,000. DrillQuest currently produces 690 bits. Statistical estimation of demand for Drill Quest brand bits produces the following linear demand equation (where Q is the number of bits demanded and P is the price of bits):

\[ Q = 1,200 - 0.05P \]

If Drill Quest wishes to use cost-plus pricing, it can maximize profit by applying a markup of _____ percent on ________.

a. 150 percent; AVC  
b. 150 percent; ATC  
c. 50 percent; AVC  
d. 50 percent; ATC  
e. 250 percent; AVC

Answer: a  
Difficulty: 03 Hard  
Topic: Cost-Plus Pricing  
AACSB: Analytic  
Blooms: Apply  
Learning Objective: 14-06

Black Diamond Tennis & Golf Club offers golf and tennis memberships to the residents of Black Diamond, Ohio, in which there are two types of families: golf-oriented families and tennis-oriented families. There are 100 golf-oriented families and 100 tennis-oriented families in Black Diamond. Forecasted demand prices for golf and tennis memberships by family type are given below. There is no way to identify family types for pricing purposes, and all costs are fixed so that maximizing total revenue is equivalent to maximizing profit.

### Demand Prices for Golf and Tennis Memberships

<table>
<thead>
<tr>
<th>Type of family</th>
<th>Tennis membership only</th>
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<tr>
<td>Tennis-oriented</td>
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<td>$75</td>
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</table>

If Black Diamond Tennis & Golf Club plans to offer golf and tennis memberships separately, what prices should be charged for each kind of membership if Black Diamond wishes to maximize profit?

a. Charge $75 for tennis memberships and $50 for golf memberships.  
b. Charge $75 for tennis memberships and $200 for golf memberships.  
c. Charge $150 for tennis memberships and $200 for golf memberships.  
d. Charge $150 for tennis memberships and $50 for golf memberships.  
e. either b or c

Answer: e  
Difficulty: 03 Hard  
Topic: Second-Degree Price Discrimination Methods  
AACSB: Reflective Thinking  
Blooms: Understand  
Learning Objective: 14-03
Black Diamond Tennis & Golf Club offers golf and tennis memberships to the residents of Black Diamond, Ohio, in which there are two types of families: golf-oriented families and tennis-oriented families. There are 100 golf-oriented families and 100 tennis-oriented families in Black Diamond. Forecasted demand prices for golf and tennis memberships by family type are given below. There is no way to identify family types for pricing purposes, and all costs are fixed so that maximizing total revenue is equivalent to maximizing profit.

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How much total revenue can be generated each month under a pricing plan where separate golf and tennis memberships are offered?

a. $20,000  
b. $25,000  
c. $35,000  
d. $70,000  
e. $95,000  

Answer: c

Difficulty: 03 Hard  
Topic: Second-Degree Price Discrimination Methods  
AACSB: Analytic  
Blooms: Apply  
Learning Objective: 14-03

The conditions are right for bundle pricing to increase profit at Black Diamond Tennis & Golf Club because

a. demand prices for golf are greater than demand prices for tennis.  
b. Demand prices differ across family types for tennis and golf memberships.  
c. Demand prices are negatively correlated.  
d. Demand prices are positively correlated.
Black Diamond Tennis & Golf Club offers golf and tennis memberships to the residents of Black Diamond, Ohio, in which there are two types of families: golf-oriented families and tennis-oriented families. There are 100 golf-oriented families and 100 tennis-oriented families in Black Diamond. Forecasted demand prices for golf and tennis memberships by family type are given below. There is no way to identify family types for pricing purposes, and all costs are fixed so that maximizing total revenue is equivalent to maximizing profit.

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What is the optimal price to charge for a bundled tennis and golf and tennis membership?

- a. $150
- b. $200
- c. $225
- d. $250
- e. $275

Answer: b

Difficulty: 03 Hard

Topic: Pricing Practices for Multiproduct Firms
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-05

Black Diamond Tennis & Golf Club offers golf and tennis memberships to the residents of Black Diamond, Ohio, in which there are two types of families: golf-oriented families and tennis-oriented families. There are 100 golf-oriented families and 100 tennis-oriented families in Black Diamond. Forecasted demand prices for golf and tennis memberships by family type are given below. There is no way to identify family types for pricing purposes, and all costs are fixed so that maximizing total revenue is equivalent to maximizing profit.

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</tr>
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How much revenue will the optimal bundled price produce for Black Diamond Tennis & Golf Club?

a. $25,000
b. $27,500
c. $35,000
d. $40,000

Answer: d

Difficulty: 03 Hard
Topic: Pricing Practices for Multiproduct Firms
AACSB: Analytic
Blooms: Apply
Learning Objective: 14-05