練習題

1. 請說明下列敘述是正確還是錯誤，並解釋之。

a. 在一個完全競爭產業中，產業的需求曲線是水平線，而獨占市場的需求曲線之斜率為負。

b. 完全競爭廠商無法控制其產品的訂價。

c. 對一個自然獨占廠商而言，當其生產數量單位的增加超出其相關產出範圍時，平均成本會下降。

True/False questions:

1. False. The industry demand curve is downward-sloping in both cases, but from the individual perfectly competitive firm’s point of view, the demand curve is horizontal. Because the individual firm is too small to affect the market price, it can sell as many units as it wishes at that price.
2. True. Perfectly competitive firms are price takers (i.e., if they try to charge a higher price they will lose all their business). Similarly, there is no reason to charge a lower price as they can sell any quantity they choose to at the current price.
3. True. This is the essential feature of a natural monopoly.

2. 汽車生產商紳寶 (Saab) 及富豪 (Volvo) 各自都有固定成本 10 億美元，以及每輛車 1 萬美元的邊際成本。 若紳寶每年生產 50,000 輛汽車，而富豪每年生產 200,000 輛汽車，請計算它們各自的平均生產成本，並根據結果說明哪一家汽車公司的市占率會成長。

As shown in the following table, Volvo’s greater production volume gives it substantially lower average production cost. This advantage helps explain why Volvo’s market share has, in fact, been growing relative to Saab’s.

|  |  |  |
| --- | --- | --- |
|  | **Saab** | **Volvo** |
| **Annual production** | 50,000 | 200,000 |
| **Fixed cost** | $1,000,000,000 | $1,000,000,000 |
| **Variable cost** | $500,000,000 | $2,000,000,000 |
| **Total cost** | $1,500,000,000 | $3,000,000,000 |
| **Average cost per car** | $30,000 | $15,000 |

3. 一家以單一訂價且追求最大利潤的獨占廠商：

a. 在銷售過少的商品或勞務時，會造成超額需求，或是短缺。

b. 會選擇在其邊際收益開始增加時的產量水準。

c. 始終會將其價格訂在高於邊際成本的位置。

d. 會極大化其邊際收益。

e. 以上皆非。

The monopolist chooses the output level at which marginal revenue equals marginal cost and then charges a price consistent with demand at that level of output. Since price always exceeds marginal revenue, price is greater than marginal cost. The quantity produced by the monopolist at the monopoly price is exactly equal to the quantity demanded by consumers, so the monopolist does not cause excess demand or shortages (even though the monopolist’s profit-maximizing level of output falls below the socially efficient level). And the monopolist has no reason to maximize marginal revenue (which would require producing zero units of output).

4. 若一家獨占廠商可以執行完全價格歧視：

a. 其邊際收益曲線會與需求曲線完全重合。

b. 其邊際收益曲線和邊際成本曲線會完全重合。

c. 每一位消費者會支付不同的價格。

d. 在一些產出水準下，邊際收益會變成負值。

e. 交易方式的結果仍然會是社會非效率。

The answer is a. The demand curve and the marginal revenue curve would coincide, because if a monopolist could perfectly discriminate, it would sell each successive unit of output for exactly its reservation price, so the marginal revenue generated from selling each successive unit would equal its reservation price.

5. 就一家自然獨占廠商而言，社會期望的產品價格是多少？為何一家自然獨占廠商試圖依社會期望訂價，卻總是會承受經濟損失？

Socially optimal means that the marginal benefit equals the marginal cost. At this point, all goods that are valuable enough to consumers to justify producing are produced; no goods with costs higher than the benefits they provide are produced. The demand curve tells us about the marginal benefits to consumers: at any given quantity on a demand curve, the price that inspires that quantity demanded is equal to the marginal benefit of the good. Therefore, setting marginal benefit equal to marginal cost requires setting a price that’s equal to marginal cost, and selling to all consumers who demand it at that price. However, this is not a good outcome for natural monopolies, which are usually characterized by very large fixed costs and relatively low marginal costs. The high fixed costs mean that average cost is greater than marginal cost, so that charging a price equal to marginal cost implies economic losses.

6. 請解釋為何價格歧視以及使相同產品存在些微差異的現象可能同時並存，並請提供一項你親身經歷過的案例。

If a firm wishes to price discriminate, it needs to be able to identify and separate consumers that are willing to pay more from consumers that have a lower willingness to pay. This is a profit-increasing strategy for the firm. Often, in order to separate customers, some minor differences are incorporated into the product that will appeal to customers with a higher willingness to pay, and then a higher price is charged for this slightly different product. For example, a well-known mail-order firm sells down-filled comforters with a plain stitch pattern at a lower price than slightly warmer comforters with a fancier stitch pattern. The price differential is about 100 percent.

7. TotsPoses 是一家追求利潤極大化的企業，且是本市唯一專業的幼兒影像公司。George 是該公司的擁有者與經營者，他期望每週平均能服務 8 位顧客，每位顧客的保留價格如下表所示。

|  |  |
| --- | --- |
| 顧客 | 保留價格（**$** ／相片） |
| 1 | 50 |
| 2 | 46 |
| 3 | 42 |
| 4 | 38 |
| 5 | 34 |
| 6 | 30 |
| 7 | 26 |
| 8 | 22 |

a. 假設製作每張相片的總成本為 12 美元，若 George 必須對每一位顧客收取一樣的價格，則費用應該是多少？在此價格下，每天 George 可以生產多少張相片？他可以賺取多少經濟利潤？

b. 在此價格下，每天可以產生多少消費者剩餘？

c. 滿足社會效率的相片是多少張？

d. 假設 George 是一位非常有經驗的經營者，知道每一位顧客的保留價格，若他同意對每一位消費者收取不同價格，則他每天可以生產多少張相片？他可以賺取多少經濟利潤？假設每一張相片的成 本仍然為 12 美元。

e. 在此項條件下，每天會產生多少消費者剩餘？

a. George’s total and marginal revenue:

|  |  |  |  |
| --- | --- | --- | --- |
| Customer | Reservation price  ($/photo) | Total revenue  ($/day) | Marginal revenue  ($/photo) |
| 1  2  3  4  5  6  7  8 | 50  46  42  38  34  30  26  22 | 50  92  126  152  170  180  182  176 | 50  42  34  26  18  10  2  -6 |

Since marginal cost equals $12, George will set a price consistent with serving only the first five customers. That price is the reservation price of the fifth customer, $34. His profit will equal his total revenue minus his total cost, or ($34 × 5) – ($12 × 5) = $170 - $60, or $110 per day.

* 1. Consumer surplus = ($50 + $46 + $42 + $38 + $34) - ($34 × 5), or $40 per day.
  2. The socially efficient number of portraits is 8, since each customer has a reservation price that exceeds the marginal cost of production.
  3. George will produce 8 portraits, and his economic profit will be ($50 + $46 + $42 + $38

+ $34 + $30 + $26 + $22) - ($12 × 8), or $192 per day.

1. No consumer surplus will be generated since each customer is paying a price equal to

his/her reservation price.

8. 承問題 7，請回答下列問題：

a. 假設 George 可以收取兩種價格，他知道保留價格超過 30 美元的顧客從來不在乎任何折價券，然而保留價格等於或低於 30 元美的顧客卻一定會使用折價券。那麼，George 應該將一張相片的表定價格水準設是多少？他應該設定的折扣價格水準是多少？在每一個價格水準下，他能銷售多少張相片？

b. 在此條件下，George 每天能有多少的經濟利潤及消費者剩餘？

1. a. The ability to offer a rebate coupon allows George to divide his market into two submarkets. The table of total and marginal revenue for the list price submarket is as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Customer | Reservation price ($/photo) | Total revenue  ($) | Marginal revenue ($/photo) |
| 1  2  3  4  5 | 50  46  42  38  34 | 50  92  126  152  170 | 50  42  34  26  18 |

George should set the price at $34 and sell 5 photos per day in this market, since for each of these 5 customers marginal revenue is greater than or equal to marginal cost. In the discount-price submarket, the table of total and marginal revenue is as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Customer | Reservation price ($/photo) | Total revenue  ($/day) | Marginal revenue ($/photo) |
| 6  7  8 | 30  26  22 | 30  52  66 | 30  22  14 |

The discount price should be $22 and George should sell 3 photos in this market, since for each of these 3 customers (customer number 6, 7, and 8) marginal revenue is greater than or equal to marginal cost.

b. George’s economic profit is now ($34 × 5) + ($22 × 3) – ($12 × 8), or $140. Consumer

surplus is [($50 + $46 + $42 + $38 + $34) - ($34 × 5)] + [($30 + $26 + $22) - ($22 × 3)],

or $52.

9. Beth 為二年級學生，她可以在其住家附近的街角販售檸檬水，她每生產一杯檸檬水的成本為 0.2 美元，她並無固定性成本，每日會有 10 人經過其檸檬水攤位，每位的保留價格顯示於下表。Beth 也知道保留價格的分配關係，即她知道一個人的願付價格為 1 美元，另外一個人為 0.9 美元等等；但是，她並不知道特定人士的保留價格是多少。

|  |  |
| --- | --- |
| 人數 | 保留價格 |
| 1 | $1.00 |
| 2 | $0.90 |
| 3 | $0.80 |
| 4 | $0.70 |
| 5 | $0.60 |
| 6 | $0.50 |
| 7 | $0.40 |
| 8 | $0.30 |
| 9 | $0.20 |
| 10 | $0.10 |

a. 請計算每增加銷售 1 杯檸檬水的邊際收益值。先自 Beth 只生產 1 杯檸檬水的收取價格開始計算，及計算 1 杯檸檬水的總收益，然後再找出她要銷售 2 杯檸檬水的價格與總收益，依此類推。

b. Beth 利潤極大化的價格為多少？

c. 在此價格下，Beth 的經濟利潤及總消費者剩餘各為多少？

d. 若 Beth 想要追求極大的總經濟剩餘，其定價應為多少？

e. 現在假設 Beth 可以知道每一個人的保留價格，若其想要追求利潤極大化，則她應該對每一個人收取多少價錢？請將此題所計算的利潤與 9d 之總經濟剩餘進行比較。

a. See 3rd and 4th rows of the table below.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Price** | $1 | $0.90 | $0.80 | $0.70 | $0.60 | $0.50 | $0.40 | $0.30 | $0.20 | $0.10 |
| **Quantity** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **Total Revenue** | $1 | $1.80 | $2.40 | $2.80 | $3.00 | $3.00 | $2.80 | $2.40 | $1.80 | $1 |
| **Marginal Revenue** | $1 | $0.80 | $0.60 | $0.40 | $0.20 | $0 | $-0.20 | $-0.40 | $-0.60 | $-0.80 |

b. Beth maximizes her profit by producing at the level of output at which marginal revenue

is equal to marginal cost. This occurs at a price of $0.60. The corresponding quantity sold is 5 cups of lemonade.

c. Profit equals total revenue minus total cost. Since Beth has no fixed costs, at a price of

$0.60, her profit equals (5 × $0.60) - (5 × $0.20) = $2 per day.

Total consumer surplus in Beth’s lemonade market is found by adding together the price each consumer is willing to pay minus the price they actually pay.

Total consumer surplus = ($1 - $0.60) + ($0.90 - $0.60) + ($0.80 - $0.60) + ($0.70 - $0.60) = $1 per day.

d. Total economic surplus is maximized when price is equal to marginal cost. In this market,

marginal costs are constant at $0.20 per cup.

e. She would charge persons A through I their respective reservation prices. Doing so would

earn her a profit of $3.60, which is the same as the total economic surplus in part d. Note

the total economic surplus is maximized in both this problem and part d, but the

distribution of the surplus is different.