練習題

1. 假設你願意為洗車支付的最高價格為 6 美元，若是幫別人洗車，至少要收 3.5 美元。若今晚你要出門約會之前，發現車子很髒而著手洗車的話，會收到多少的經濟剩餘？

The economic surplus from washing your dirty car is the difference between the benefit you receive from doing so ($6) minus your cost of doing the job ($3.50), or $2.50.

1. 為了在夏季賺取額外收入，你在地方小農市場以**每磅 0.3 美元銷售自己耕種的番茄**。若在菜圃中添加堆肥，可以進 一步提高產量（如同右方表格所示）。**假設堆肥的成本是每 磅 0.5 美元**，而你也希望盡可能多賺一點利潤，那麼應該 添加多少磅堆肥呢？

|  |  |
| --- | --- |
| 堆肥磅數 | 番茄磅數 |
|  | 100 |
| 1 | 120 |
| 2 | 125 |
| 3 | 128 |
| 4 | 130 |
| 5 | 131 |
| 6 | 131.5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pounds of compost | Pounds of tomatoes | Extra pounds of tomatoes | Extra revenue or marginal benefit | Extra or marginal cost |
| 0 | 100 | - | - | - |
| 1 | 120 | 20 | $6.00 | $0.50 |
| 2 | 125 | 5 | $1.50 | $0.50 |
| 3 | 128 | 3 | $0.90 | $0.50 |
| 4 | 130 | 2 | $0.60 | $0.50 |
| 5 | 131 | 1 | $0.30 | $0.50 |
| 6 | 131.5 | .5 | $0.15 | $0.50 |

The marginal benefit of adding a pound of compost is the extra revenue you earn from the additional pound of tomatoes grown. Therefore, you should continue to add more compost as long as the marginal benefit exceeds or equals the marginal cost of adding another pound of compost ($0.50). This type of problem is best answered using a table such as the one below. **Note that by adding 4 pounds of compost you’ll get 2 extra pounds of tomatoes, or $0.60 in extra revenue,** which covers the $0.50 cost of the extra pound of compost. However, adding another pound of compost yields only 1 extra pound of tomatoes, so the corresponding revenue increase of $0.30 is less than the cost of the compost. Therefore, **you should add 4 pounds of compost and no more**

1. 你和好友 Joe 有一致的偏好。下午 2 點時，妳到票務中心花 30 美元購買一張今晚於雪城 (Syracuse) 舉 行的籃球賽門票，雪城離你在以色佳 (Ithaca) 的住所北方約 50 英里遠。而 Joe 也計畫觀賞同一場球賽，由於他無法在票務中心購票，所以打算直接到現場購票。球賽現場的票價是每張 25 美元，之所以比較便宜，是因為不用再支付票務中心額外的費用（儘管如此，仍有許多人為了買到好一點的觀賞位置而願意在票務中心買票）。到了下午 4 點，突然而來的暴風雪，降低了開車前往雪城觀賽的意願（但是可以確定觀賞位置極佳）。若你和 Joe 兩人皆是理性的，誰會比對方更有可能跑去看球賽？

In applying the Cost-Benefit principle, you should only **consider costs that change with your decision**. Since you have already bought your ticket, the $30 you spent on it is a sunk cost. It is money you cannot recover, whether or not you go to the game. Thus, in deciding whether to see the game, you should compare the benefit of seeing the game (as measured by the largest dollar amount you would be willing to pay to see it) to only those *additional* costs you must incur to see the game (the opportunity cost of your time, whatever cost you assign to driving through the snowstorm, etc.).

Joe, too, must consider **the opportunity cost of his time and the hassle of the drive in deciding whether to attend the game**. But he must also consider the $25 he will have to spend for his ticket. At the moment of deciding, therefore, the remaining costs **Joe must incur to see the game are $25 higher than the remaining costs for you**. And since you have identical tastes—that is, your respective benefits of attending the game are exactly the same—Joe should be less likely to make the trip. You might think the cost of seeing the game is higher for you, since your ticket cost $30, whereas Joe’s will cost only $25. But at the decision-making moment, only the ticket cost for Joe ($25) changes whether or not he goes to the game, and is therefore the only cost that should be considered.

1. Tom 是一位種植草菇的農夫。他在農場後方未使用的土地上種植額外的草菇，並投入所有剩餘資金。 在第一年，其草菇產量會加倍，然後能以每磅固定的價錢採收及販賣。Tom 的朋友 Dick 向 Tom 借200 美元，且答應 1 年後償還，則 Dick 應該支付多少利率給 Tom，才能彌補 Tom 為借出這筆錢所付出的機會成本？請簡單解釋之。

If Tom kept the $200 and invested it in additional mushrooms, at the end of a year's time he would have $400 worth of mushrooms to sell. Therefore, Dick must give Tom $200 in interest in order for Tom not to lose money on the loan.

1. 假設你在物理測驗的最後幾秒鐘努力回答第一題，會讓你的考試成績多 4 分；若在最後幾秒鐘努力回 答第二題，會讓你的考試成績多 10 分，但總分各別是 48 分及 12 分。如果回答這兩題所需的時間相同，讓你重考一次，你應該如何分配你的時間在這兩題上呢？

Even though you earned four times as many points on the first question as you did on the second, the last few seconds you spent on question 2 added more points to your total score than did the last few seconds spent on question 1. **This suggests that if you spent a little more time on question 2 and a little less time on question 1, then you’d get more extra points on question 2 than you’d lose on question 1**.

1. Martha 和 Sarah 有相同的偏好與所得，當 Martha 到戲院觀賞表演時，發現她剛買的 10 美元門票不見 了，此時 Sarah 也正好抵達戲院，打算買一張門票觀賞同一場表演，卻發現要用來買門票的 10 美元鈔票不見了。若 Martha 與 Sarah 兩人都是理性的，且雙方都還有錢可以買票，則誰會比另一人更有可能繼續買票且觀賞表演呢？

**According to the Cost-Benefit principle, the two women should make the same decision.** After all, the benefit of seeing the play is the same in both cases, and the cost of seeing the play—at the moment each must decide—is exactly $10. Some may think that in the case of the lost ticket, the cost of seeing the play is not $10 but $20, the price of two tickets. However, in terms of the financial consequences, the loss of a ticket is clearly no different from the loss of a $10 bill. Both of these are examples of a sunk cost, as the $10 is lost whether one attends the play or not. So in each case, the question is whether seeing the play is worth spending $10. If it is worth $10 to see the play, both Martha and Sarah should see it; otherwise they should not attend the performance. Whichever your answer, it must be the same for both Martha and Sarah.

1. 你所居住的城市每週向所有居民收取固定 6 美元的垃圾收集費，且居民可以**無限制地置放其想要的垃 圾桶數量**。在此項計畫下，每一家戶平均每週會置放 3 桶的垃圾。假設該城市現在改採「貼標籤」系 統，要求每一個垃圾桶必須貼上收取標籤，而每一張收取標籤需繳 2 美元，且該收取標籤不准重複使 用。你認為新系統對該城市的總垃圾收集量會產生什麼效果？請簡單解釋之。

In the current system, the cost is $6 per week no matter how many cans you put out, so the cost of disposing of an extra can of garbage (the marginal cost) is $0. Under the tag system, the cost of putting out an extra can is $2, regardless of the number of the cans. Since **the marginal cost of putting out cans is higher under the tag system while the marginal benefit remains unchanged, we would expect this system to reduce the number of cans collected.**

1. Smith 每週會買 1 組 6 罐裝的可樂，放在冰箱內讓兩個孩童飲用，不過總是在買回來的第一天就被喝光。Jones 也是每週會買 1 組 6 罐裝可樂，放在冰箱內讓兩個孩童飲用，但是他會告訴孩子每人每週不可以飲用超過 3 罐可樂。若孩子們利用成本效益分析每一次他們是否該喝一罐可樂，請解釋為何 Jones 家的可樂會比 **Smith 家的可樂還晚被喝完**。

At both houses, the cost of drinking a cola is that it’s not available to drink later, but at the Smith’s house, this cost is low because one sibling may drink the cola before the other is able to. This gives each Smith child a **strong incentive** to consume the colas now. Jones, by contrast, has eliminated this incentive by not allowing either child to drink more than half the colas. As a result, his children can consume the cola at a slower, more enjoyable pace.

1. 有一項針對美國各地之間長途電話的**新服務方案**，在前 2 分鐘的通話會收取每分鐘 **0.3 美**元的費用， 之後每增加 1 分鐘，會收取 0.02 美元的費用。Tom 目前所使用的電話服務，**是對任何一通電話收取每分鐘 0.1 美元的費用，且他的每一通電話從未短於 7 分鐘**。若 Tom 所住的宿舍轉換為新的電話服務方案，則其每一通電話的平均通話時間會發生何種變化？

For a **seven-minute call** the two phone systems charge exactly the same amount, **$0.70**. But at that point under the **new plan, the marginal cost is only $0.02 per minute, compared to $0.10 per minute under the current plan.**  And since the benefit of talking additional minutes is the same under the two plans, Tom is much more likely to make longer calls under the new plan.

1. A 大學的用餐計畫讓學生每學期只要**支付固定費用 500 美元**，就可以吃到飽，因此一位學生每學期**平均吃掉 250 磅的食物**。而 B 大學的學生可用 500 美元購買一本餐券，讓學生有權利在每學期吃到 250 磅的食物。若學生所吃的食物超過 250 磅，**每多吃 1 磅的食物就必須支付 2 美元**；若學生所吃的食物少於 250 磅，則每 1 磅食物可折算成 2 美元的退款。若學生都是理性的，哪一個學校的平均食物消費量會較高？請簡單解釋之。

At University A, the marginal or extra cost for each additional pound of food is $0, so

everybody will keep eating until the extra benefit from eating an extra pound is also equal to $0.  **At University B, however, the cost of eating an extra pound of food is $2, so people will stop eating when the benefit of eating an extra pound falls to $2. Food consumption will thus be higher at University A.**