

ECO135 HW Questions for Chapter 6 Household Behavior and Consumer Choice

Q2 (from the textbook)

The following table gives a hypothetical total utility schedule for the Cookie Monster (CM):

| Number of Cookies | Total Utility |
|-------------------|---------------|
| 0 | 0 |
| 1 | 100 |
| 2 | 200 |
| 3 | 275 |
| 4 | 325 |
| 5 | 350 |
| 6 | 360 |
| 7 | 360 |

Calculate the CM's marginal utility schedule. Draw a graph of total and marginal utility. If cookies cost the CM 5 cents each and CM had a good income, what is the maximum number of cookies he would most likely eat?

Q5. On January 1, Professor Smith made a resolution to lose some weight and save some money. He decided that he would strictly budget \$100 for lunches each month. For lunch, he has only two choices: the faculty club, where the price of a lunch is \$5, and Alice's Restaurant, where the price of a lunch is \$10. Every day that he does not eat lunch, he runs 5 miles.

- Assuming that Professor Smith spends the \$100 each month at either Alice's or the club, sketch his budget constraint. Show actual numbers on the axes.
- Last month Professor Smith chose to eat at the club 10 times and at Alice's 5 times. Does this choice fit within his budget constraint? Explain your answer.
- Last month Alice ran a half-price lunch special all month. All lunches were reduced to \$5. Show the effect on Professor Smith's budget constraint.

Q7. Assume that Mei has \$100 per month to divide between dinners at a Chinese restaurant and evenings at Zanzibar, a local pub. Assume that going to Zanzibar costs \$20 and eating at the Chinese restaurant costs \$10. Suppose Mei spends two evenings at Zanzibar and eats six times at the Chinese restaurant.

- Draw Mei's budget constraint and show that she can afford six dinners and two evenings at Zanzibar.
- Assume that Mei comes into some money and can now spend \$200 per month. Draw her new budget constraint.

c. As a result of the increase in income, Mei decides to spend eight evenings at Zanzibar and eat at the Chinese restaurant four times. What kind of good is Chinese food? What kind of a good is a night at Zanzibar?

Q10.

For this problem, assume that Joe has \$80 to spend on books and movies each month and that both goods must be purchased whole (no fractional units). Movies cost \$8 each, and books cost \$20 each. Joe's preferences for movies and books are summarized by the following information:

| No. per Month | Movies TU | Movies MU | Movies MU/\$ | No. per Month | Books TU | Books MU | Books MU/\$ |
|---------------|-----------|-----------|--------------|---------------|----------|----------|-------------|
| 1 | 50 | | | 1 | 22 | | |
| 2 | 80 | | | 2 | 42 | | |
| 3 | 100 | | | 3 | 52 | | |
| 4 | 110 | | | 4 | 57 | | |
| 5 | 116 | | | 5 | 60 | | |
| 6 | 121 | | | 6 | 62 | | |
| 7 | 123 | | | 7 | 63 | | |

a. Fill in the figures for marginal utility and marginal utility per dollar for both movies and books.

b. Are these preferences consistent with the law of diminishing marginal utility? Explain briefly.

c. Given the budget of \$80, what quantity of books and what quantity of movies will maximize Joe's level of satisfaction? Explain briefly.

d. Draw the budget constraint (with books on the horizontal axis) and identify the optimal combination of books and movies as point A.

e. Now suppose the price of books falls to \$10. Which of the columns in the table must be recalculated? Do the required recalculations.

f. After the price change, how many movies and how many books will Joe purchase?

g. Draw the new budget constraint and identify the new optimal combination of books and movies as point B.

h. If you calculated correctly, you found that a decrease in the price of books caused Joe to buy more movies as well as more books. How can this be?

Q4 (from Appendix)

Assume that Jim is a rational consumer who consumes only two goods, apples (A) and nuts (N). Assume that his marginal rate of substitution of apples for nuts is given by the following formula:

$$MRS = MU_N/MU_A = A/N$$

That is, Jim's MRS is equal to the ratio of the number of apples consumed to the number of nuts consumed.

- a. Assume that Jim's income is \$100, the price of nuts is \$5, and the price of apples is \$10. What quantities of apples and nuts will he consume?
- b. Find two additional points on his demand curve for nuts ($P_N = \$10$ and $P_N = \$2$)
- c. Sketch one of the equilibrium points on an indifference curve graph.