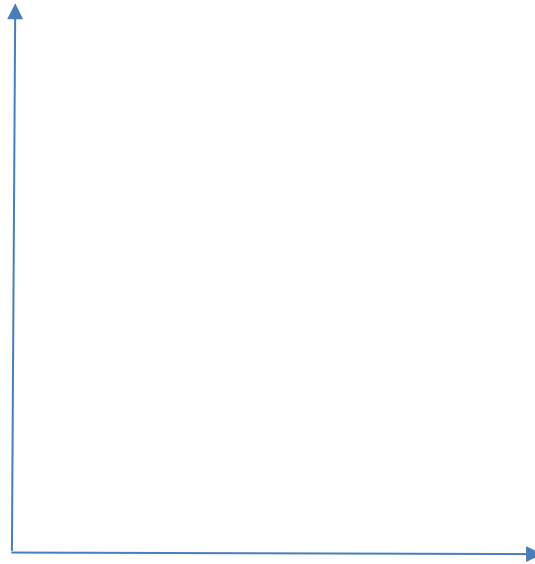


PROBLEM SET 2
[REVISED 9/21, 2:00PM]
Consumer Theory

1. Draw a figure showing a budget line for Meatwad, who spends his entire income ($I = \$40$) on PeePantz CDs (y -axis, $P_{CD} = \$5$) and Cheez Whiz (x -axis, $P_W = \$4$).



- a. What is the slope of Meatwad's budget line? Show your work.

- b. What is the equation that describes Meatwad's budget line? (Solve for the vertical axis intercept in general terms. Then substitute in the values for the different variables.)

- c. Show what happens to Meatwad's budget line if Master Shake steals \$15 from Meatwad AND the price of CDs increases to \$10 at the same time.

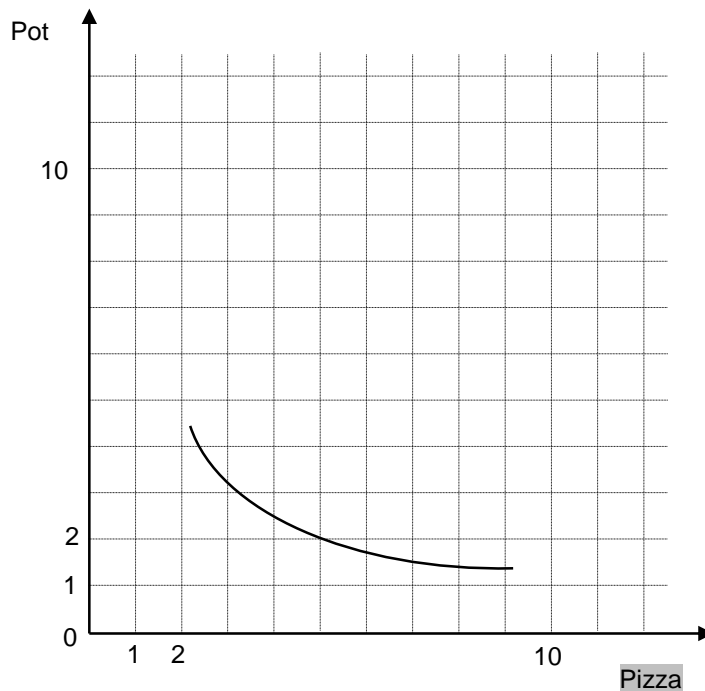
2. Suppose your cell phone service has a flat fee of \$50, which includes up to 500 MB data. The next 100 MB cost a flat rate of \$5. If you use more than these 600 MB, you are charged 20¢ for each additional MB. Your budget (I) to spend on cell phone data and the composite good is \$100.

- a. Draw the budget line for cell phone data (x axis) and the composite good (y axis).
- b. Re-draw the budget line with cell phone on the y axis and the composite on the x axis.
- c. Re-draw the budget line if each MB over 600 costs 45¢, but the other price information from above is unchanged.

3. Despite Mr. Hand's attempts to change his student's behavior, Jeff Spicoli spends his entire daily allowance ($I = \$20$) on weed and pizza. The price of weed P_W is \$5 per bag and the price of pizza P_Z is \$2 per slice. Spicoli's relative preferences for the goods are indicated in Figure 3a-b.

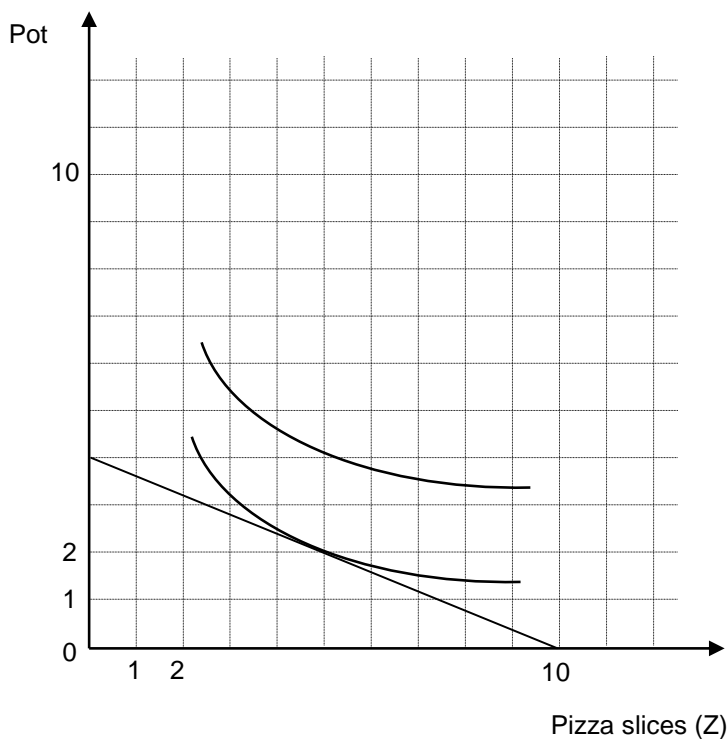
- a. Draw the budget line on the figure. Then indicate Spicoli's optimal bundle of goods (label the point "A").
- b. Next show what happens if P_T rises to \$3. (Be sure that you clearly indicate what happens to the budget line, and what happens to the quantities of the goods consumed by Spicoli.)

Figure 3a-b



c. Suppose the government gives all high school students 2 units of pot, just to help them chill out. How would this affect Spicoli's budget line and his consumption choices? Draw the new budget line and illustrate the optimal consumption. Briefly explain the changes shown in the graph.

Figure 3c



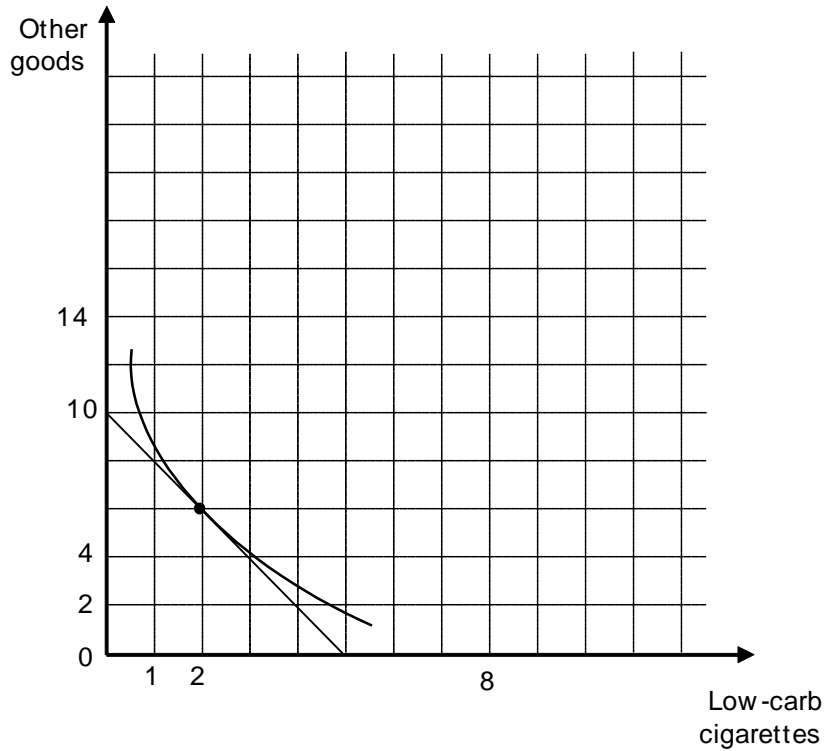
d. Katie's preferences are that she strongly dislikes pot, but likes pizza. Draw her indifference curve on Figure 3c, showing her optimal consumption point under the situation described in part c. Label this indifference curve *K1*. Finally, draw another indifference curve for Katie if government not only gives students 2 units of pot, but it actually forces them to smoke it too. Label this indifference curve *K2*. Under which situation is Katie better-off? Why?

4. What is a corner solution? Explain briefly. Then draw a graph and illustrate a corner solution for a consumer who has a relatively strong preference for the good on the *x*-axis, but also likes the *y*-axis good.

5. Figure 5 shows Bubba's budget and preferences for low-carb cigarettes and a composite (other goods). Bubba's income is $I = \$10$.

- a. What is the price of cigarettes? Explain.
- b. Does Bubba like cigarettes? How do you know?
- c. Draw new budget lines (and label them) to represent the cases when (i) Bubba's income is cut in half and (ii) when his income is doubled from the original budget of \$10. (You need to draw two additional budget lines, for three total.)
- d. Draw two additional indifference curves and show the optimal consumption bundles for the budget lines drawn for part c, assuming cigarettes are *inferior goods* for Bubba.

Figure 5

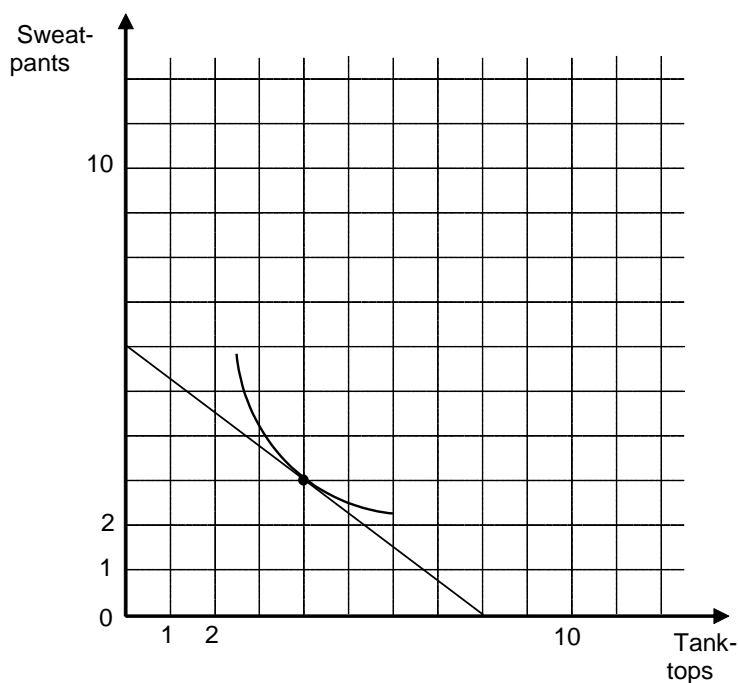


6. Carl lives near the southern Jersey shore, and wears sweatpants and tank-tops. His annual consumption behavior is illustrated in Figure 6.

a. The price of tank-tops P_T is \$3. Find the price of sweatpants (P_S) and Carl's annual income (I). Show your work.

b. Draw the new budget line if P_S rises by 50% and Carl's income (I) rises by 50%. Draw a new IC and illustrate Carl's new consumption bundle.

Figure 6



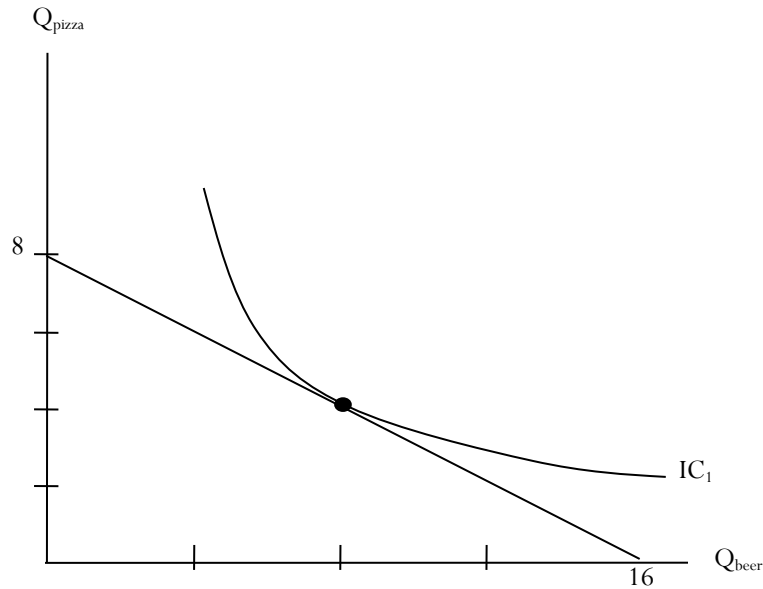
d. Is Carl better off after the changes in part b, or was he happier in the initial situation? How do you know?

7. Carl's budget and indifference curve are illustrated below in Figure 7.

a. Suppose the price of beer doubles. Draw the budget line that reflects the new price of beer. Then draw a possible indifference curve and show the new consumption bundle for Carl.

b. Decompose the total effect of the price change into the substitution and income effects.

Figure 7



c. Explain what the “substitution” and “income” effects mean.

d. What does it mean that “the substitution effect is always negative, but the income effect can be positive or negative”?