# Economics 308: Intermediate Microeconomics

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## Problem Set #2

1. "Gaining extra revenue is easy for any producer – all it has to do is raise the price of it's product." Do you agree? Explain when this would be true, and when it would not be true.

2. Suppose that the market demand curve for pasta is a straight line of the form
$$Q = 300 - 50P$$
where Q is the quantity of pasta bought in thousands of boxes per week and P is the price per box (in dollars).
    a. At what price does the demand for pasta go to zero? Is demand elastic, inelastic or unit elastic at this point?
    b. How much pasta is demanded at a price of zero? Is demand elastic, inelastic or unit elastic at this point?
    c. How much pasta is demanded at a price of $3? Develop a numerical example that suggests that total spending on pasta is as large as possible at this price.

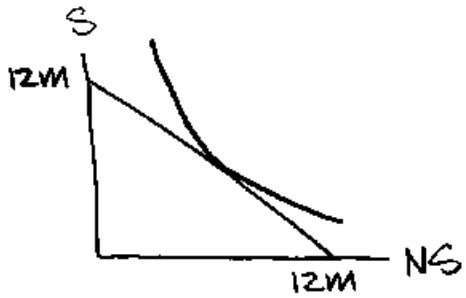
3. Marvin currently spends 35 percent of his $100,000 income on renting his apartment. If his income elasticity of demand for housing is 0.8, will this fraction rise or fall when he gets a rise to $120,000? Would you give a different answer to this question if Marvin's income elasticity of demand for housing were 1.3?

4. Tom, Dick and Harry constitute the entire market for scrod. Tom's demand curve is given by
$$Q_1 = 100 – 2P$$
for $P \leq 50$. For $P > 50$, $Q_1 = 0$. Dick's demand curve is given by
$$Q_2 = 160 – 4P$$
for $P \leq 40$. For $P > 40$, $Q_2 = 0$. Harry's demand curve is given by
$$Q_3 = 150 – 5P$$
for $P \leq 30$. For $P > 30$, $Q_3 = 0$. Using this information, answer the following:
    a. How much scrod is demanded by each person at P = 50? At P = 35? At P = 25? At P = 10? At P = 0?
    b. What is the total market demand for scrod at each of the prices specified in part (a)?
    c. Graph each individual's demand curve.
    d. Use the individual demand curves and the results of part (b) to construct the total market demand curve for scrod.

5. Suppose that ham and cheese are pure complements – they will always be used in the ratio of one slice of ham to one slice of cheese to make a sandwich. Suppose also that ham and cheese sandwiches are the only goods that a consumer can buy and that bread is free. Show that if the price of a slice of ham equals the price of a slice of cheese:
    a. The own-price elasticity of demand for ham is -1/2.

b. The cross-price elasticity of a change in the price of cheese on ham consumption is also -1/2.

6. Suppose the federal government wants to support education but must not support religion. To this end, it gives Christian Brothers High School $2 Million with the stipulation that this money be used for secular purposes only. The graph below shows Christian Brothers pre-federal-gift budget constraint and best attainable indifference curve over secular and non-secular expenditures. How would the High School's welfare differ if the gift came without the secular-use restriction? Draw graphs of both scenarios and state your assumptions.




7. Discuss two criticisms of the claim that the satisfaction of preferences is the same as "well-being." Discuss two policy areas wherein these two criticisms might be used to argue against the policy prescriptions of economists.

8. Use models of asymmetric information to explain the following:
   a. What would happen to the market for auto insurance if the state of New York passed a law making it illegal for insurance companies to charge different premium rates to individuals based on the neighborhood in which they live?
   b. Why do health insurance policies typically have deductibles (i.e., stipulations that require the insured to pay some of the cost of an accident or illness)?

9. Smith lives in a world with two time periods, this period and next period. His income in each period, which he receives at the beginning of each period, is $210. If the interest rate, expressed as a fraction, is 0.05 per time period, what is the present value of his lifetime income? Draw his intertemporal budget constraint. On the same axes, draw Smith's intertemporal budget constraint when r=0.20.

10. Suppose that from the last minute you devoted to problem 10 on an exam you earned 2 extra points, while from the last minute you devoted to problem 8 you earned 4 extra points. The total number of points you earned on these two questions were 8 and 6, respectively, and the total time you spent on each was the same. How - if at all – should you have reallocated your time between them?

11. For a linear demand curve show that the price elasticity of demand at any given point is given by minus the ratio of the distance between the price and the origin and the distance of the intercept to the price.