

## Assignment #5

Economics 101 – Section 5

Due Date: Friday Feb 27, 2004 by noon

Instructions: Complete all questions and sub questions on separate sheets of paper. Make sure to include your name (first and last) and your student number on the first page of your assignment. Staple all sheets together and turn in to my office by the due date.

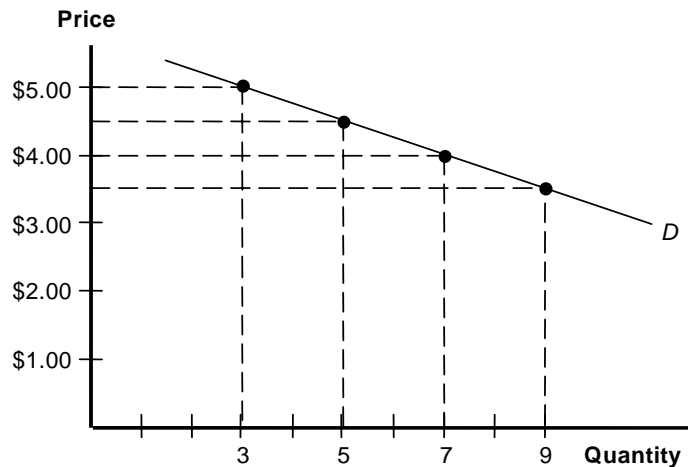
1. Three people have the following individual demand schedules for Count Chocula cereal that describes how many boxes each would purchase monthly at different prices.

Price	Person 1	Person 2	Person 3
\$ 5.00	0	1	2
\$ 4.50	0	2	3
\$ 4.00	0	3	4
\$ 3.50	1	3	5

- What is the market demand schedule for this cereal assuming that these are the only buyers in the market? Using the demand schedule you just created, draw the market demand curve.
- Why would you think these three individuals have different demand schedules?

### Answers

- Recall that the market demand curve is simply the horizontal sum (summed over quantities at each price) of the individual demand curves. In this case, then, the market demand schedule is:



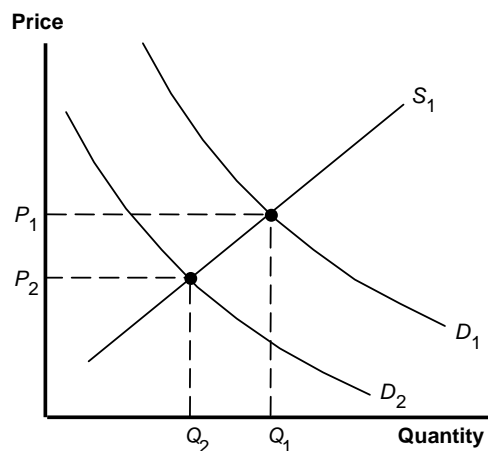
Price	Qty. Demanded
\$5.00	3
\$4.50	5
\$4.00	7
\$3.50	9

- b. The three consumers have different demand schedules because *they have different preferences for the cereal.*

2. What would happen to the market demand curve for polyester suits if consumers' incomes go up? Use a supply and demand graph to show what happens to the price and quantity after incomes have risen.

Answers

An increase in income always *decreases demand* for an inferior good. Hence, the demand curve would behave as below, with new (post-income increase) demand shown by  $D_2$ .



3. Evaluate the following statement:

“If as good is inferior, a rise in its price will cause people to buy more of it, and this will violate the law of demand.” Is this statement true or false and explain why.

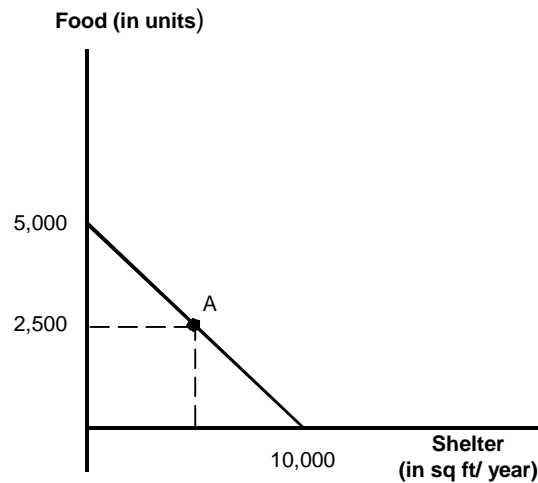
This statement is false. If a good is inferior then it says people buy less of it as their incomes increase. All the goods that we consider in this course will have a negative relationship between price and quantity demanded.

4. The Smiths are a low-income family with \$10,000 available annually to spend on food and shelter. Food costs \$2 per unit, and shelter costs \$1 per square foot per year. The Smiths are currently dividing the \$10,000 equally between food and shelter.

- Draw their budget constraint on a diagram with food on the vertical axis and shelter on the horizontal axis. Label their current consumption choice. How much do they spend on food? How much do they spend on shelter?
- Suppose the price of shelter rises to \$2 per square foot. Draw the new budget line. Can the Smiths continue to consume the same amounts of food and shelter as previously?
- In response to the increased price of shelter, the government makes available a special income supplement. The Smiths receive a cash grant of \$5,000 that must be spent on food and shelter. Draw their new budget line and compare it to the line you derived in part a. If they wanted, is it possible for the Smiths to consume the same combination of food and shelter as in part a?
- With the cash grant and the shelter priced at \$2 per square foot, does it make any sense the family would consume the same combination as in part a? Why or why not.

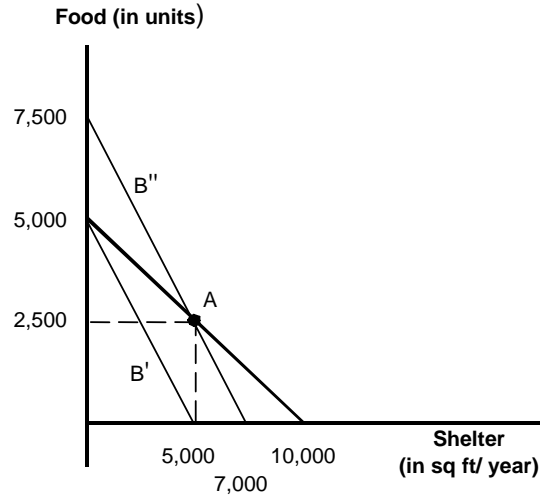
Answers

a.

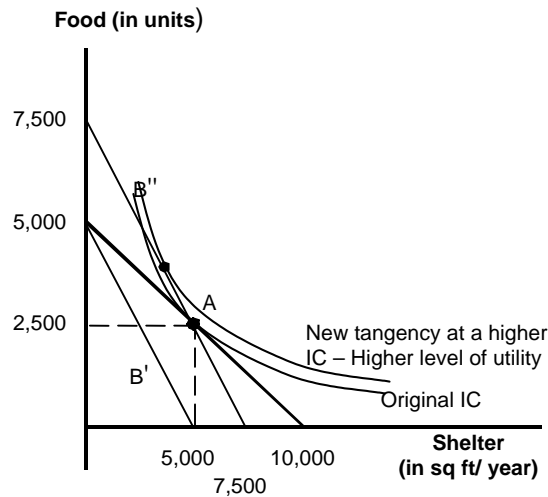


Current consumption is at A, where 2,500 units of food and 5,000 units of housing are consumed.

- When the price of housing rises to \$2 per square foot, the new budget line is given by the dashed line marked  $B'$  in the figure below. The Smiths *cannot* continue to consume at point A.



- c. The income supplement shifts the budget constraint rightward to the dashed line marked  $B''$ . The original consumption levels, represented by point  $A$ , is again affordable.
- d. No, the family will not necessarily return to point  $A$ . The utility-maximizing consumption choice will be somewhere on the new budget line,  $B''$ . But all the points on this budget line *below*  $A$  could have been reached with the original prices and income, and were not chosen before, so they must be less preferred than point  $A$ . They will not be chosen now. All the points *above* point  $A$  are newly available. Any of these points might be preferred to point  $A$ , and could be chosen.



5. The following table shows total output (in the number of tax returns completed per day) of an accounting firm:

Number of Accountants	Number of Returns per day
0	0
1	5
2	12
3	17
4	20
5	22

Assume the quantity of capital remains constant (here capital would be the office building, computers, etc) at all levels of output. That is, even though they hire more accountants the size of the building or the number of computers does not increase.

- Calculate the marginal product of each accountant.
- Over what range of employment do you see increasing returns to labor?
- Explain why the MPL (marginal product of labor) might behave for an accounting firm. Give an intuitive explanation.

Answers

a.	Accountants	Marginal Product
	0	
		5
	1	
		7
	2	
		5
	3	
		3
	4	
		2
	5	

- Increasing marginal returns to labor are evident for the range between 0 and 2 accountants. Diminishing marginal returns then set in for each remaining accountant.
- The crucial assumption here is that the quantity of other, nonlabor inputs (equipment) remain fixed. Hence, additional accountants might not have ready access to computer equipment, printers, or even desk space. This would decrease the services that each additional accountant could produce.