

Eco 601
Fall 2002
Problem Set #4

Due: Friday, September 27

From Nicholson, Ch. 5:

1. 5.5
2. 5.9, and illustrate in a diagram.
3. Mrs. Buncombe maximizes her utility by spending her entire income on goods A, B, and C (whose prices all stay constant during the time you are working on this problem.) Mrs. Buncombe makes \$300 per week and purchases 10 units of good A, 10 units of good B, and 10 units of good C. When her income rises to \$400 per week, she buys 9 units of A, 17 units of B, and 14 units of C. Finally, Mrs. Buncombe gets another pay increase to \$500 per week and purchases 8 units of good A, 26 units of good B, and 16 units of good C.
 - a) Using the above information, construct the Engel curves for goods A, B, and C.
 - b) Explain the nature of each good: is it normal or inferior? A luxury or a necessity?
4. Suppose that an individual receives utility from consuming X and Y and that the form of the utility function is
$$U(X,Y) = (X-20)^5 (Y-10)^5 .$$
 - (a) In general, using the above function, calculate the individual's Marshallian demand functions for X and Y as a function of I, P_X , and P_Y .
 - (b) If $P_X = \$1$, $P_Y = \$2$, and the individual's income = \$100, how much X and how much Y should be bought to maximize utility?
 - (c) Calculate $\partial X/\partial I$, $\partial X/\partial P_X$, and $\partial X/\partial P_Y$.
5. Consider a consumer who purchases 100 units of good X and 80 units of good Y, along with quantities of many other goods. Suppose that the price of good X rises by 40 cents per unit and the price of good Y drops by 50 cents per unit. Other prices and the consumer's income remain unchanged. Will the consumer buy more, less, or the same amount of good X? Does your answer depend on the income elasticity of demand? Explain.
6. From a not-so-old prelim: TFUE: A market demand curve passing through a given point that holds real income constant is more elastic than the corresponding demand curve that holds money income constant.