

ECO 601-001
Fall 2004
Problem Set #5

For practice only, **not** to be turned in for a grade.

1. Using the utility function and demand functions from problem 5.4 in Nicholson, verify that the homogeneity, Engel aggregation, and Cournot aggregation elasticity relationships hold.
2. When walnuts are \$.20 per ounce and cashews are \$.40 per ounce Hilary buys 30 ounces of walnuts and 20 ounces of cashews. How will Hilary respond if the price of walnuts increases to \$.30 per ounce and the price of cashews falls to \$.25 per ounce, while her nominal income stays constant? Will Hilary consider herself better off after the change? Illustrate.
3. Nicholson, 5.10. Illustrate with a diagram.
4. RE problem #4 on problem set #4, fall 2003:
Suppose $U(X,Y) = 3X^{1/3}Y^{2/3}$. Suppose also that $I = \$48$, $P_x = \$2$, and $P_y = \$4$.
 - a) *Derive expressions for the Marshallian demands for X and Y. How much X and how much Y are demanded under the given conditions?*
 - b) *Illustrate the utility maximizing bundle of X and Y in a budget constraint-indifference curve diagram. What level is utility?*
 - c) *Derive expressions for the Hicksian demands for X and Y. (Hint: see pp. 130-131 in Nicholson.)*
 - d) *Illustrate the Marshallian and Hicksian demand curves for X in a diagram. Use $I = \$48$, $P_y = \$4$, and $U = 24$ in constructing your curves.*

How much would this consumer be willing to pay to avoid an increase in the price of X from \$2 to \$4? In formulating your answer, discuss and illustrate the concepts of compensating variation and consumer's surplus.
5. RE problem 6.2 in Nicholson. Illustrate why rotgut whiskey (X) is a gross complement for jelly donuts (Y). Are jelly donuts likely to be a gross complement or a gross substitute for rotgut whiskey?