

Problem Set 1: Due Wednesday, Sept 8th

In all cases, use nothing more than the basic assumptions we've used in basic choice theory.

1. Show that in the standard consumer choice model, at least one good must be "normal".
2. When prices are $(p_1, p_2) = (1, 2)$ a consumer demands $(x_1, x_2) = (1, 2)$, and when prices are $(q_1, q_2) = (2, 1)$ the consumer demands $(y_1, y_2) = (2, 1)$. Is this behavior consistent with our simple set of assumptions?
3. When all income elasticities, η_i , are constant and equal, they must be 1. Definition of income elasticity:

$$\eta_i = \frac{\partial x_i(p, y)}{\partial y} \frac{y}{x_i}$$

4. When the ratio of all goods consumed, x_i/x_j is independent of the level of income for all pairs (i, j) , then the income elasticity of all goods is equal to 1.
5. Prove Hick's third law,

$$\sum_{j=1}^n \frac{\partial x_i^c(p)}{\partial p_j} p_j = 0.$$

where

$$x_i^c = x_i(p, p \cdot x^0)$$

Hint: Remember that x^0 is a constant reference bundle here.