

APEC 5151
Applied Microeconomics: Firm and Household

Problem Set #1: Preferences and Utility

Due September 22, 2016 at the beginning of lecture

A. Please solve the following end-of-chapter questions:

1. (20 points) 3.12 CES utility
2. (20 points) 3.13 The quasi-linear function

B. Consider the following Cobb-Douglas utility function:

$$u(x_1, x_2) = Ax^{0.35}y^{0.65}$$

where x_1, x_2 are goods, M denote consumer's expenditure and p_i denote good i 's price.

1. (10 points) Show that $u(x)$ is homogeneous of degree 1.
2. (10 points) Set up the consumer's utility maximization problem.
3. (10 points) Derive and interpret the first order conditions.
4. (10 points) Derive the demand curves and the own- and cross-price elasticities of demand. Interpret the elasticities.
5. (10 points) Derive the indirect utility function. Show that this is a legitimate indirect utility function for a consumer with strictly positive consumption of x_1 and x_2 .
6. (10 points) Verify Roy's identity and comment on the homogeneity of the demand functions.