

Problem Set 1

1.- Exercise 6.B.2 of the Textbook.

2.- Exercise 6.B.3 of the Textbook.

3.- Jordi faces three possible monetary prizes $C=\{\$20,\$5,-\$10\}$. Suppose that he prefers the sure middle prize (\$5) to a fair gamble between the best (\$20) and the worst prize (-\$10), i.e. he is risk averse.

- a) Construct a utility function of the expected utility form for Jordi.
- b) Does he prefer the lottery $L = (\frac{1}{2}, \frac{1}{2}, 0)$ or the lottery $L' = (\frac{3}{4}, 0, \frac{1}{4})$?
- c) Represent his preferences (and the previous two lotteries) in the 2-dimensional simplex.
- d) Which form would his preferences have if he had been risk neutral (i.e. if had been indifferent between the sure middle prize and a fair gamble between the best and worst outcome)?

4.- Review the application of the theory of choice under uncertainty to the individual demand for a risky asset of the Textbook (Example 6.C.2 (pages 188-189), Example 6.C.2 continued (page 192 and page 194)) and complete the missing steps:

- a) Exercise 6.C.8 of the Textbook.
- b) Exercise 6.C.11 of the Textbook.

5.- A consumer has a Bernoulli utility function of the form $u(x) = -\frac{1}{x}$ for $x > 0$.

Suppose she is given a bet with a possible gain x_1 and a possible loss of x_2 with probabilities p and $(1 - p)$ respectively.

- (a) At what initial wealth levels W_0 is she willing to accept the bet?
- (b) Suppose that $x_1 = x_2 < W_0$. For each level of initial wealth, calculate the probabilities with which the individual accepts the bet. Based on this evidence, would you guess that the individual has increasing or decreasing absolute risk aversion?
- (c) Verify or disprove your guess in b) by computing the coefficient of absolute risk aversion.

Textbook: "Microeconomic Theory", Mas-Colell et al.