

ECO 601  
Fall 2003  
Problem Set #6

Due: Wednesday, October 22

1. Nicholson 8.4
2. Billy Sue's utility of income function is given by  $U=Y^2$ , where Y is income.
  - a) Is Billy Sue risk seeking, risk neutral, or risk averse? Calculate Pratt's measure of risk aversion.
  - b) Suppose Billy Sue has certain income of \$100 and can bet \$50 on a horse that wins \$100 with probability 0.5. What is the expected utility of the bet compared with the utility of the certain income? Illustrate in a diagram.
  - c) Will Billy Sue prefer to bet \$75 on the horse if s/he wins \$150 with probability 0.5? Demonstrate in your diagram.
  - d) What is the amount of certain income that gives the same utility as the original bet?
3. TFUE: Suppose if farmers fertilize, they can get a yield per acre of 50 bushels if it rains, and 10 bushels if it does not rain. If farmers do not use fertilizer, they can get a yield per acre of 30 bushels if it rains and 20 bushels if it does not rain. Fertilizer is available for free from the government. The probability of rain is 0.5. Rational farmers will choose to use fertilizer.