

Midterm Exam October 22 2014 2:30 – 3:30 pm

Do all 3 questions. All count equally.

1. Are the preferences represented by the utility function

$$U(x_1, x_2, x_3) = x_1 - \frac{1}{x_2} + (x_3)^2$$

strictly monotonic? Convex? Explain.

2. Define the term "certainty equivalent" to a gamble, and show that the certainty equivalent to a gamble must be less than the expected value of the gamble for a risk-averse (von Neumann Morgenstern) expected utility maximizer.

3. What is the cost function for a firm with a production function

$$f(x_1, x_2) = x_1 + \log(1 + x_2)$$

(where "log" denotes the natural logarithm)?