

Econ 3101 Intermediate Microeconomics
Spring 2010, Section 003
Midterm Practice

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1 Define the following terms:

- Optimization principle
- Equilibrium principle
- Monotonic preferences
- Convex preferences
- Normal good
- Inferior good
- Ordinary good
- Giffen good
- Endogenous variable
- Exogenous variable
- Rationing
- Quantity tax
- Ad-valorem tax
- Inelastic demand
- Elastic demand

2 Extra Problems

Question 1. *Demand*

Suppose the representative consumer, Robinson Crusoe, has the following utility function: $u(x, y) = \min(2x, 5y)$, where x and y denote the only two goods in the economy. Let p_x and p_y denote prices for x and y , and m income.

- Write down the budget constraint for this consumer.
- Derive Robinson's demand for both x and y .
- How much of x and y will Robinson consume if $p_x = p_y = 5$ and $m = 50$?

Question 2. *Slutsky Equation*.

Consider a Robinson Crusoe (i.e. single agent) economy with demand function $x(p_1, p_2, m) = (\frac{p_2 + m}{p_1}, \frac{p_1}{p_2})$. The price of good 1 is denoted by p_1 , that of good 2 by p_2 , and income by m .

- Is good 1 inferior? What about good 2? Justify your answer.
- Are there Giffen goods in this economy? Justify your answer.
- Let $p_2 = 200$, $m = 40$, and suppose p_1 increases from 8 to 16. Find the change in the quantity demanded of good 1.
- For the change in part (c), calculate the magnitude of the Slutsky substitution and income effects.

Question 3. *Arbitrage*.

Consider two assets, x and y , where x yields a return p_x every period and y a return of p_y every other period starting today. The interest rate is r , where $r > 0$.

- At what price should asset x be sold so that arbitrage is not possible?
- At what price should asset y be sold so that arbitrage is not possible?
- Suppose the return structure for asset y has changed so that it now yields p_y every other period half the time, and p_x the other half. (There is still no return to holding y every even period.) What will be the new price for this asset?