ECO 401-002 Spring 2003 Problem Set #2

Due: Thursday, February 6, 2003

- 1. Given goods X and Y. Bundle A has 3X and 4Y, bundle B has 4X and 6Y, and bundle C has 5X and 4Y.
  - (a) Is any bundle clearly preferred to the other two? Explain briefly.
  - (b) Could a consumer possibly find A and C to be equally acceptable? Why or why not?
  - (c) If a consumer is indifferent between bundles B and C, what is this consumer's MRS between X and Y?
- 2. Suppose that you work as a "gutter" in a chicken processing plant and that you are paid your monthly income in kind: you get forty chickens per week. Only one other good, grapefruit, is produced, and there is no money in this economy at all. Goods are bartered by persons not content with their holdings of chickens and grapefruit.
  - (a) Other individuals are willing to trade at the rate of 2.5 grapefruit per chicken. Construct your budget constraint.
  - (b) After you have finished trading chickens for grapefruits each month, what will be your marginal rate of substitution between the two goods?
- 3. Samantha spends her entire monthly income of \$1000 on guns and butter. The price of guns is \$100 per unit and the price of butter is \$25 per unit. Sam is currently consuming 5 guns and 20 units of butter, and her marginal rate of substitution is 1 gun for 1 unit of butter. Is Sam maximizing utility? Using indifference curve analysis, explain your answer in a diagram with guns on the vertical axis and butter on the horizontal axis.
- 4. With an income of \$300 per month, the Jones family purchases 75 gallons of fuel oil per month when its price is \$1 per gallon. The government then agrees to pay half the family's heating bill. With the government subsidy (\$0.50 per gallon), the Jones' consumption of fuel oil rises to 100 gallons per month. Illustrate what has happened using budget lines and indifference curves. Identify in your diagram the total cost to the government of the subsidy.
- 5. Browning and Zupan, 3.16