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Advanced microeconomics part I exam 2013/Kultti

1. Let a consumer possess utility function $u(x, y) = xy$, let the prices of good 1 and 2 be p_1 and p_2, and let the consumer's wealth be m. Determine the consumer's indirect utility function and expenditure function.

2. A consumer's income/wealth is 120 euros. His/her utility function is given by $u(x, y) = xy + x$. The prices of the goods are $p_x = 1$ and $p_y = 3$ per each unit up to $y = 20$ and $p_y = 2,5$ per each unit over 20. Determine the consumer's optimal choice.

3. Consider two investment strategies. In the first strategy 30000 euros are invested in one type of bond that returns 120000 or zero euros with equal probabilities. In the second strategy 30000 euros are divided equally between two different kinds of bonds. Each type of bond returns 40000 or zero euros with equal probabilities, and the probabilities over the returns are independent. Show that a risk loving investor prefers the first strategy.

4. Use the Edgeworth-box to determine the core of the economy in the following cases.

i) Consumer-A has utility function $u(x, y) = x + y$ and endowment $(4, 1)$. Consumer-B has utility function $v(x; y) = min\{x, y\}$ and endowment $(2, 3)$.

ii) Consumer-A has utility function $u(x, y) = min\{x, 2y\}$ and endowment $(4, 1)$. Consumer-B has utility function $v(x; y) = min\{x, y\}$ and endowment $(2, 3)$.