

Advanced Microeconomics
(Economics 104)
Fall 2007
Problem Set I

- *Question 1*

Consider a group of individuals A, B and C and the relation *at least as tall as* as in A is at least as tall as B . Does this relation satisfy the completeness and transitivity properties? Take the same group of individuals as above and consider the relation *strictly taller than*. Is it complete? Is this relation transitive?

- *Question 2*

Determine if completeness and transitivity are satisfied for the following preferences defined on $x = (x_1, x_2)$ and $y = (y_1, y_2)$.

- $x \succsim y$ iff (if and only if) $x_1 \geq y_1$ and $x_2 \geq y_2$ (solved as an example).
- $x \succsim y$ iff $\min\{x_1, x_2\} \geq \min\{y_1, y_2\}$, and
- $x \succsim y$ iff $x_1 > y_1$ or $x_1 = y_1$ and $x_2 > y_2$.

- *Question 3*

Determine if completeness and transitivity are satisfied for the following preferences defined on $x = (x_1, x_2)$ and $y = (y_1, y_2)$

$$x \succsim y \text{ iff } \max\{x_1, x_2\} \geq \max\{y_1, y_2\}$$

Illustrate a typical indifference curve graphically (Hint: pick a bundle $x = (x_1, x_2)$ and think what are the set of bundles that the consume indifferent between them and $x = (x_1, x_2)$). Accordingly, determine and explain graphically whether this preference relation satisfies convexity.

All exercise are assigned from O.

- 16.1 (Working on a joint project)
- 17.1 (Games equivalent to the Prisoner's Dilemma)
- 18.1 (Hermaphroditic fish)
- 20.1 (Games without conflict)
- 27.1 (Variant of Prisoner's Dilemma with altruistic preferences)
- 27.2 (Selfish and altruistic social behavior)
- 30.1 (Variants of the Stag Hunt)

- 31.1 (Extension of the Stag Hunt)
- 34.2 (Voter participation)
- 34.3 (Choosing a route)
- 42.1 (Finding Nash equilibria using best response functions)
- 42.2 (A joint project)
- 47.2 (Nash equilibrium and weakly dominated actions)