

Mikroekonomia — class 6

1. Is it possible that:
 - a) good i is inferior for a fixed price vector and every value of income?
 - b) all the goods consumed by a consumer are normal?
 - c) all the goods consumed by a consumer are inferior?
2. Show that, under appropriate assumptions about regularity of functions of the consumer model, good i is normal (using the definition with derivative) iff $\frac{\partial^2 e(\mathbf{p}, \bar{u})}{\partial p_i \partial \bar{u}} > 0$.
(Hint: use Shephard's lemma and duality)
3. Calculate price and income elasticities (if possible) for perfect complements, perfect substitutes, Cobb-Douglas preferences and CES utility function $u(x_1, x_2) = (x_1^\rho + x_2^\rho)^{\frac{1}{\rho}}$.
4. Is it possible that:
 - a) good i is a necessity/luxury good for a fixed price vector and every value of income?
 - b) all the goods consumed by a consumer are necessities?
 - c) all the goods consumed by a consumer are luxuries?
5. Verify the following statements using terms of necessity and luxury goods.
 - a) Some rich people consume only luxury goods.
 - b) Poor people have to constrain themselves to consume only necessity goods.
6. Are the choices of a consumer described below irrational? (check, whether the following choices violate WARP).
 - a) At prices $(2, 4)$ the consumer chose bundle $(1, 2)$, while at prices $(6, 3)$ bundle $(2, 1)$.
 - b) At prices $(1, 1)$ the consumer chose bundle $(2, 7)$, while at prices $(2, 1)$ bundle $(5, 2)$.
7. Given choices of a rational consumer in two situations in future, find the set of possible current choices.
In 2008 at prices $(1, 3)$ the consumer chose bundle $(\frac{1}{2}, \frac{5}{6})$, while in 2009 at prices $(3, 1)$ bundle $(\frac{2}{3}, 1)$. Now both prices are equal to 1, and his income is 2.

8. Franek was at a three days long school excursion. His daily limit for expenditure was 10 zotys. Since in his ten years long life he had seen almost everything, his satisfaction from life every day was dependent on consumption of usually not eaten products: icecreams i hamburgers. Prices of those products differed.

In Wieliczka Frank ate 2 icecreams and 2 hamburgers for prices (per item) of: icecream 2, hamburger 3.

In Krakow he ate 4 icecreams and 2 hamburgers for prices of: icecream 1, hamburger 3.

In Zakopane he ate only 10 icecreams for prices of: icecream 1, hamburger 2.

Afterwards he told that his satisfaction was highest in Krakow, and lowest in Zakopane.

Check rationality of Franek assuming invariability of preferences over time.