

Seminar 3.

Task 1. An individual, who has a utility function $u = x_1^2 x_2$, chooses between goods x_1 and x_2 with prices p_1 and p_2 . Find the optimum for the individual at $b=105$. Determine the demand function for goods 1.

Task 2. The student always eats sausages in the form of sandwiches consisting of one bread, sausage and one teaspoon of mustard. Each such sandwich brings 15 units of usefulness.

a) What do student indifference curves look like? If the sausage costs 10 coins., bread 4 coins., and a teaspoon of mustard 1 coin, how will the utility depend on the cost of these benefits?

b) How many sandwiches can a student eat if he has 500 coins., and his utility function $U(x_1, x_2) = x_1 x_2^2$, where x_1 is the number of sandwiches, x_2 is the amount of money?

Task 3. Oksana needs to allocate 1200 minutes of free time to prepare for 2 exams, and the overall score for the course in her perception will be the minimum score of two subjects. She knows that she will get 0 points in the exams if she does not prepare at all. Every 10 minutes that a student spends preparing for the first exam, increases her score on this exam by one point. Every 20 minutes that a student spends preparing for the second exam, increases her score on this exam by one point.

a) Draw Oksana's "budget line" and a map of her "indifference curves".

b) How will Oksana allocate her own time to prepare for exams?

c) Let Oksana consider the maximum of two grades as a grade for the course. How will the solution change b)?

Task 4. The utility function is $U = xyz$, the income of the individual is 48, the price of products x, y, z are 4, 2 and 5, respectively. Find an equilibrium set.

Task 5. Demand function $U = xy$, product price of x is 2, income is 120. Construct the price-consumption curve and the demand curve for the product y .

Task 6. Marina consumes only apples and bananas, its utility function is $u(x_1, x_2) = x_1 x_2$. The price of apples is 3 coins, the price of bananas is 6 coins. Marina's income is 120 coins per day.

- a) What will be the best choice for her?
- b) Let the price of apples increase by 25% and the price of bananas fall by 60%. What should be the daily income in this case to reach the previous set?

Task 7. A consumer with an income level of 400 coins buys 25 units of product x and 15 units of y at the same price 10 coins per unit. The level of income fell to 336 coins, the price of product x decreased to 8 coins per unit, the price of y rose to 12 coins. The consumer buys 30 units of x and 8 units of y. Has his well-being increased after the price change?

Task 8. The utility function of the individual $u(x_1, x_2) = x_1 x_2^2$, budget constraint $3x_1 + 2x_2 = 100$. The price of the first product is reduced by 1 coin.

- a) Find the income and substitution effects by Slutsky.
- b) Find the income and substitution effects by Hicks.

Task 9. The consumer has a utility function $u = x_1 x_2$, the budget is 100 coins, the price for goods are 4 and 2 coins respectively. Price for x_1 increases to 5 coins. Calculate the income and substitution effects of by Slutsky and Hicks.