MICROECONOMIC PROBLEMS
CLASS #3

Problem 1

The production function of a certain enterprise is Q = 100KL. The price of K is 120 zł and the price of L is 30 zł. The enterprise is to produce 1000 units of output.

a) How many units of factors K and L should this enterprise employ? Present the analytical and graphical solution.

b) What is the minimum production cost?

c) Find and present graphically how inputs change when the price of L increases to 40 zł.

d) Find and present graphically how inputs change when the price of L decreases by 6 zł.

Problem 2

The production function of a certain enterprise is $Q = K^{0,5}L^{1,5}$ The enterprise currently employs 25 units of K (the price of K is 5) and 125 units of L (the price of L is 10). Does this entrepreneur act rationally (does he/she minimize the costs)? More units of which factor should he/she employ? How much of K should he/she take when using 125 units of L? How much of L should he/she take when using 25 units of K? How much of K and L should he/she employ when producing 200 units of Q?

Problem 3

Company has two factories manufacturing the same product. Costs functions are given by $TC(y_1) = 2y_1^2 + 80$ and $TC(y_2) = 6y_2^2 + 50$ production plan (hmmm… a strange register in this course, isn't it) assumes the output of 40 units, while the company is minimising cost. How many units of y should be produced in each of these factories?

Problem 4

A firm has a production function given by $f(x_1, x_2, x_3, x_4) = \min\{2x_1 + x_2, x_3 + 2x_4\}$. What is the cost function for this technology?

Problem 5

A firm has a production function y=x_1x_2. If the minimum cost of production at w_1=w_2=1 is equal to 4, what is y equal to?