Production, cost functions.

a) Draw the production function of the company
b) Write the formulas for the calculations of the production values
c) What is the " isoquant" , "izocosts" , MRTS(marginal rate of technical substitution) , optimum of production

Theory:
1) Accounting profit is the difference between income and……………………… expenses. Economic profit from the accounting profit …………………………………………………… costs.

2) If capital and work in the production are each other's perfect substitutes , then is valid that the MRTS is ……………… When capital and work in the production are perfect complements, then is valid that the MRTS is ………………………

Examples:

Production

1) You are given a company which is producing turbines. The function of marginal product is : $MP = 200 L - 12 L2$
a) Determine the function of the total and average product.
b) Determine at which volume of work begin the decreasing returns of variable input to enforce
c) Determine for which L is the overall product the maximum

2) The production function of the company within a short period is : $Q = f (K , L) 600K2L2 - K3L3$. $K = 10$
a) Determine the MPL and MPK
b) Specify in which quantity L is MPL $= 0$ and what it means
c) Specify in which quantity L is the largest work productivity

3) The company has a choice between the following combinations of work and capital

Combination	A	B	C	D	E	F
MP_K/MP_L	10	8	5	3	2,5	1

a) Determine the optimal combination (company, max. Z) , if the price of the work is 10,000 and the cost of capital is 50,000
b) How is the optimal combination going to change if the cost of the work changes to 5,000

4) The production function of the company Delta is $Q = 4KL$. The wage rate is 100CZK per hour . The lease of the used capital is 50CZK per hour.
a) Determine the minimum cost of producing 800 output units per hour
b) Determine the maximum output if the company is limited by costs of 1000CZK per hour max.

5) The production function is Q = 2KL . The cost of the L = 3 CZK / hour; K = 6CZK / hour. Use the Lagrange method. Calculate:
a) Minimum costs by production of 900 of outputs
b) Maximum production by TC = 90 CZK

Costs

d) Draw cost function in the short term , describe the difference SR and LR
e) Write down the formulas for the calculations of the costs

6) The cost function of a producing company firm is :
TC = 100 + 130q - 25q2 + (5/3) q3 .
a) Formulate functions FC , AVC , AFC ,
b) From which volume of output are the decreasing returns from the variable input going to break through
c) At which output reaches the company the minimum average variable cost

7) The fuction of the total cost of a company producing candles is described by the equation :
TC = 1000 + 40Q + 2Q2
a) Determine the total cost of producing 10 units
b) Determine the fixed cost of producing 10 units
c) Determine the fixed cost of producing 30 units
d) Determine the variable cost of producing 10 units
e) Determine the average cost of production of 10 units
f) Determine the marginal cost of production of 10 units

The financial and economic profit

8) Mr. Novak is deciding whether to do business or not . His friend, an economist, calculated that his business would bring financial gain of 200,000 CZK per year. He could have also rent the spaces and earn 150,000 CZK from it per year. After he can still work for a monthly salary, earning 10,000 CZK per month and therefore save 1,000,000 CZK and get 2 % bank rate. Which option should Mr. Novak choose ?

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