**COST FUNCTIONS - EXAMPLE**

EXAMPLE 1:

For production of a certain product the following Cost Function has been specified: . The selling price of 1 pc. of the product is 5,50 CZK.

Assignment:

1. Determine the Break Even Point.
2. What quantity of the product must be manufactured in order for the enterprise to reach the profit of 40 000 CZK?

EXAMPLE 2:

For a production of a new product, we assume changing selling price with the amount sold, we further expect that the development of sales follow the relation . Fixed Costs of the product’s production are 250 000 CZK, Variable Costs per l pc (Average Variable Costs linear) are 800 CZK.

Assignment:

1. What is the critical quantity of production (the Break-Even Point, or eventually Points)?
2. What quantity of the product should we produce in order to achieve maximum profit?
3. What price should we set?

EXAMPLE 3:

For production of a given product, the following Cost Function applies:

 ,

where Q is the quantity produced in thous. of pieces.

Assignment:

Deduce **the Average cost function** and **the Marginal cost function** based on the derivative.

EXAMPLE 4:

The company produces one kind of product, whose selling price is 22 CZK per 1 pc. Variable Costs per 1 pc are 14 CZK, annual amount of the company’s fixed costs is 2 800 000 CZK.

Assignment:

1. Determine the Break Even Point.
2. Determine the critical use of production capacity, if the company’s annual production capacity is 500 000 pc of the product.
3. Determine the extent of production, at which the enterprise achieves the desired profit of 800 000 CZK.

**Solution:**

EXAMPLE 1:

1. Break Even Point: 5 714 pc. of the product.
2. The quantity of the product at which the enterprise achieves a profit of 40 000 CZK: 17 143 pc. of the product.

EXAMPLE 2:

 1) The critical quantity of production (Break-Even Point/Points):

 The production begins to generate profit after 48 pc of the product had been produced (the first Break-Even Point) and begins to generate losses after 208 pc had been produced (the second Break-Even Point).

2)The amount of production needed to achieve maximum profit:

 *Q =* 128

Maximum profit will be achieved after 128 pc of the product will have been produced.

1. The price at the optimal extent of production:

= 4000

The product’s price (at the optimal extent of production– from the viewpoint of profit-maximizing) should be set at 4 000 CZK per 1 pc.

EXAMPLE 3:

1. Average cost function:



1. Marginal cost function (based on the derivative):



EXAMPLE 4:

1) Break Even Point: Q(BEP) = 350 000 ks;

2) Determine the critical use of production capacity: Qp krit = 70 %;

3) Q(Zmin) = 450 000 ks