

Exercise 1

- The company Clean, a.s. business in the field of cleaning services. Its output is therefore a square meter (m²) of tidy area. The company records the following costs:
- consumption of cleaning agents = **variable costs**
- consumption of mops, buckets, towels = **variable costs**
- labor costs of cleaners = **variable costs**
- salary costs of top management (managers, assistants) = **fixed costs**
- office space rent = **fixed costs**
- depreciation of washing equipment = **fixed costs**
- Depreciation of the washing machine = **variable costs**
- car depreciation = **fixed costs**
- travel expenses = **fixed costs**
- telephones, postage = **fixed costs**
- marketing costs = **fixed costs / variable costs (for examples % of sales)**
- bookkeeping, IT costs = **fixed costs**

Exercise 2

The company has found the following data on its performance:

1. total fixed costs (FC) CZK 15,000
2. variable costs per unit of production (incl.) CZK 10
3. total production (Q) 500 pcs

TASK:

- 1) Calculate the total variable cost of production (VC).
- 2) Calculate the fixed cost per unit of production (fc).
- 3) Calculate the total cost of production (C).
- 4) Calculate Ø total production costs (ØC).

Solution:

- (1) $VN = v_n * Q = 10 * 500 = 5\ 000\ CZK$
- (2) $f_n = FN / Q = 15\ 000 / 500 = 30\ CZK$
- (3) $N = FN + VN = 15\ 000 + 5\ 000 = 20\ 000\ CZK$
- (4) $\emptyset N = 20\ 000 / 500 = 40\ CZK$

Exercise 3

The maximum annual volume of production (production, output) in the amount of CZK 125,000 can be ensured at an annual fixed cost of CZK 2,400,000. In the monitored period, the production capacity was used only to 95%.

- 1) Find out free (unused) fixed costs (FCU)
- 2) Find out how the size of the unit fixed costs has changed

Solution:

Task 1:

Unused fixed costs = $0.05 * 2\ 400\ 000\ CZK = 120\ 000\ CZK$

Task 2:

Unit fixed costs 1 = $2\ 400\ 000 / 125\ 000 = 19.2\ CZK$

Unit fixed costs 2 = $2\ 400\ 000 / (125\ 000 * 0.95) = 20.21\ CZK$

Exercise 4

Swimming pool, a.s., is open daily from 10 a.m. to 8 p.m. It is open for approximately 350 days a year (15 days are closed for technical reasons or for holidays). A maximum of 150 people can use the company at one time. The annual amount of fixed costs in 2018 (rent, depreciation, labor costs, marketing) was 52,000 thousand. CZK. In fact, in 2018, the company was in operation for 342 days throughout the opening hours, visited by 182,380 people, who spent a total of 342,184 hours. Find out and interpret the amount of unused fixed costs.

Exercise 5

The company produces three types of textiles for the production of sportswear. The usual annual volume of services sold, costs and prices for individual products are as follows:

Type of product	Amount of production (production volume), quantity, number of products	Variable cost per unit (m), variable unit cost	Price per unit (m)	Fixed costs
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Lemtex	1 000	390	550	
Bertex	2 000	250	400	
Detex	4 000	75	255	
Total				1 200 000

Tasks:

1. Find out the economic result with the stated volume and structure of outputs.
2. Find out how much revenue the company will reach a turning point with an unchanged performance structure.
3. Determine the volume of revenues that will ensure the achievement of a profit of CZK 500,000 while maintaining the performance structure.
4. The company's management decided to double sales of higher quality and more expensive Lemtex fabrics by 1000 bm and, conversely, to reduce sales of cheaper Detex fabrics by 1,000 bm and believed that with this performance structure, revenues would exceed the break-even point and the company would make a profit. Is this reasoning correct?

Solution:

Ad 1)

Product	Sales	Variable costs	Margin
Lemtex	550 000	390 000	160 000
Bertex	800 000	500 000	300 000
Detex	1 020 000	300 000	720 000
Total	2 370 000	1 190 000	1 180 000
Fixed costs			1 200 000
Loss			- 20 000

Ad 2)

Sales at the turning point = fixed costs / (margin / sales) or fixed costs / (1-(variable costs/sales))

Sales at the turning point = 1 200 000 / (1 180 000 / 2 370 000)

Sales at the turning point = 1 200 000 / 0.49789

Sales at the turning point = 2 410 169 CZK

Ad 3)

Sales at the turning point = (fixed costs + profit) / (margin / sales) $CV_{BZ} = (1\,200\,000 + 500\,000) / (1\,180\,000 / 2\,370\,000)$

Sales at the turning point = 1 700 000 / 0.49789

Sales at the turning point = 3 414 407 CZK

Ad 4)

The reasoning is not correct, it depends on the performance margin, which is higher for Detex than for Lemtex.