

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE**

**SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS**

**Guidelines for independent training  
in the academic discipline**

**"MANAGEMENT ACCOUNTING"**

**for full-time students of speciality  
8.18010016 "Business Administration"**

**Харків. Вид. ХНЕУ ім. С. Кузнеця, 2014**

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Tasks are given to test the gained knowledge and develop skills in independent work with special literature, to get and deepen the experience in solving problems in the academic discipline.

Recommended for master's degree students of speciality 8.18010016 "Business Administration".

Подано завдання для перевірки набутих знань і розвитку навичок самостійної роботи зі спеціальною літературою, набуття та поглиблення досвіду розв'язання завдань з навчальної дисципліни.

Рекомендовано для фахівців освітньо-кваліфікаційного рівня "магістр" спеціальності 8.18010016 "Бізнес-адміністрування".

## Introduction

The law of Ukraine "On Accounting and Financial Reporting in Ukraine" distinguishes two types of accounting: financial accounting and management accounting and establishes the right of each company to design a "system and form of management accounting, reporting and control of business operations". This methodological approach facilitated the treatment of management accounting as a system, which is designed to meet the information needs of internal users of information on enterprise management.

The purpose of the academic discipline "Management Accounting" is to acquire knowledge and practical skills in generating information about operational activities of a company, as well as in making effective management decisions based on the use of such information.

While studying the educational material students are involved into theoretical, practical and independent training. In the credit-modular system of organization of the educational process independent training is essential. The main purpose of independent training is the creation of conditions for the fullest realization of the creative potential of students through individually-directed development of their abilities to research and individual activity.

Independent training for students consists of: elaboration of theoretical foundations of the listened lectures, studying specific issues of topics using primary and supplementary literature, legislation and guidance materials, solving individual problems, preparation for practical classes, intermediate and final control.

The purpose of the tasks for independent work of students is not only to deepen the theoretical knowledge and practical skills in reflecting acquisition transactions in the accounting of Ukrainian enterprises, but above all to develop skills at independent creative research, interpretation and use of practical methods that accompany the accounting work of an enterprise.

The presented guidelines for independent work meet the syllabus requirement of the academic discipline "Management Accounting" in themes 1 – 4.

While carrying out the tasks for independent training one should keep in mind that these tasks are based on conventional data and have no direct connection with the actual facts of economic activity of specific companies; any match with real entities is random.

# **Theme 1. The purpose, content and organization of management accounting**

Management accounting is concerned with the provision of information to people within an organization to help them make better decisions and improve the efficiency and effectiveness of existing operations.

Cost accounting is the branch of the accounting information system, which records, measures and reports information about costs. The primary purpose of cost accounting is cost ascertainment and its use in decision-making and performance evaluation. An important step in computation and analysis of costs is the classification of costs into different types. Classification of costs can be made according to the following criteria.

## 1. Nature:

a) direct costs are the costs which are identifiable with the product unit or cost center;

b) indirect costs are not identifiable with the product unit or cost center.

## 2. Behavior:

a) fixed costs remain constant irrespective of changes in the production volume;

b) variable costs change according to the volume of production;

c) semi-variable costs are partly fixed and partly variable.

## 3. Functions:

a) production costs are costs incurred in order to produce goods;

b) period costs are costs not attributable to the acquisition or manufacture of inventory.

## 4. Time:

a) historical costs are the costs incurred in the past;

b) predetermined costs are costs relating to the product and computed in advance of production on the basis of a specification of all the factors affecting costs and cost data.

## 5. Management decision-making:

a) marginal cost is the change in the aggregate costs due to change in the volume of output by one unit;

b) differential cost is the difference in the total cost that will arise from the selection of one alternative to the other.

For decision-making accountants distinguish opportunity costs, relevant costs, replacement cost, abnormal costs, controllable costs, shutdown cost, capacity cost, urgent costs.

## **Questions for independent in-depth study**

- 1.1. The concept of management accounting.
- 1.2. Types of accounting information used for decision-making.
- 1.3. The essence and structure of the global accounting system.
- 1.4. Changing requirements for accounting information as a driving force for the development of managerial accounting.
- 1.5. The subject and object of management accounting.
- 1.6. The essence, necessity and order of limiting costs. Similarities and differences based on limitations and regulation costs.
- 1.7. The use of mathematical methods of accounting information processing in the management accounting.
- 1.8. The use of social responsibility accounting. The scope of social accounting.
- 1.9. Social benefits and social costs. Measurement of social costs and benefits.
- 1.10. Approaches to social accounting. Benefits and limitations of social reporting.
- 1.11. The information value chain.

### **Task 1.1**

Fill in the gaps with the appropriate words.

1. The accounting information specifically prepared to aid managers is called ... information
2. ... is the process to ensure that employees perform properly.
3. The highest level management accountant is called the ...
4. Financial accounting has a ... structure
5. ... accounting provides data both for financial accounting and management accounting.
6. Historical costs are used in ... accounting.

## Task 1.2

Name costs distinguished for management decision-making. Fill in the gaps in Table 1.1 by terms in English and Ukrainian.

Table 1.1

### Cost classification for management decision making

Term			Definition
	in English	in Ukrainian	
1	2	3	4
1			It is an unusual or a typical cost whose occurrence is usually not regular and is unexpected. This cost may arise due to idle time or some unexpected breakdown of machinery. They are not taken into consideration while computing cost of production or for decision-making
2			These costs can be influenced by a conscious management action
3			These costs are also known as incremental costs. This cost is the difference in the total cost that will arise from the selection of one alternative to the other. In other words, it is an added cost of a change in the level of activity. This type of analysis is useful for taking various decisions like change in the level of activity, adding or dropping a product, change in the product mix, make or buy decisions, accepting an export offer and so on
4			This cost is the cost at which existing items of material or fixed assets can be replaced
5			These costs are those which must be incurred in order to continue operations of the firm. For example, the cost of material and labor must be incurred if production is to take place
6			This cost is the change in the aggregate costs due to change in the volume of output by one unit
7			These costs are beyond the control of an individual in a given period of time
8			These costs are the costs which are incurred if the operations are stopped and they will disappear if the operations are continued. Examples of these costs are costs of sheltering the plant and machinery and construction of sheds for storing the exposed property

Table 1.1 (the end)

1	2	3	4
9			These are costs incurred by a company for providing production, administration and selling and distribution capabilities in order to perform various functions. These costs include the costs of plant, machinery and building for production, warehouses and vehicles for distribution and key personnel for administration. These costs are in the nature of long-term costs and are incurred as a result of planning decisions. Normally these costs are fixed
10			It is the value of benefit sacrificed in favor of an alternative course of action. It is the maximum amount that could be obtained at any given point of time if a resource was sold or put to the most valuable alternative use that would be practicable. This cost is measured in terms of revenue which could have been earned by employing the goods or services in some other alternative uses
11			These costs are costs which are going to be affected matter the most, and they are future costs which are different for different alternatives. They can also be defined as any costs which are affected by the decision on hand so they play a vital role in decision-making

### Task 1.3

Select the appropriate response to questions listed below. Give a clear explanation for each case.

1. Which of the following branches of accounting is concerned primarily with external reporting or communicating the results of economic activities to the parties outside the firm?

- A. Management accounting.
- B. Financial accounting.

2. Which of the following statements about differences between financial and managerial accounting is incorrect?

A. Managerial accounting information is prepared primarily for external parties such as stockholders and creditors; financial accounting is directed at internal users.

B. Financial accounting is aggregated; managerial accounting is focused on products and departments.

C. Managerial accounting pertains to both past and future items; financial accounting focuses primarily on past transactions and events.

D. Financial accounting is based on generally accepted accounting practices; managerial accounting faces no similar constraining factors.

3. Which of the following words DOES NOT describe a main focus of management accounting?

A. Planning.

B. Control.

C. External.

D. Decision-making.

4. CIMA defines management accounting as: "the application of the principles of accounting and financial management to create, protect, preserve and increase value for the ... of for-profit and not-for profit enterprises in the public and private sectors".

A. Auditors.

B. Stakeholders.

C. Owners.

5. Which of the following statements are true?

1. The main role of the management accountant is to produce financial accounts.

2. Management accountants always work within the finance function.

3. Management accountants always work in partnership with business managers.

A. 1 and 2 only.

B. 2 and 3 only.

C. 1 and 3 only.

D. None of the above.

6. Which of the following words complete the statement below?

... accounts are prepared for external stakeholders. Management accounts are prepared for ... stakeholders.

A. Shadow, internal.

B. Financial, internal.

C. Financial, external.

D. Internal, budget.



7. Cost accounting information can be used for:
- A. Budget control and evaluation.
  - B. Determining standard costs and variances.
  - C. Pricing and inventory valuation decisions.
  - D. All of these.

### Task 1.4

Point the appropriate response for each statement given in Table 1.2

Table 1.2

### Main features of management accounting

Statement	True	False
1. It is optional for a company to have financial accounting		
2. Generally accepted accounting principles constitute the basis for the preparation of management accounting reports in Ukraine		
3. Like financial accounting, management accounting is also concerned only with information which is amenable to being expressed in monetary terms		
4. Management accounting lacks a single unified structure		
5. Financial accounting is tailored to the specific needs of the management		
6. Management accounting caters internal requirements of the management		
7. Financial accounting lays more emphasis on the future		
8. Management accounting reports are public documents		

### Task 1.5

Grand Corporation is a manufacturer of precision drill bits. The bits are sold to machine and equipment dealers, and marketing is handled via a network of regionalized manufacturer representatives. The only selling expenses pertain to commissions paid to the manufacturer representatives. The commissions are 7 % of total sales. The following information pertains to operations during the calendar year 2013, UAH.

Sales	14,409,435
Administrative salaries	876,090
Direct labor	3,399,674
Indirect labor	1,232,055

Total depreciation	310,300
Total utilities	260,000
Interest expense	67,500
Other factory overheads	77,454

Of the total depreciation, 70 % relates to manufacturing and 30 % relates to general and administrative costs. Of the total utilities, 60 % relates to manufacturing and 40 % relates to general and administrative costs. Income taxes are 17 % of income before taxes.

Information about various inventory components is listed in Table 1.3.

Table 1.3

### Grand Corporation's inventory

	Raw materials	Indirect materials	Work in process	Finished goods
Beginning balance	775,090	55,080	1,213,678	1,242,664
Purchases	4,334,665	320,500	?	?
Ending balance	812,332	71,715	944,070	1,553,509

Use the above information to construct for the year ending December 31,

- a statement of cost of goods manufactured;
- a statement of cost of goods sold;
- an income statement.

Grand Corporation  
Statement of Raw Materials  
For the year ending December 31

Beginning raw materials inventory.

*Plus:* Raw materials purchased.

Raw materials available.

*Less:* Ending raw materials inventory.

Raw materials transferred to work in process.

Grand Corporation  
Statement of Work in Process  
For the year ending December 31

Beginning work in process inventory.

*Plus:* direct materials;

direct labor;

factory overheads.  
*Total* manufacturing costs.  
Ending work in process inventory.  
Cost of goods manufactured .

Grand Corporation  
Statement of Cost of Goods Sold  
For the year ending December 31

Beginning finished goods inventory.  
*Plus:* Cost of goods manufactured.  
Cost of goods available for sale.  
*Less:* Ending finished goods inventory.  
Cost of goods sold.

### Task 1.6

Select the appropriate response to questions listed below. Give a clear explanation for each case.

1. The audit fee paid by a manufacturing company would be classified by that company as

- a) a production overhead cost;
- b) a selling and distribution cost;
- c) a research and development cost;
- d) an administration cost.

2. Cost centres are

- a) units of output or service for which costs are ascertained;
- b) functions or locations for which costs are ascertained;
- c) segments of the organisation for which budgets are prepared;
- d) amounts of expenditure attributable to various activities.

3. Which ONE of the following costs would NOT be classified as a production overhead cost in a food processing company?

- A. The cost of renting the factory building.
- B. The salary of the factory manager.
- C. The depreciation of equipment located in the materials store.
- D. The cost of ingredients.

4. The diagram in Fig. 1.1 represents the behavior of a cost item as the level of output changes.

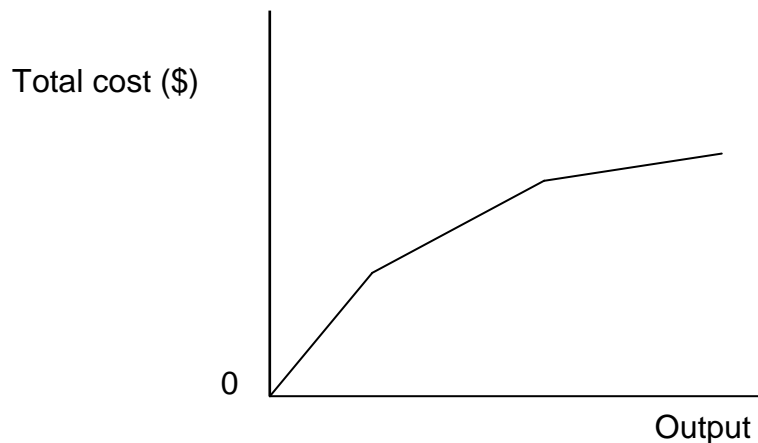


Fig. 1.1. **Cost behaviour**

Which ONE of the following situations is described by the graph?

A. Discounts are received on additional purchases of material when certain quantities are purchased.

B. Employees are paid a guaranteed weekly wage, together with bonuses for higher levels of production.

C. A licence is purchased from the government which allows unlimited production.

D. Additional space is rented to cope with the need to increase production.

5. Which ONE of the following statements is true?

A. The total variable cost varies with a measure of activity.

B. A variable cost is an unavoidable cost.

C. A variable cost is not relevant for decision-making.

D. A variable cost becomes fixed in the long run.

6. Fixed costs are conventionally deemed to be:

a) constant per unit of output;

b) constant in total when production volume changes;

c) outside the control of management;

d) those unaffected by inflation.

7. Generally, direct costs are

a) controllable;

b) uncontrollable

## Theme 2. Classification of costs and cost behaviour

A cost function is a regression equation that describes the relationship between a dependent variable (costs) and one or more independent variables (cost drivers). Cost functions are normally estimated from past cost data and activity levels to aid predicting future costs. Any expected changes in the future will require data to be adjusted in line with future expectation in order to obtain reliable forecast.

When the equation includes only 1 independent variable, it is referred to as simple regression and it is possible to plot the regression equation on a graph as a regression line. When the equation includes 2 or more independent variables, it is referred to as multiple regression.

If there is only 1 independent variable and the relationship is linear, the regression line can be described by the equation for a straight line:

$$y = a + b \cdot x, \quad (2.1)$$

where  $y$  is a total cost at an activity level  $x$ ;

$a$  is a total fixed cost;

$b$  is an average variable cost per unit of activity;

$x$  is the volume of activity levels or a cost driver for the period.

The following methods may be used to estimate the cost function:

- 1) engineering methods;
- 2) an inspection of the accounts method;
- 3) a graphical method;
- 4) a high-low method;
- 5) a least-squares method.

### Questions for independent in-depth study

2.1. Grouping the cost of components and places of origin.

2.2. The concept of cost for calculation of financial results according to National Standards of Accounting of Ukraine.

2.3. Features of behaviour of different types of costs when changing the volume of activity.

2.4. Using the analysis method of accounting data to build cost function.

2.5. Advantages and disadvantages of using the regression analysis to build a cost function.

2.6. The concept of least squares and procedures of appropriate calculations to determine the cost function.

### **Task 2.1**

Fill in the gaps with the appropriate words.

1. The area of activity where a specified cost relationships is expected to hold true is known as the ...

2. Cost functions which change only when a sizable change in volume is experienced are called ... costs.

3. Another name for semi-variable costs is ... costs.

4. The ... method focuses on only two data points when analyzing costs.

### **Task 2.2**

Select the appropriate response to questions listed below. Give a clear explanation for each case.

1. Costs that vary in direct proportion to a change in activity base are known as:

- a) product costs;
- b) period costs;
- c) variable costs;
- d) fixed costs.

2. Costs that do not change when the activity base fluctuates are known as:

- a) variable costs;
- b) discretionary costs;
- c) fixed costs;
- d) mixed costs.

3. A company's telephone bill consisting of a UAH 200 monthly base amount, plus per minute charges, would be classified as a:

- a) variable costs;
- b) committed fixed costs;
- c) discretionary fixed costs;
- d) mixed costs.

4. The term "committed costs" refers to:

- a) costs which are likely to respond to additional sales volume;
- b) costs which are governed mainly by past decisions that establish the present level of capacity;
- c) costs which fluctuate in response to changes in the rate of utilization of capacity;
- d) costs which management decides to incur in the current period to enable the company to achieve objectives other than the filling of orders placed by customers.

5. ABC Corporation provides household painting services. During June, its busiest month, ABC Corporation had total direct labor hours of 20,000 and total costs of UAH 274,000. During December, its slowest month, the company had labor hours of 12,500 and total costs of UAH 214,000. The company is planning for 16,000 direct labor hours in July. How much should the company budget for fixed costs during July be?

- a) 114,000;
- b) 162,000;
- c) 242,000;
- d) 251,500.

6. Ivan Company reported sales of UAH 150,000 (20,000 units). Fixed costs amounted to UAH 20,000 and income for the period was UAH 90,000. The per-unit variable cost was:

- a) 1.00;
- b) 2.00;
- c) 4.50;
- d) 5.50.

### **Task 2.3**

Golf Corporation manufactures a popular shaft for golf clubs. Its trade secret is a unique process for weaving high-tension wire into the center of the shaft such that energy is accumulated during the swing and released at impact. A specialized machine costing UAH 3,100,000 is utilized in the manufacturing process. The machine has a 3-year life and UAH 100,000 salvage value. Golf Corp. uses straight-line depreciation. During the year, 25,000 shafts were produced, and the company was operating at full capacity. UAH 700,000 of wire was used during the year. Determine and explain:

- 1) Is machinery depreciation fixed or variable? Is wire fixed or variable?
- 2) For the two noted cost items, how much was the total variable cost and the total fixed cost?
- 3) For the two noted cost items, how much was the variable cost per unit and how much was the fixed cost per unit?
- 4) Answer questions 1 and 2, assuming production was only 20,000 units (and wire usage was reduced proportionately).
- 5) For the following year, if the company acquired an additional machine to enable production of 40,000 total units, what would happen to the expected total and per unit variable and fixed cost?
- 6) If the company experiences significant growth, and finds it necessary to continue to add additional machines, how would the machine cost be characterized (hint: fixed, variable, or something else)? In theory, at what production level(s) would per unit cost be minimized?

### Task 2.4

Mel Cheek is a fishing guide on the Chenega River. The fish are usually found 20 to 50 miles upriver. Once the fish are located, Mel slows the boat to trolling speed and fishes for about 6 hours before returning to dock. Mel has noted that overall fuel costs vary based on "miles upriver" and he is considering changing his guide fee to separately charge customers for estimated fuel costs. Table 2.1 is Mel's log for 15 typical days showing "miles upriver to locate fish" and "total fuel cost, UAH".

Table 2.1

#### Mel Cheek Company's total fuel cost, UAH

Day	Miles upriver	Fuel cost	Day	Miles upriver	Fuel cost	Day	Miles upriver	Fuel cost
1	37	86	6	25	74	11	29	80
2	41	93	7	33	85	12	45	96
3	22	73	8	37	87	13	35	83
4	28	80	9	44	93	14	36	87
5	49	99	10	24	77	15	31	80

Use the high-low method to determine the "fixed fuel cost" associated with the trolling time, and the "variable fuel cost" associated with running up and down the river.



### Task 2.5

A management accountant is analyzing data relating to retail sales on behalf of marketing colleagues. The marketing staff believes that the most important influence upon sales is local advertising undertaken by the retail store. The company also advertises by using regional television areas. The company owns more than 100 retail outlets, and the data in Table 2.2 relate to a sample of 10 representative outlets. You are required:

1) to examine closely the assertion that the level of sales varies more with movement in the level of local advertising than with changes in the level of regional company advertising;

2) to apply different methods to describe cost functions, ground the best based on the tests of reliability.

Table 2.2

#### Company's sales and advertising expenses

Outlet	Monthly sales, th. UAH	Local advertising by the retail store, th. UAH per month	Regional advertising by the company, th. UAH per month
1	220	6	4
2	230	8	6
3	240	12	10
4	340	12	16
5	420	2	18
6	460	8	20
7	520	16	26
8	600	15	30
9	720	14	36
10	800	20	46

### Task 2.6

Abourne Ltd manufactures a microcomputer for the home use market. The management accountant is considering using regression analysis in the annual estimate of total costs. The following information (Table 2.3) has been produced for the twelve months ended December, 31.

The management accountant wants to select the best independent variable to help in future forecasts of total production costs using an ordinary least-squares regression equation. He is also considering the alternative of using the Hi-Lo equation as the basis for future forecast.

Table 2.3

### Cost and cost drivers fluctuations

Month	Total cost, th. UAH $y$	Output, units $x_1$	Employees, men, $x_2$	Direct labour, hours, $x_3$
Jan	38.2	300	28	3.700
Feb	40.48	320	30	4.461
Mar	41.4	350	30	3.559
Apr	51	500	32	5.083
May	52.98	530	32	5.294
Jun	60.38	640	35	5.600
Jul	70.44	790	41	7.156
Aug	32.72	250	41	2.633
Sep	75.8	820	41	7.728
Oct	71.92	780	39	6.814
Nov	68.38	750	38	7.100
Dec	33.5	270	33	3.016
Total	637.200	6300	420	62.144

You are required:

1) to identify which one of the three independent variables given above is likely to be the least good estimator of the total cost ( $y$ ). Give your reasons with support calculations in Table 2.4.

Table 2.4

### Regression analysis support calculations

Month	$x_1^2$	$x_1 \cdot y$	$x_2^2$	$x_2 \cdot y$	$x_3^2$	$x_3 \cdot y$
Jan						
Feb						
Mar						
Apr						
May						
Jun						
Jul						
Aug						
Sep						
Oct						
Nov						
Dec						
Total						

2) compute cost functions separately for the remaining two independent variables, using high-low and least-squares regression equations and to test the reliability of the estimated cost functions (Table 2.5 and Table 2.6).

Table 2.5

**High-Low method support calculations**

Month	$y_a$	$(y_a - y_{av})^2$	$x_1$	$y_e$	$(y_a - y_e)^2$	$x_3$	$y_e$	$(y_a - y_e)^2$
Jan			300			3,700		
Feb			320			4,461		
Mar			350			3,559		
Apr			500			5,083		
May			530			5,294		
Jun			640			5,600		
Jul			790			7,156		
Aug			250			2,633		
Sep			820			7,728		
Oct			780			6,814		
Nov			750			7,100		
Dec			270			3,016		
Total			6300			62,144		
Av.		-		-	-		-	-

Table 2.6

**Least-squares method support calculations**

Month	$y_a$	$(y_a - y_{av})^2$	$x_1$	$y_e$	$(y_a - y_e)^2$	$x_3$	$y_e$	$(y_a - y_e)^2$
Jan			300			3,700		
Feb			320			4,461		
Mar			350			3,559		
Apr			500			5,083		
May			530			5,294		
Jun			640			5,600		
Jul			790			7,156		
Aug			250			2,633		
Sep			820			7,728		
Oct			780			6,814		
Nov			750			7,100		
Dec			270			3,016		
Total			6300			62,144		
Av.		-		-	-		-	-

4) to ground the best cost function.

## Theme 3. Cost-volume-profit analysis

Cost-volume-profit analysis is used for understanding of the relationship between costs, business volume, and profitability. This analysis will drive decisions about what products to offer and how to price them. Cost-volume-profit analysis is at the heart of techniques used to calculate break-even, volume levels necessary to achieve targeted income levels, and similar computations.

The contribution margin reflects the amount available from each sale, after deducting all variable costs associated with the units sold. Some of these variable costs are product costs, and some are selling and administrative in nature.

$$CM = S - VC, \quad (3.1)$$

where  $CM$  is contribution margin;

$S$  is sales;

$VC$  is variable costs.

Break-even occurs when there is no profit or loss. The break-even point results where sales and total costs are equal, so it may be calculated as:

$$BEP = FC : (Pu - VCu), \quad (3.2)$$

where  $BEP$  is the break-even point;

$FC$  is fixed costs;

$Pu$  is price per unit;

$VCu$  is variable costs per unit.

Cost-volume-profit analysis is keyed to a model of how profitability is impacted by changes in business volume.

### Questions for independent in-depth study

3.1. Basic assumptions regarding the behaviour of costs used in the construction of breakeven schedules.

3.2. Methods for determining the fixed and variable costs per unit of factor costs.

3.3. The economic substance and the calculation of operating leverage. The economic interpretation of values of an operating lever.

3.4. The essence, sequence of calculations and interpretation in the differential analysis of profit.

3.5. The procedure for compilation and analysis of management reports including profit forecast changes in the target markets.

3.6. The concept of profit margin.

3.7. Features of analyzing the relationship of costs, volume of activity and profit from net income (including tax).

### Task 3.1

Fill in the gaps with the appropriate words.

1. Selling price minus variable costs is termed the ... margin.

2. On a break-even chart the amount by which the total revenue line is above the total cost line is the amount of ... .

3. The amount of sales necessary to produce a particular level of income, often called the ... income, can be determined by using cost-volume-profit analysis.

4. Fixed costs divided by unit contribution margin equals break-even sales in ... .

### Task 3.2

Match the terms listed in Table 3.1 to their correct descriptions.

Table 3.1

### Cost-volume-profit analysis basic terminology

Term		Definition	
1	2	3	4
1	Cost-volume-profit analysis	A	The level of activity where revenues equal total expenses, producing a zero net income; also the point where the contribution margin is said to cover fixed costs
2	Discretionary fixed cost	B	Costs that arise from an organization's commitment to engage in operations; unavoidable elements like depreciation, rent, insurance, property taxes
3	Scattergraph	C	Revenues minus all variable expenses, whether related to production or selling and administration (not to be confused with gross profit)

Table 3.1 (the end)

1	2	3	4
4	High-low method	D	Analysis focusing on the interplay of pricing, volume, variable and fixed costs, and product mix
5	Method of least squares	E	Fixed cost resulting from yearly spending decisions; proper planning can result in avoidance of these costs as necessary (e.g., advertising and training)
6	Step cost	F	Efficiencies associated with increases in volume
7	Break-even point	G	A simple means for separating costs into fixed and variable components, based upon the difference between costs at the highest and lowest observed levels of activity
8	Target income	H	A total cost that is the same regardless of volume; total cost is constant and cost per unit decreases with volume increase
9	Economies of scale	I	A simplistic mapping of observed data points, where a line is "visually" drawn to represent the estimated cost function
10	Variable cost	J	A cost that has both fixed and variable components
11	Fixed cost	K	A cost function that is fixed over a range, and then increases by a measured step to a new level at the next higher increment of activity
12	Committed fixed cost	L	A complex means for separating costs into fixed and variable components, based upon minimizing the variances between all observations and the resulting assumed cost function
13	Mixed costs	M	A per unit cost that is the same regardless of volume; the total variable cost increases with volume increases
14	Relevant range	N	A level of income that is to be obtained; CVP projects activity levels necessary to achieve this benchmark
15	Contribution margin	O	The level of activity for which assumptions underlying CVP are expected to hold true

### Task 3.3

Evaluate the following CVP analysis chart (Fig.3.1), then match the letters to the correct descriptions (profit area, fixed cost line, level of activity, break-even point, loss area, monetary measurement, total sales line, total cost line).

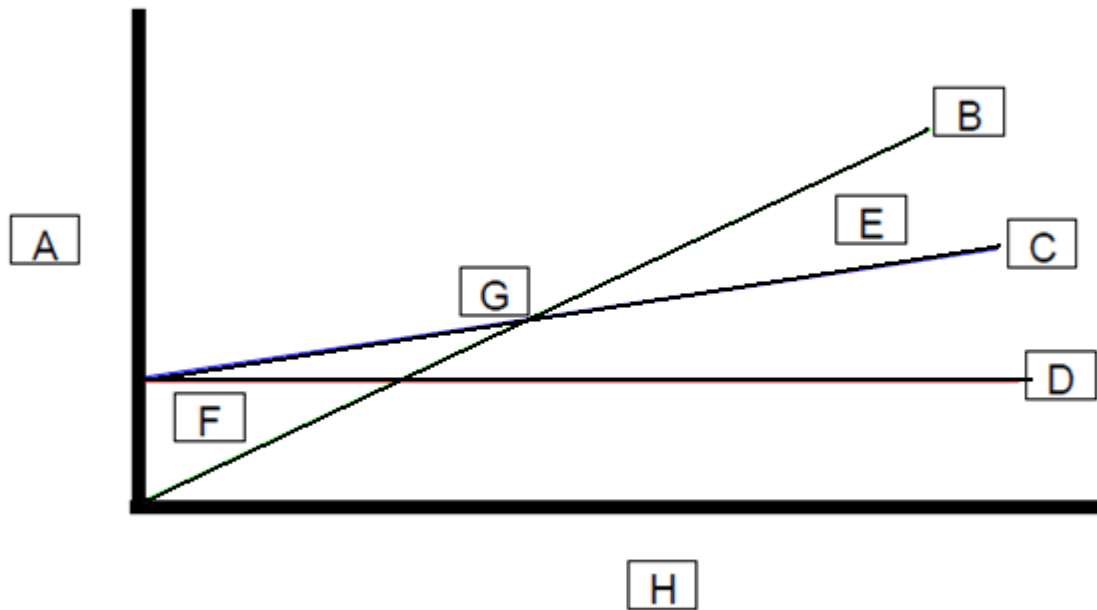


Fig 3.1. CVP analysis chart

### Task 3.4

Greg has recently graduated from a mortuary school. He is considering opening his own funeral home. A funeral home is a high-fixed cost business, as it requires considerable expenditures for facilities, labor, and equipment, no matter how many families are served. Assume the annual fixed cost of operations is UAH 800,000. Further assume that the only significant variable cost relates to burial containers like urns and caskets. An average casket costs UAH 1,200. Greg's banker has asked a variety of questions in contemplation of providing a loan for this business. Give justified answers to questions below.

1. If the average family is charged UAH 6,000 for services and a burial container, how many families must be served to clear the break-even point?
2. If the banker believes Greg will only serve 100 families during the first year in business, how much will the business lose during its first year of operation?
3. If Greg believes his profits will be at least UAH 100,000 during the first year, how much is he anticipating for total revenue?

4) The banker has suggested that Greg can reduce his fixed costs by UAH 150,000 if he does not buy any vehicles. Greg can instead rent vehicles as needed. The variable cost of renting is UAH 700 per family served. Will this suggestion help Greg reach the break-even point sooner?

### **Task 3.5**

The ABC company is operating at full capacity. Annual revenues are UAH 50,000,000. Total costs are UAH 45,000,000, of which 40 % is fixed and 60 % is variable. In considering the following scenarios, assume each is independent of the others.

a) The company is considering expanding capacity. The additional capacity will add UAH 10,000,000 in annual fixed costs. The contribution margin rate will not be impacted. How much in additional sales will be necessary to justify the added capacity?

b) Assume a fungus has reduced grape production and increased total variable costs by an additional 10 % of sales. Competitive pressures prevent ABC,plc from raising sales prices. Will the company remain profitable?

c) The company is considering automation of certain production processes. Productive capacity will not be increased, but the contribution margin ratio will increase by 5 % of sales via a reduction in direct labor. The automated equipment will cost UAH 5,000,000 per year to operate. Should the equipment be purchased?

d) The company is considering increasing the sales price per unit by 10 %. The fixed costs and the variable per unit cost will not be affected, but the total sales volume (in units) will be reduced by 10 %. Will the company be more or less profitable if they engage this pricing strategy?

## **Theme 4. Methods of cost accounting and costing**

Job costing (job order costing) is best suited to those situations where goods and services are produced upon receipt of a customer order, according to customer specifications, or in separate batches.

Process costing is methodology used to allocate the total costs of production to homogenous units produced via a continuous process that usually involves multiple steps or departments. Under job costing, costs were



captured for each job, under process costing, the costs are captured for each process or department.

With a job costing system, the costs of each job are tabulated on a job cost sheet. With a process costing system, the cost report that is prepared for each department is termed a cost of production report. The cost of production report provides comprehensive information on the material, labor, and overhead incurred within each department during a period. It is the primary source document for determining how those costs are allocated to actual production.

Many companies have expressed frustration with arbitrary allocations associated with traditional costing methods. Activity-based costing divides production into core activities, defines costs for those activities, and allocates those costs to products based on consumption of the activities.

### **Questions for independent in-depth study**

4.1. Interconnection and interdependence of the concepts "cost accounting" and "calculation". Objects of cost accounting and calculation of their costs.

4.2. Stages of accounting procedures to determine costs. Methods of cost accounting and costing methods.

4.3. Calculation system for orders, pricing contracts.

4.4. The system of calculation of processes, concepts of an equivalent unit of finished product.

4.5. Systems costing Direct-cost and Standard-cost.

4.6. Formation of expenses on accounts in the accounting and financial reporting.

#### **Task 4.1**

Fill in the gaps with the appropriate words.

1. The ... system is often employed in steel, petroleum, chemical, and other similar types of industries.

2. In a process costing system, costs are accumulated by ... or ... for a specified period of time.

3. The process costing report which documents the units and costs which flow through a manufacturing department is called a ... report.

4. One of the first steps in preparing a cost of production report is to analyze the ... of goods.
5. ... is the cost to convert raw material into finished products; more specifically, the sum of direct labor and factory overheads.
6. Equivalent units should be separately calculated for ... and ... .
7. Before recording the cost of completed units, the ... account should have a balance equal to the total costs accounted for on the production cost report.
8. ... is a method under which departments are divided into activities, and the costs of individual activities are applied to cost objects.
9. ... are expensed under traditional costing methods, but may partially be allocated to individual products under activity-based costing.

### **Task 4.2**

Select the appropriate response to questions listed below. Give a clear explanation for each case.

1. Which cost accumulation procedure is best suited to a continuous mass production process of similar units?
  - a. Job order.
  - b. Process.
  - c. Standard.
  - d. Actual.
2. Which of the following statements about process cost accounting systems is false?
  - a. Beginning units of work in process plus the units put into production should equal ending work in process units plus units completed.
  - b. The cost flows in journal entries for process cost accounting systems and job order cost accounting systems are similar.
  - c. Process cost accounting is well suited for those production processes where similar units are produced in a continuous flow.
  - d. The equivalent units of production for materials and conversion costs are the same.
3. An equivalent unit of material is equal to:
  - a. The amount of material necessary to complete one unit of production.
  - b. The amount of material necessary to start a unit of production into work in process.

c. Half of the material necessary to complete one unit of finished goods.

d. An equivalent unit of conversion cost.

4. Beginning work in process was 1,200 units, 2,800 additional units were put into production, and ending work in process was 500 units. How many units were completed?

a. 500

b. 3,000

c. 3,300

d. 3,500

5. The Wright company had, at the beginning of 2014, a work in process of 10,000 units. During 2014, 57,500 additional units were started into production. Ending work in process on December 31, 2014, was 7,500 units. The beginning work in process was 100 % complete as to direct materials and 75 % complete as to conversion costs. The ending work in process was 100 % complete as to direct materials and 50 % complete as to conversion costs. Total direct material put into process cost UAH 57,500. Total conversion cost put into process cost UAH 84,375. Beginning work in process cost UAH 21,250, of which UAH 13,250 accounted for materials and UAH 8,000 made expenditures for conversion. All materials are added at the start of the production process, and conversion costs are incurred uniformly throughout manufacturing. The Wright company uses a weighted-average process cost system. The cost per equivalent unit for conversion cost for 2014 was:

a. 1.00

b. 1.23

c. 1.33

d. 1.45

6. The Wright company had, at the beginning of 2014, a work in process of 10,000 units. During 2014, 57,500 additional units were started into production. Ending work in process on December 31, 2014, was 7,500 units. The beginning work in process was 100 % complete as to direct materials and 75 % complete as to conversion costs. The ending work in process was 100 % complete as to direct materials and 50 % complete as to conversion costs. Total direct material put into process cost UAH 57,500. Total conversion cost put into process cost UAH 84,375. Beginning work in process cost UAH 21,250, of which UAH 13,250 accounted for materials and UAH 8,000 made expenditures

for conversion. All materials are added at the start of the production process, and conversion costs are incurred uniformly throughout manufacturing. The Wright company uses a weighted-average process cost system. The value assigned to Wright's ending work in process inventory at the end of 2014 is:

- a. 13,294
- b. 18,750
- c. 31,875
- d. 56,875

7. The Wright company had, at the beginning of 2014, a work in process of 10,000 units. During 2014, 57,500 additional units were started into production. Ending work in process on December 31, 2014, was 7,500 units. The beginning work in process was 100 % complete as to direct materials and 75 % complete as to conversion costs. The ending work in process was 100 % complete as to direct materials and 50 % complete as to conversion costs. Total direct material put into process cost UAH 57,500. Total conversion cost put into process cost UAH 84,375. Beginning work in process cost UAH 21,250, of which UAH 10,000 was allocated to material and UAH 11,250 to conversion. All materials are added at the start of the production process, and conversion costs are incurred uniformly throughout manufacturing. The Wright company uses a weighted-average process cost system. How much is the cost per equivalent unit for conversion costs during 2014?

- a. 1.38
- b. 1.47
- c. 1.50
- d. 2.12

8. Mills Manufacturing computed the physical flow of completed units for the month of January 1, 2014, as follows:

Units completed:	15,000
From work in process on January 1, 2014	45,000
From January production	60,000

In addition to the above, units in ending work in process at January 31, 2014, were 12,000. Materials are added at the beginning of the process. The work in process on January 1, 2014, was 80 % complete as to conversion costs and the work in process on January 31, 2014, was 60 % complete as to conversion costs. What are the equivalent units of materials and conversion

for the month of January 2014, assuming a weighted-average application of the process costing method?

- |           |        |
|-----------|--------|
| a. 57,000 | 55,200 |
| b. 57,000 | 57,000 |
| c. 72,000 | 67,200 |
| d. 72,000 | 72,000 |

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