

ACCT 256 Managerial Accounting

Concordia College-Offutt

Exam 1

Name _____

February, 2011

Albrecht

Chapter 1: Introduction

Q1	Definitions @ 3-4 minutes each	6 min	8 pts
Q2	Essay on current business environment	18 min	18 pts
Q3	Short answer on the value chain	<u>10 min</u>	<u>10 pts</u>
		34 min	36 pts

Chapter 2/3: Income statement equations & job costing

Q4	Definitions @ 3-4 minutes each	10 min	16 pts
Q5	Equations	6 min	9 pts
Q6	Type of cost	5 min	9 pts
Q7	Costing for jobs	20 min	28 pts
Q8	Overhead application	<u>5 min</u>	<u>6 pts</u>
		46 min	68 pts

Chapter 5: Cost behavior and patterns.

Q9	Definitions @ 3-4 minutes each	6 min	8 pts
Q10	Cost behavior	5 min	9 pts
Q11	Cost patterns	5 min	8 pts
Q12	Cost patterns	5 min	9 pts
Q13	Compute profit	6 min	8 pts
Q14	Projecting an income statement	<u>8 min</u>	<u>12 pts</u>
		35 min	54 pts

Total 115 min 158 pts

Instructions:

- Budget your time wisely. This exam should take about 1.75 hours to complete.
- Show all work and computations. Incorrect answers that are accompanied by computations are eligible for partial credit. Incorrect answers that are not accompanied by computations are not eligible for partial credit.
- You may use a calculator and a straight-edge. You may not use your text or any notes. **This exam is closed-book, closed-notes, and closed-neighbor.**
- Please do not cheat.** An exam is not important enough to compromise your honor. Anyone caught cheating will be severely disciplined according to school policy.
- If you take this test on Monday evening, talking about it to other students who have not yet taken the test is cheating.
- Dr. Albrecht believes that each question has sufficient information to be worked.
- Good luck.

Useful Equations

Traditional statement

Sales revenue
- Cost of Goods Sold
 Gross Margin
- Selling, General & Admin
 Income

Contribution margin statement

Sales revenue
- Variable costs
 Contribution margin
- Fixed costs
 Income

Sales rev
- CGS
 GM
- S&A
 Income

Beg FG
 + CGM
- End FG
 CGS

Beg WIP
 + DM used
 + DL
 + MOH
- End WIP
 CGM

Beg Mat
 + Mat Purchases
- End Mat
 DM used



Question 1 For each of the following terms, please provide (1) clear, precise definitions, (2) a good example, and (3) an explanation why the term is important and/or useful (in other words, why is it important that it be studied in ACCT 256). You are trying to convince me that you truly know and understand what these terms mean. Plan on spending no more than five minutes each. Place your answers in the space provided below and on the reverse side of this page.

Just-in-time (JIT)
Directing and motivating

Question 2 In a short essay not exceeding three or four paragraphs, explain lean production and the lean thinking model as presented in chapter one. If you can relate this to managerial accounting, so much the better.

Question 3 What is the value chain and its steps (or components)? In which section (product or period) of the traditional income statement do the costs that arise from the value chain appear?

Question 4 For each of the following terms, please provide (1) clear, precise definitions, (2) a good example, and (3) an explanation why the term is important and/or useful (in other words, why is it important that it be studied in ACCT 256). You are trying to convince me that you truly know and understand what these terms mean. Plan on spending no more than five minutes each. Place your answers in the space provided below and on the reverse side of this page.

Period cost

Cost of goods sold

Manufacturing overhead

Underapplied overhead

Question 5 The following data pertain to Berdan Company's operations:

Inventories at the beginning (January 1) and at the end (December 31) were as follows:

	<u>January 1</u>	<u>December 31</u>
Raw materials	5	9
Work-in-process	?	17
Finished goods	19	?

Other data:

Gross Margin	64
Selling and administrative	81
Manufacturing overhead cost	36
Cost of goods manufactured	152
Direct labor	52
Material purchases	59
Net income	?
Direct materials used	?
Sales revenue	210
Cost of goods sold	?

Required:

What is the amount of direct materials used?

What is the amount of beginning work in process?

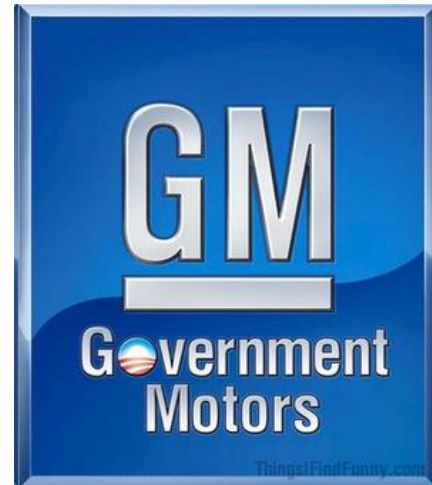
What is the amount of cost of goods sold expense?

What is the amount of ending finished goods?

What is the amount of net income?

Space for computations. Please show all work.

Question 6 Government Motors, Inc. manufactures different types of motor vehicles that are sold to independent dealerships throughout the country. GM has two manufacturing plants (eastern and western U.S.), a corporate headquarters center, and various distribution warehouses around the country. The manufacturing process involves assembling automobiles from parts that have been delivered by independent parts manufacturers.. The completed cars are then loaded onto tractor trailer trucks that can transport 12 vehicles at a time. The following list represents some of the different types of costs incurred in the manufacture and distribution of these motor vehicles.



One way of classifying costs for a manufacturer is by whether they are product costs or period costs. Product costs can be further broken down into direct costs (material and labor) or manufacturing overhead (indirect costs). For each of the following costs, choose whether the cost is a non-product or period cost (P) or a direct product cost (D) or manufacturing overhead cost (MOH) by circling one of the letters.

Security guard for factory	P	D	MOH
Plant manager salary	P	D	MOH
Salary for secretary to company president	P	D	MOH
Hands on human effort used in assembling autos	P	D	MOH
Delivery truck driver wages	P	D	MOH
Utilities for distribution warehouse.	P	D	MOH
Cost of production machine lubricants	P	D	MOH
Cost of windshields	P	D	MOH
Cost of steel body panels (side of car)	P	D	MOH

Question 7 Information for the Birkland job-order system.



Job	Started	Costs June 28	DM July	DL July	OH July	Completed	When sold
A	July 27	\$0	\$300	\$350	\$420	August 12	Sold in August, \$1,810
B	June 14	\$530	\$0	\$0	\$0	June 21	Sold in August, \$930
C	June 4	\$880	\$0	\$0	\$0	June 17	Sold in July, \$1,900
D	June 7	\$410	\$210	\$470	\$690	August 19	Sold in August, \$6,800
E	July 4	\$0	\$560	\$430	\$880	July 21	Sold in August, \$4,500
F	July 12	0	\$500	\$400	\$60	July 21	Sold in July, \$1,250
G	June 19	\$250	\$570	\$350	\$670	July 3	Sold in July, \$1,950
H	July 17	\$0	\$700	\$1,300	\$1,150	August 8	Sold in September, \$8,950
I	July 11	\$0	\$900	\$250	\$420	July 21	Sold in July, \$2,890
J	July 11	\$0	\$520	\$435	\$725	July 21	Sold in July, \$5,200
K	June 5	\$590	\$0	\$0	\$0	June 13	Sold in June, \$1,750

Overhead costs incurred (actual) during July are \$4,870.

Required: Identify the jobs associated with each of the following, and compute the costs for:

Work-in-process, July 1

Jobs:

Costs:

Work-in-process, July 31

Jobs:

Costs:

Finished goods, July 1

Jobs:

Costs:

Finished goods, July 31

Jobs:

Costs:

Cost of goods manufactured (CGM), July [Show all work]

Jobs:

Compute CGM

Compute CGM a second way:

Cost of goods sold unadjusted (CGS), July [Show all work]

Jobs:

Compute CGS:

Compute CGS a second way:

Amount of over- or under-applied overhead (designate over or under)

Gross Margin, July

Question 9 For each of the following terms, please provide (1) clear, precise definitions, (2) a good example, and (3) an explanation why the term is important and/or useful (in other words, why is it important that it be studied in ACCT 256). You are trying to convince me that you truly know and understand what these terms mean. Plan on spending no more than five minutes each. Place your answers in the space provided below and on the reverse side of this page.

Variable cost

Mixed cost

Question 10 The Jonasson Company conducted a study and identified data pertaining to activity and costs for two months:

	June	July	August
Activity level in units	<u>20,000</u>	<u>70,000</u>	<u>80,000</u>
Variable costs	\$?	\$35,000	\$?
Fixed costs	\$?	\$35,000	\$?
Mixed costs	<u>\$?</u>	<u>\$35,000</u>	<u>\$38,000</u>
Total costs	\$?	\$105,000	\$?

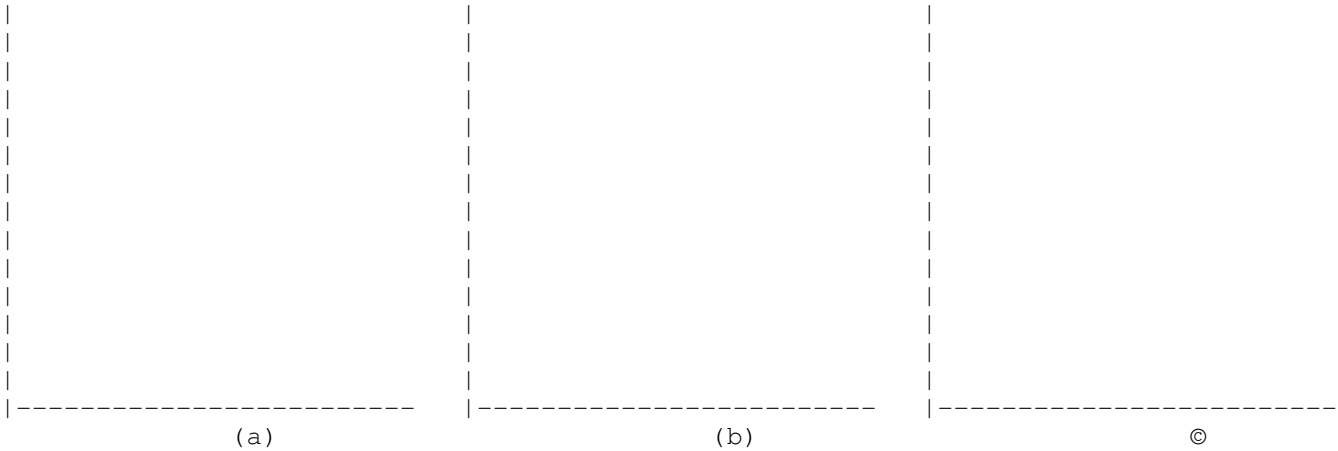
Required: Assuming that these activity levels are within the relevant range, **calculate the amount of variable, mixed and fixed costs for June and August.** Place your answers next to the above question marks.

Question 11 The following chart shows costs at three different levels of production. **Indicate whether each cost is fixed (F), variable (V), or mixed (M)?**

	<u>10 units</u>	<u>30 units</u>	<u>40 units</u>
___ Cost A	\$17.00 average	\$310.00 total	\$380.00 total
___ Cost B	\$8.00 per unit	\$240.00 total	\$8.00 per unit
___ Cost C	\$30.00 per unit	\$10.00 per unit	\$300.00 total
___ Cost D	\$200.00 total	\$600.00 total	\$20.00 per unit

Question 12 Create line graphs for the following types of cost patterns on the graphs below. The lines do not need to be drawn to scale. Your line graph should simply convey the proper shape of the line. The Y-axis (vertical) represents total costs, the X-axis (horizontal) represents activity levels.

- Material cost at \$6 per unit.
- There is an initial fixed charge. After 10,000 units, total costs decrease by \$1 per unit.
- Initial investment of \$10,000. Cost per unit for the first 3,000 units is \$7. Cost per unit for all additional units decreases to \$6.



Question 13 The Mjolsness Company expects the following price and cost behavior:

Initial fixed costs	40,000
Additional investment at 30,000 units	50,000
Variable costs per units 1-50,000 only	\$16
Variable costs only for units 50,001 & above	\$21
Sales price per units 1-50,000 only	\$31
Sales price only for units 50,001 & above	\$25

Compute the profit/loss at 27,000 units

Compute the profit/loss at 55,000 units.

Question 14 The Nypan Company has prepared budgeted income statements in the traditional format for 8,000 and 9,000 units.

	<u>8,000 units</u>	<u>9,000 units</u>	<u>14,000</u>
Sales revenue	\$240,000	\$270,000	_____
Expense A	60,000	60,000	_____
Expense B	20,000	21,000	_____
Expense C	88,000	99,000	_____
Expense D	<u>24,000</u>	<u>26,000</u>	_____
Operating profit/income	48,000	64,000	_____

Required:

Fill in the blanks for an income statement at 14,000 units.

ACCT 256 Managerial Accounting

Exam 1

Spring, 2011

Solutions

Question 1 Definitions

Just-in-time (JIT)

Just-in-time pertains to the delivery of products or materials to arrive at the assembling factory just when production is slated to begin. Production is scheduled only when an order is received. A JIT assembly plant stockpiles no inventories of parts or materials. It relies upon a small ultra-reliable network of suppliers who deliver high quality (low defect) materials just as they are needed for production. If the parts delivered contained defects, that would delay production. So, delivered parts need to be defect free. An example of this would be an automobile manufacturer, who assembles cars solely from delivered parts. It is important for managerial accounting students to understand the current environment so they can understand the operating decisions that are typically made.

Directing and motivating

These terms refer to a function of management that revolves around getting the actual work done. Managers don't do the work, but figure out what needs to be done. Employees need to be motivated to efficiently and effectively get whatever job done that is ordered for them to do. Managerial accounting information is essential to these two tasks.

Question 2 In a short essay not exceeding three or four paragraphs, explain lean production and the lean thinking model as presented in chapter one. If you can relate this to managerial accounting, so much the better.

Lean production In a traditional manufacturing company, work is **pushed** through the system in order to produce as much as possible and to keep everyone busy—even if products cannot be immediately sold.

The “push” approach almost inevitably results in large inventories of raw materials, work in process and finished goods

The lean thinking model is a five step management approach that organizes resources such as people and machines around the flow of business processes and that **pulls** units through these processes in response to customer orders.

- (1) The **first step** is to identify the value to customers in specific products and services.
- (2) The second step is to identify the business process that delivers this value to customers.
- (3) The **third step** is to organize work arrangements around the flow of the business process. This is often accomplished by creating what is known as a manufacturing cell.
- (4) The fourth step is to create a pull system where production is not initiated until a customer has ordered a product. This facet of the lean thinking model is often called just-in-time production, or JIT for short.
- (5) The fifth step is to continuously pursue perfection in the business process.

The result of this five step process is to lower inventories, decrease defects, reduce wasted

effort, and shorten customer response times.

Question 3 What is the value chain and its steps (or components)? In which section (product or period) of the traditional income statement do the costs that arise from the value chain appear?

A value chain represents the general types of activities that take place in a business that truly add value to the raw materials that were there at the start. Not all companies engage in all activities. For example, the value chain for a retail company would be different than for a manufacturing company, and both would be different than for a service oriented company. The steps presented in the book (and in class) are for a manufacturing company.

Product costs.

Research and development

Design

Supplies

Production

Period costs.

Marketing

Distribution

Customer support

Question 4 Definitions

Period cost

A period cost is a non-manufacturing operating cost, usually a selling or administrative cost. These costs usually are expensed in the period when money is spent. In other words, period costs are not inventoriable costs. Selling expense examples are advertising, sales commissions, customer support, or product distribution. Administrative expense examples are for the headquarters facilities, or those who provide executive administration. It is important for managerial accounting students to better familiarize themselves with the organization of the income statement so they can properly determine income/profit.

Cost of goods sold

This is for those products sold within a particular period, and is the amount spent (cost) to purchase or manufacture those products. It is the product cost. Product costs involve materials, labor and manufacturing overhead. For Target, the cost of goods sold for a time period would be the amount spent to originally purchase those items that eventually get resold. For 3M, the costs of goods sold represents the total manufacturing expenditures to produce those goods that got sold this period.

Manufacturing overhead

These are production costs that are neither direct materials nor direct labor. Depreciation for a factory building is a good example. Utilities for the factory qualify, but utilities for headquarters does not. It all depends upon function. Manufacturing overhead is a product cost, and should be properly classified differently from period costs.

Underapplied overhead

When the amount of overhead cost (production costs that are neither direct materials nor direct labor) assigned or added to jobs is less than the amount of overhead actually incurred. It occurs because predictions (such as the predetermined overhead rate) are seldom (if ever) realized in practice. There are always random (and non-random) fluctuations.

Question 5

What is the amount of direct materials used? 55

What is the amount of beginning work in process? 26

What is the amount of cost of goods sold expense? 146

What is the amount of ending finished goods? 25

What is the amount of net income? - 17

Space for computations. Please show all work.

Sales rev	210	BFG	+ 19	BWIP	⑦+26	Bmat	5
- CGS	①- 146	+ CGM	+ 152	+ DM used	⑥+55	+MatPurch	+ 59
GM	64	- FG	④- 25	+ DL	+ 52	-Emat	- 9
-SG&A	- 81	CGS	②146	+ MOH	+ 36	Dmat used	⑤55
Income	③- 17			- EWIP	- 17		
				CGM	152		

Question 6

Security guard for factory		MOH
Plant manager salary		MOH
Salary for secretary to company president	P	
Hands on human effort used in assembling autos		D
Delivery truck driver wages	P	
Utilities for distribution warehouse.	P	
Cost of production machine lubricants		MOH
Cost of windshields		D
Cost of steel body panels (side of car)		D

Question 7 Information for the Birkland job-order system.

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J	July 11	\$0	\$520	\$435	\$725	July 21	Sold in July, \$5,200
K	June 5	\$590	\$0	\$0	\$0	June 13	Sold in June, \$1,750
			4,260	3,985	5,015		

Overhead costs incurred (actual) during July are \$4,870.

Required: Identify the jobs associated with each of the following, and compute the costs for:

Work-in-process, July 1

Jobs: **D, G**

Costs: **650** = 410 + 250

Work-in-process, July 31

Jobs: **A, D, H**

Costs: **6,000** = 1,070 + 1,780 + 3,150

Finished goods, July 1

Jobs: **B, C**

Costs: **1,410** = 530 + 880

Finished goods, July 31

Jobs: **B, E**

Costs: **2,400** = 530 + 1,870

Cost of goods manufactured (CGM), July [Show all work]

Jobs:

Compute CGM

Compute CGM a second way:

E	1,870
F	960
G	1,840
I	1,570
J	<u>1,680</u>
CGM	7,920

BWIP	660
+DM	4,260
+DL	3,985
+MOH	5,015
-EWIP	<u>-6,000</u>
CGM	7,920

Cost of goods sold unadjusted (CGS), July [Show all work]

Jobs:		Compute CGS a second way:	
	Compute CGS:	BFG	1,410
C	880	+CGM	+7,920
F	960	-EFG	-2,400
G	1,840	CGS	6,930
I	1,570		
J	<u>1,680</u>		
CGS	6,930		

Amount of over- or under-applied overhead (designate over or under)

Applied 5,015 compared to actual of 4,870 = **145 overapplied**

Gross Margin, March

C	1,900
F	1,250
G	1,950
I	2,890
J	<u>5,200</u>
Sales rev	13,190
CGS adj	<u>-(6,930 - 145)</u>
GM	6,405

Question 8

1. What is the predetermined overhead rate?

$$\begin{aligned}\text{Rate} &= \text{estimated overhead before period starts divided by estimated machine hours} \\ &= 70,000 \div 10,000 \\ &= \$7.00 \text{ per hour}\end{aligned}$$

2. How much overhead is applied to jobs for the period at the Clark Company?

$$\begin{aligned}\text{Applied OH} &= \text{actual machine hours times OH application ratte.} \\ &= 12,000 * 7.00 = \$84,000\end{aligned}$$

Question 9

Variable cost

Where total cost (money spent) increases proportionately to an increase in some activity. This means per unit cost stays the same. Example: direct labor. Importance: cost behavior matters for planning purposes (budgeting).

Mixed cost

Where total cost is both variable and fixed (amount is spent at zero activity). Cost per unit decreases as there are more units of activity. Example: utilities and total cost. Importance: cost behavior matters for planning purposes (budgeting).

Question 10

	June	July	August
Activity level in units	<u>20,000</u>	<u>70,000</u>	<u>80,000</u>
Variable costs	\$10,000	\$35,000	\$40,000
Fixed costs	\$35,000	\$35,000	\$35,000
Mixed costs	<u>\$20,000</u>	<u>\$35,000</u>	<u>\$38,000</u>
Total costs	\$65,000	\$105,000	\$113,000

Question 11

		<u>10 units</u>	<u>30 units</u>	<u>40 units</u>
M	Cost A	\$17.00 average \$170.00 total	\$10.33 average \$310.00 total	\$9.50 average \$380.00 total
V	Cost B	\$8.00 per unit \$80.00 total	\$8.00 per unit \$240.00 total	\$8.00 per unit \$320.00 total
F	Cost C	\$30.00 per unit	\$10.00 per unit	\$300.00 total
V	Cost D	\$200.00 total	\$600.00 total	\$20.00 per unit

Question 12

- Material cost at \$6 per unit.
- There is an initial fixed charge. After 10,000 units, total costs decrease by \$1 per unit.
- Initial investment of \$10,000. Cost per unit for the first 3,000 units is \$7. Cost per unit for all additional units decreases to \$6.



Question 13 The Mjolsness Company expects the following price and cost behavior:

Initial fixed costs	40,000
Additional investment at 30,000 units	50,000
Variable costs per units 1-50,000 only	\$16
Variable costs only for units 50,001 & above	\$21
Sales price per units 1-50,000 only	\$31
Sales price only for units 50,001 & above	\$25

Compute the profit/loss at 27,000 units

$$\begin{aligned} \text{Profit} &= \text{revenue} - \text{variable} - \text{fixed} \\ \text{Profit} &= 27,000 * 31 - 27,000 * 16 - 40,000 \\ \text{Profit} &= 365,000 \end{aligned}$$

Compute the profit/loss at 55,000 units.

$$\begin{aligned} \text{Profit} &= 50,000 * 31 + 5,000 * 25 - 50,000 * 16 - 5,000 * 21 - 40,000 - 50,000 \\ \text{Profit} &= 680,000 \end{aligned}$$

Question 14 The Nypan Company has prepared budgeted income statements in the traditional format for 8,000 and 9,000 units.

	<u>8,000 units</u>	<u>9,000 units</u>	<u>14,000</u>
Sales revenue	\$240,000	\$270,000	<u>420,000</u>
Expense A	60,000	60,000	<u>60,000</u>
Expense B	20,000	21,000	<u>26,000</u>
Expense C	88,000	99,000	<u>154,000</u>
Expense D	<u>24,000</u>	<u>26,000</u>	<u>36,000</u>
Operating profit/income	48,000	64,000	<u>144,000</u>

Required:

Fill in the blanks for an income statement at 14,000 units.

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ACCT 256 Managerial Accounting
Exam 2
March, 2011
Albrecht

Concordia College-Offutt
Name _____

Q1 Definitions @ 3-4 minutes each 10 min 16 pts

Chapter 6: Cost-volume-profit (CVP)

Q2	Very basic CVP	8 min	8 pts
Q3	Basic CVP with cm/unit	10 min	18 pts
Q4	Basic CVP with cm%	7 min	12 pts
Q5	CVP changing cost structures	8 min	9 pts
Q6	Complex CVP	<u>6 min</u>	<u>8 pts</u>
		39 min	55 pts

Chapter 13: Relevant costs for decision making

Q7	Special order with insufficient capacity	20 min	24 pts
Q8	Dropping store location	<u>20 min</u>	<u>24 pts</u>
		40 min	48 pts

Overall 89 min 119 pts

Instructions:

1. Budget your time wisely. This exam should take about 1.75 hours to complete.
2. Show all work and computations. Incorrect answers that are accompanied by computations are eligible for partial credit. Incorrect answers that are not accompanied by computations are not eligible for partial credit.
3. You may use a calculator and a straight-edge. You may not use your text or any notes. **This exam is closed-book, closed-notes, and closed-neighbor.**
4. **Please do not cheat.** An exam is not important enough to compromise your honor. Anyone caught cheating will be severely disciplined according to school policy.
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6. Dr. Albrecht believes that each question has sufficient information to be worked.
7. Good luck.

ACCOUNTANT
Live the dream!

Useful Equations

Traditional statement

Sales revenue
- Cost of Goods Sold
Gross Margin
- Selling, General & Admin
Income

Contribution margin statement

Sales revenue
- Variable costs
Contribution margin
- Fixed costs
Income

$$\text{Total Revenue} - \text{Total Variable Cost} - \text{Total Fixed Cost} = \text{Income}$$

Units:

$$(\text{SP} - \text{V}) * \text{X} - \text{F} = \pi$$

X = number of units

$$\text{CM} * \text{X} - \text{F} = \pi$$

$$\text{CM} * \Delta \text{X} = \Delta \pi$$

Sales Revenue:

$$(100\% - \text{V}\%) * \text{R} - \text{F} = \pi$$

R = Sales revenue

$$\text{CM}\% * \text{R} - \text{F} = \pi$$

$$\text{CM}\% * \Delta \text{R} = \Delta \pi$$

Benefits

- + Additional contribution margins
- + Cost savings

Costs

- Additional costs
- Lost contribution margins

Net change in income

Question 1 Please provide (1) clear, precise definitions, (2) a good example, and (3) an explanation why the term is important and/or useful in Managerial Accounting. You are trying to convince me that you truly know and understand what these terms mean. Plan on spending no more than five minutes each. Place your answers in the space provided below and on the reverse side of this page. Remember that these terms are excerpted from ACCT 256 material, so your definition, example, etc., should come from the course context.

Contribution margin percentage

Allocated common cost

Unavoidable cost

Breakeven point

Question 2 The Mjolsness Company income statement for 2008 is:

Sales (500,000 units)	\$6,500,000
Headquarters	2,500,000
Direct labor	2,250,000
Factory depreciation	1,500,000
Sales commissions	<u>750,000</u>
π	(500,000)

The basic equation for cost-volume-profit is $SP \cdot X - V \cdot X - F = \pi$, where SP is the sales price per unit, V is the variable cost per unit, F is the total fixed cost, π is profit or loss, and X is number of units.

Required:

- (1) Analyze the above income statement and determine the values for SP , V and F .
- (2) What is the break-even point in units?
- (3) What is π if 700,000 units are produced and sold?

Clearly mark your answers with a circled number, ①, ②, or ③ based on which part of the question the answer is for.

Question 3 Roycraft Company produces and sells MP3 players. It projects the following revenue and costs for production and sales:

Sales price	\$55 per unit
Variable production cost	\$18 per unit
Variable selling cost	\$7 per unit
Fixed production cost	\$579,000 total
Fixed selling cost	\$331,000 total



Required:

- (1) What is profit/loss at 36,000 units? ***Prepare a contribution margin income statement to prove your answer. Also prepare a traditional income statement to prove your answer..***
- (2) What is the break even point in units for Roycraft's MP3 players?
- (3) How many MP3 players in total are needed to generate a profit of \$71,000? ***Prepare a contribution margin income statement to prove your answer.***
- (4) How many units must be produced and sold to generate a profit of 12% of total sales revenue? How much is this profit?
- (5) By how much does profit change going from 41,000 units to 45,000 units?

Clearly mark your answers with a circled number, ①, ②, ③, ④, or ⑤ based on which part of the question the answer is for.

Question 4 The Schroeder Company, producer of flash drives, budgets the following revenues and costs for the 2011.

Total variable costs	\$2,400,000
Total revenues	\$5,000,000
Total fixed costs	\$2,000,000

Required:

- (1) What is the contribution margin % for Schroeder?
- (2) What is the break even point in sales dollars for 2011?
- (3) What amount of sales revenue is needed to generate a profit of 10% of sales revenue in 2011? *Prepare a contribution margin income statement to prove your answer.*
- (4) What is the amount of profit or loss in 2011 if sales revenue totals \$6,000,000?

Clearly mark your answers with a circled number, ①, ②, ③, or ④ based on which part of the question your answer is for.

Question 5

Sales price per unit for all units	\$31
Variable cost per unit for units 1-12,000	\$17
Variable costs per unit for all units above 12,000	\$21

If fixed costs are \$150,000, how many units sold are needed to generate a profit of \$50,000?

Question 6 At 95,000 units, the Stout Company loses \$58,000. If it produces 20,000 additional units, it will only lose \$16,000. What is (1) the contribution margin per unit, (2) the total fixed costs, and (3) the breakeven point in units.

Question 7 The Wagner Company makes a hot water bottle in one factory. Budgeted revenue and cost data relating to operations for the coming year are:

Sales (900,000 bottles)	\$7,470,000
Cost of sales	<u>3,000,000</u>
Gross profit	4,470,000
Selling & administrative expenses	<u>4,970,000</u>
Income	(500,000)

The factory has capacity to make 920,000 bottles per year. The variable production costs (included in cost of goods sold) are \$2,610,000. The fixed selling, and administrative costs are \$2,000,000.

A chain store manager has approached the sales manager of Wagner offering to buy 80,000 bottles at \$6 per bottle.

Wagner will make 20,000 of the special order with its normal cost structure, 15,000 will be made with workers working overtime (and variable production costs being 50% higher), and 45,000 outsourced at \$5.90. Shipping for the outsourced units will be \$6,000.

Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if the company accepts the order.

What about variable S&A on special order?

Question 8 The most recent monthly income statement for Wallin Stores is given below:

	<u>Total</u>	<u>Store A</u>	<u>Store B</u>	<u>Store C</u>
Sales	\$3,500,000	\$2,100,000	\$1,050,000	350,000
Less allocated common fixed expenses	500,000	300,000	150,000	50,000
Less variable expenses	1,800,000	1,100,000	400,000	300,000
Less traceable fixed expenses	<u>600,000</u>	<u>400,000</u>	<u>140,000</u>	<u>60,000</u>
Operating income	\$600,000	\$300,000	\$360,000	(60,000)

Due to its poor showing, consideration is being given to closing Store C. Studies show that if Store C is closed, one-third of its traceable fixed expenses can be avoided, the rest is unavoidable. In addition, sales revenue for Store A will decrease by 10%, and sales revenue for Store B will increase by 20%.. Traceable fixed costs for Store A will increase by \$15,000. Wallin allocates common fixed expenses to the stores on the basis of sales dollars.

Required: Compute the change in operating income if Store C is closed. Show all work:

ACCT 256 Managerial Accounting

Exam 2

Spring, 2011

Solutions

Question 1 Definitions

Contribution margin percentage

The contribution margin (sales revenue less variable costs) divided by sales revenue. This is used in problems concerning product lines (many products at once). An example would be that a 50% CM% for Walmart clothing.

Allocated common cost

Common or joint costs that have been assigned for a department or store to earn enough to pay for. An example would be problem 7 of this exam, where common costs could refer to headquarters (or administrative and selling).

Unavoidable fixed cost

This is a fixed cost that must still be paid for, even if the store or product to which it has been assigned has been closed. An example would be

Breakeven point

The number of units needed for revenue to have paid first for the variable costs, and then all the fixed costs. Net profit is zero.

Question 2

Sales (500,000 units)	\$6,500,000
Headquarters	2,500,000
Direct labor	2,250,000
Factory depreciation	1,500,000
Sales commissions	<u>750,000</u>
π	(500,000)

- (1) Analyze the above income statement and determine the values for SP, V and F.

Total variable costs are direct labor 2,250,000 + sales commissions 750,000 = 3,000,000. When divided by the number of units, the variable cost per unit (V) is \$6. The sales price per unit is $6,650,000 \div 500,000 = \13 , and the fixed costs are $2,500,000 + 1,500,000 = 4,000,000$ in total.

- (2) What is the break-even point in units?

$$(13 - 6) * X - 4,000,000 = 0$$
$$X = 571,428$$

- (3) What is π if 700,000 units are produced and sold?

$$7 * 700,000 - 4,000,000 = +900,000$$

Question 3

Sales price	\$55 per unit	
Variable production cost	\$18 per unit	
Variable selling cost	<u>\$7 per unit</u>	
Fixed production cost	25 per unit	\$579,000 total
Fixed selling cost		<u>\$331,000 total</u>
		910,000 total

Required:

- (1) What is profit/loss at 36,000 units? **Prepare a contribution margin income statement to prove your answer. Also prepare a traditional income statement to prove your answer..**

$$\begin{aligned} \text{CM} \cdot X - F &= \pi \\ (55 - 25) \cdot 36,000 - 910,000 &= \pi \\ \pi &= 170,000 \end{aligned}$$

Sales	1,980,000	Sales	1,980,000
<u>CGS</u>	<u>1,227,000</u>	<u>Var</u>	<u>900,000</u>
GM	753,000	CM	1,080,000
<u>S&A</u>	<u>583,000</u>	<u>F</u>	<u>910,000</u>
π	170,000	π	170,000

- (2) What is the break even point in units for Roycraft's MP3 players?

$$\begin{aligned} (55 - 25) \cdot X - 910,000 &= 0 \\ X &= 30,333 \end{aligned}$$

- (3) How many MP3 players in total are needed to generate a profit of \$71,000? **Prepare a contribution margin income statement to prove your answer.**

$$\begin{aligned} 30 \cdot X - 910,000 &= 71,000 \\ X &= 32,700 \end{aligned}$$

Sales	1,798,500
<u>Var</u>	<u>817,500</u>
CM	981,000
<u>F</u>	<u>910,000</u>
π	71,000

- (4) How many units must be produced and sold to generate a profit of 12% of total sales revenue? How much is this profit?

$$\begin{aligned} 30 \cdot X - 910,000 &= 0.12 \cdot (55X) \\ 30 \cdot X - 6.6 \cdot X &= 910,000 \\ X &= 38,889 \end{aligned}$$

$$\begin{aligned} \pi &= 38,889 \cdot 30 - 910,000 = 256,667 \\ \pi &= 38,889 \cdot 55 \cdot 0.12 = 256,667 \end{aligned}$$

- (5) By how much does profit change going from 41,000 units to 45,000 units?

$$\begin{aligned} \text{CM} \cdot \Delta X &= \Delta \pi \\ 30 \cdot 4,000 &= 120,000 \end{aligned}$$

Question 4

Total variable costs	\$2,400,000
Total revenues	\$5,000,000
Total fixed costs	\$2,000,000

Required:

- (1) What is the contribution margin % for Schroeder?

$$(5,000,000 - 2,400,000) \div 5,000,000 = 52\%$$

- (2) What is the break even point in sales dollars for 2011?

$$0.52 * \text{Rev} - 2,000,000 = 0$$

$$\text{Rev} = \$3,846,154$$

- (3) What amount of sales revenue is needed to generate a profit of 10% of sales revenue in 2011? **Prepare a contribution margin income statement to prove your answer.**

$$0.52 * \text{Rev} - 2,000,000 = 0.10 * \text{Rev}$$

$$0.42 * \text{Rev} = 2,000,000$$

$$\text{Rev} = \$4,761,905$$

Rev	4,761,906	100%
<u>Var</u>	<u>2,285,714</u>	<u>48%</u>
CM	2,476,192	52%
<u>F</u>	<u>2,000,000</u>	
π	476,192	10%

- (4) What is the amount of profit or loss in 2011 if sales revenue totals \$6,000,000?

$$6,000,000 * 0.52 - 2,000,000 = 1,120,000$$

Question 5

Sales price per unit for all units	\$31
Variable cost per unit for units 1-12,000	\$17
Variable costs per unit for all units above 12,000	\$21

If fixed costs are \$150,000, how many units sold are needed to generate a profit of \$50,000?

Step 1: P/L at point where costs change?

$$14 * 12,000 - 150,000 = +18,000$$

Step 2: This is \$32,000 of CM that must be earned above the change point.

$$10 * X = 32,000$$

$$X = 3,200$$

Step 3: Total volume

$$12,000 + 3,200 = 15,200 \text{ units}$$

Question 6 At 95,000 units, the Stout Company loses \$58,000. If it produces 20,000 additional units, it will only lose \$16,000. What is (1) the contribution margin per unit, (2) the total fixed costs, and (3) the breakeven point in units.

$$\begin{aligned} \text{CM} \cdot \Delta X &= \Delta \pi \\ \text{CM} \cdot 20,000 &= -16,000 - (-58,000) \\ \text{CM} &= 2.10 \end{aligned}$$

$$\begin{aligned} \text{CM} \cdot X - F &= \pi \\ 2.1 \cdot 95,000 - F &= -58,000 \\ F &= 257,500 \end{aligned}$$

$$\begin{aligned} 2.1 \cdot X - 257,500 &= 0 \\ X &= 122,619 \end{aligned}$$

Question 7 The Wagner Company makes a hot water bottle in one factory. Budgeted revenue and cost data relating to operations for the coming year are:

Sales (900,000 bottles)	\$7,470,000
Cost of sales	<u>3,000,000</u>
Gross profit	4,470,000
Selling & administrative expenses	<u>4,970,000</u>
Income	(500,000)

The factory has capacity to make 920,000 bottles per year. The variable production costs (included in cost of goods sold) are \$2,610,000. The fixed selling, and administrative costs are \$2,000,000.

A chain style manager has approached the sales manager of Wagner offering to buy 80,000 bottles at \$6 per bottle.

Wagner will make 20,000 of the special order with its normal cost structure, 15,000 will be made with workers working overtime (and variable production costs being 50% higher), and 45,000 outsourced at \$5.90. Shipping for the outsourced units will be \$6,000.

Using the approach that focuses on incremental benefits and incremental costs, compute by what amount would pre-tax profit be increased or decreased if the company accepts the order.

What about variable S&A on special order? First, assume none.

SP	= 8.30
VCGS	= 2.90
VS&A	= 3.30
FCGS	= 390,000
FS&A	= 2,000,000

Benefits

+ Additional contribution margins	
20,000*(6.00 - 2.90 - 0)	+63,100
15,000*(6.00 - 4.35 - 0)	24,750
45,000*(6.00 - 5.90 - 0)	4,500
+ Cost savings	

Costs

- Additional costs	
Shipping	-6,000
- Lost contribution margins	_____

Net change in income

+86,350

If VS&A on special order	<u>-264,000</u>
	-177,650

Question 8 The most recent monthly income statement for Wallin Stores is given below:

	<u>Total</u>	<u>Store A</u>	<u>Store B</u>	<u>Store C</u>
Sales	\$3,500,000	\$2,100,000	\$1,050,000	350,000
Less allocated common fixed expenses	500,000	300,000	150,000	50,000
Less variable expenses	1,800,000	1,100,000	400,000	300,000
Less traceable fixed expenses	<u>600,000</u>	<u>400,000</u>	<u>140,000</u>	<u>60,000</u>
Operating income	\$600,000	\$300,000	\$360,000	(60,000)

Due to its poor showing, consideration is being given to closing Store C. Studies show that if Store C is closed, one-third of its traceable fixed expenses can be avoided, the rest is unavoidable. In addition, sales revenue for Store A will decrease by 10%, and sales revenue for Store B will increase by 20%.. Traceable fixed costs for Store A will increase by \$15,000. Wallin allocates common fixed expenses to the stores on the basis of sales dollars.

Required: Compute the change in operating income if Store C is closed. Show all work:

Benefits

+ Additional contribution margins	
B increase in cm (20%)	+130,000
+ Cost savings	
C traceable fixed costs	+20,000

Costs

- Additional costs	
A traceable fixed costs	-15,000
- Lost contribution margins	
C decrease in cm (100%)	-50,000
A decrease in cm (10%)	<u>-100,000</u>

Net change in income **+15,000**

ACCT 256 Managerial Accounting
Final Exam
Spring, 2011
Albrecht

Concordia College - Offutt
Name _____

Chapter 8: Activity Based Costing

Q1 ABC problem 25 min 20 pts

Chapter 12: Balanced Score Card

Q2 Written response 15 min 20 pts

Chapter 14: Present/future values & Capital budgeting

Q3 PV/FV 15 min 20 pts

Q4 Capital budgeting 15 min 20 pts

Chapter 9: Budgeting.

Q5 Prepare cash budget 10 min 20 pts

Chapter 11: Variances.

Q6 Direct labor variances 15 min 15 pts

Overall 95 min 115 pts

Instructions:

1. Budget your time wisely. This exam should take about 1.75 hours to complete.
2. Show all work and computations. Incorrect answers that are accompanied by computations are eligible for partial credit. Incorrect answers that are not accompanied by computations are not eligible for partial credit.
3. You may use a calculator and a straight-edge. You may not use your text or any notes. **This exam is closed-book, closed-notes, and closed-neighbor.**
4. **Please do not cheat.** An exam is not important enough to compromise your honor. Anyone caught cheating will be severely disciplined according to school policy.
5. If you take this test on Monday evening, talking about it to other students who have not yet taken the test is cheating.
6. Dr. Albrecht believes that each question has sufficient information to be worked.
7. Good luck.

ACCOUNTANT
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Useful Equations

Traditional statement

Sales revenue
- Cost of Goods Sold
 Gross Margin
- Selling, General & Admin
 Income

Contribution margin statement

Sales revenue
- Variable costs
 Contribution margin
- Fixed costs
 Income

Total Revenue - Total Variable Cost - Total Fixed Cost = Income

Units:

$$\begin{aligned} \text{CM} &= \text{SP} - \text{V} \\ \text{SP} * \text{X} - \text{V} * \text{X} - \text{F} &= \pi \\ (\text{SP} - \text{V}) * \text{X} - \text{F} &= \pi \\ \text{CM} * \text{X} - \text{F} &= \pi \\ \text{X} &= (\text{F} + \pi) \div \text{CM} \\ \text{CM} * \Delta \text{X} &= \Delta \pi \end{aligned}$$

X = number of units

Sales Revenue:

$$\begin{aligned} \text{CM}\% &= (\text{Revenue} - \text{Variable}) \div \text{Revenue} \\ \text{R} - \text{V}\% * \text{R} - \text{F} &= \pi \\ (100\% - \text{V}\%) * \text{R} - \text{F} &= \pi \\ \text{CM}\% * \text{R} - \text{F} &= \pi \\ \text{R} &= (\text{F} + \pi) \div \text{CM}\% \\ \text{CM}\% * \Delta \text{R} &= \Delta \pi \end{aligned}$$

R = Sales revenue

Benefits

- + Additional contribution margins
- + Cost savings

Costs

- Additional costs
- Lost contribution margins

Net change in income

Question 1 Stained Carpet Cleaning is a small, family-owned business. For its services, the company charges a flat fee—\$70 per hundred square feet of carpet cleaned. However, there is some question about whether the company is actually making any money on jobs for some customers—particularly those located far away that require considerable travel time. The owner wants to investigate this issue using activity-based costing. Four activity cost pools seem to be adequate. The activity cost pools and their activity measures are:

<u>Activity Cost Pool</u>	<u>Activity Measure</u>	<u>Budgeted Activity for Year</u>
Cleaning carpets	100 square feet of carpet cleaned	5,800 units of 100 square feet
Travel to jobs	Miles driven	30,000 miles
Job support	Number of jobs	400 jobs
Other	None	Not applicable

The total budgeted cost of operating the company for the year is \$326,000, which includes the following costs:

Wages & benefits	\$160,000
Cleaning supplies	44,000
Cleaning equipment depreciation	8,000
Vehicle expenses	33,000
Office expenses	11,000
President's salary	<u>70,000</u>
Total	326,000

Resource consumption is distributed across the activities as follows:

	<u>Cleaning Carpets</u>	<u>Travel to Jobs</u>	<u>Job Support</u>	<u>Other</u>	<u>Total</u>
Wages	75%	13%	7%	5%	100%
Cleaning supplies	100%	0%	0%	0%	100%
Cleaning equipment depreciation	88%	0%	0%	12%	100%
Vehicle expenses	10%	80%	5%	5%	100%
Office expenses	0%	5%	70%	25%	100%
President's compensation	20%	8%	32%	40%	100%

Job support consists of receiving calls from potential customers at the home office, scheduling jobs, billing, resolving issues, and so on.

Required:

1. Compute the budgeted income for the year, based on 5,800 units of 100 square feet cleaned. What is the average income per job for the estimated 400 jobs?

Question 2 What is a balanced scorecard for a business and why is it used? Define and describe each of the four parts of a typical balanced scorecard, and (2) provide examples of goals that can be used to measure success. .

Question 3: Using your calculator, solve for the following questions. Try to show all work (numbers you punched into calculator).

(1) You borrow \$79,450 for production equipment and agree to make end of year repayments of the same amount for 5 years at 9.1% interest. If the loan is completely repaid after the final payment, then how much is each payment?

(2) You borrow \$10,300 to purchase a car and agree to make four end of year payments of the same amount, \$3,742, after which the car loan will be completely paid off. What interest rate is being charged on the loan?

(3) \$62,942 is being invested today in an account earning an annual rate of 5.3%. To how much should the account accumulate after 7 years?

(4) Five years ago, you invested \$6,304 in an account, and today the account balance is \$8,357. What is the account's rate of interest?

(5) You deposit \$6,903 each year at year's end for 7 years. If the account earns 1.5%, to how much will the account grow after the final payment?

Question 4 Capital budgeting. A team of freshman Concordia college students is considering starting a small business while at college. At the start of their business, they need to purchase various equipment costing \$6,700. At the start of the business they also need to come up with working capital of \$3,000 for routine cash needs of the business. Each year, the net contribution margin for the business will be \$2,800. They want to operate the business for five years. The students estimate that after the fifth year, the equipment can be sold for \$850. They also predict that they will get two-thirds of their working capital back at the end of the project.

Required:

What is the internal rate of return of the project? [show all work.]

What is the net present value of the investment? For NPV purposes, they will use a 10.5% discount (hurdle) rate. [Show all work.]

What is the payback period for the project? [show all work]

Question 5 Prepare a cash budget using the following components. Your cash budget should be properly organized with all appropriate subtotals and totals. Hint, three of the following items are bogus and should not be included.

Accumulated depreciation	25
Amount repaid on loan	123
Bad debt expense	680
Total liabilities	71
Cash collections from credit sales	654
Cash payments to employees	438
Beginning cash	42
Cash payments for purchases	394
Receipts from cash sales	315

Question 6 Nypan Company uses a standard cost system for its single product. The following information is given:

Standard costs per unit:

Raw materials (3 ounces at \$7 per ounce)	\$21.00
Direct labor (0.10 hour at \$30 per hour)	3.00

Actual experience for the current year:

Units produced	124,000	units
Purchases of raw materials (300,000 ounces at \$6.50 per ounce)	\$1,950,000	
Raw material used	380,400	ounces
Direct labor (13,100 hours at \$29 per hour)	\$379,900	

Required: Compute the following variances. Remember to label each variance as favorable or unfavorable.

- (1) Direct labor rate variance
- (2) Direct labor efficiency variance
- (3) The production supervisor gets a bonus if the sum of the labor variances is favorable. If the bonus is equal to 50% of the total variance, how much bonus (if any) does the supervisor get?