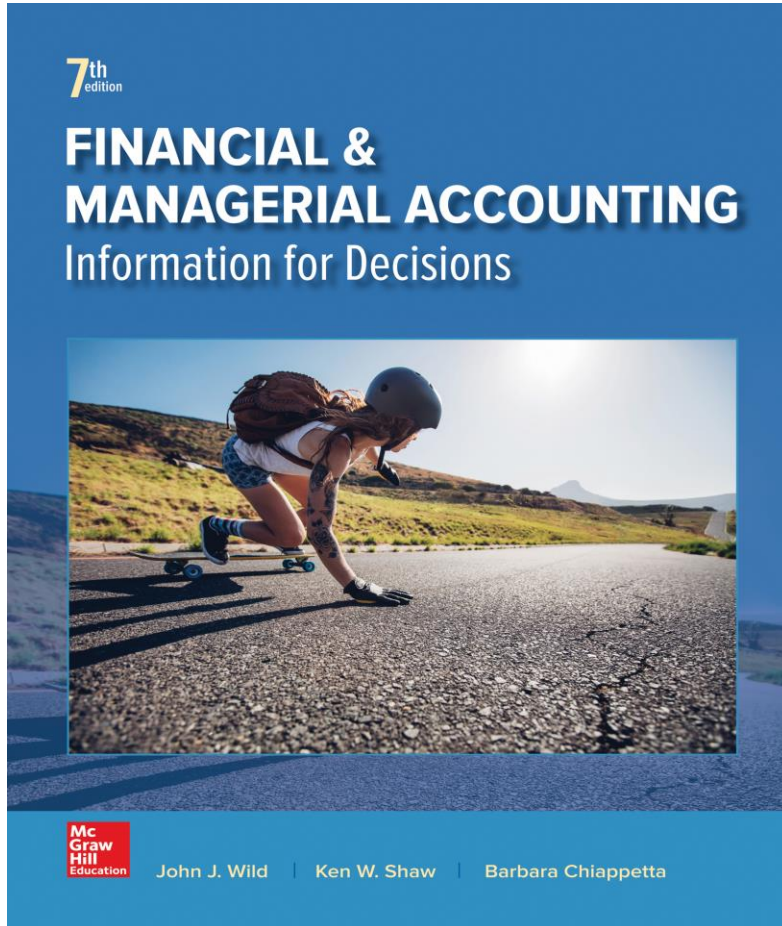


Cost Accounting 3rd

Seventh Edition



Chapter 3

Absorption Costing & Variable Costing Methods

Lectured by:
Dr. Kawa Wali

Learning Objectives (1 of 2)

CONCEPTUAL

- C1** Describe how **absorption** costing can result in overproduction.

- C2** Describe the **statement cost** of goods manufactured & cost of goods sold

Learning Objectives (2 of 2)

PROCEDURAL

- P1** Compute unit cost under both absorption and variable costing.
- P2** Prepare and analyze an income statement using absorption costing and using variable costing.
- P3** Convert income under variable costing to the absorption cost basis.
- P4** Preparing the statement cost of goods manufactured and cost of goods sold

Learning Objective P1: Compute unit cost under both absorption and variable costing.

Absorption Costing versus Variable Costing (1 of 4)

Learning Objective P1: Compute unit cost under both absorption and variable costing

Two product costing methods:

- Variable costing includes direct materials, direct labor and variable overhead.
- Absorption costing includes direct materials, direct labor and both variable and fixed overhead.
- Absorption costing required by GAAP for external reporting purposes, but can result in misleading information and poor managerial decisions.

Absorption Costing versus Variable Costing (2 of 4)

Learning Objective P1: Compute unit cost under both absorption and variable costing

Differences in income from alternate methods small when:

- Fixed overhead is a small % of total manufacturing costs.
- Inventory levels are low.
- Inventory turnover is rapid.
- Period of analysis is long.

Absorption Costing versus Variable Costing (3 of 4)

Learning Objective P1: Compute unit cost under both absorption and variable costing

Exhibit 3.1

- Absorption Costing
 - Product costs
 - Direct Materials
 - Direct Labor
 - Variable Overhead
 - Fixed Overhead

Absorption Costing versus Variable Costing (4 of 4)

Learning Objective P1: Compute unit cost under both absorption and variable costing

- Variable Costing
 - Product costs
 - Direct Materials
 - Direct Labor
 - Variable Overhead
 - Period Expenses
 - Fixed Overhead

Computing Unit Product Cost (1 of 3)

Learning Objective P1: Compute unit cost under both absorption and variable costing

Exhibit 3.2

Summary Product Cost Data

Direct materials.....	\$4 per unit
Direct labor.....	\$8 per unit
Overhead	
Variable overhead (per year).....	\$180,000
Fixed overhead (per year).....	600,000
Total overhead.....	\$780,000
Expected units produced (per year).....	60,000 units

Computing Unit Product Cost (2 of 3)

Learning Objective P1: Compute unit cost under both absorption and variable costing

Summary Product Cost Data

Direct materials.....	\$4 per unit
Direct labor.....	\$8 per unit
Overhead	
Variable overhead (per year).....	\$180,000
Fixed overhead (per year).....	<u>600,000</u>
Total overhead.....	\$780,000
Expected units produced (per year).....	60,000 units

\$180,000 → **Variable OH cost per unit:**

$\$180,000 / 60,000 \text{ units} = \$3/\text{unit}$

600,000 → **Fixed OH cost per unit:** $\$600,000 / 60,000 \text{ units} = \$10/\text{unit}$

Computing Unit Product Cost (3 of 3)

Learning Objective P1: Compute unit cost under both absorption and variable costing

Exhibit 3.3

Unit Cost Computation

	Absorption costing	Variable costing
Direct materials cost per unit.....	\$4	\$4
Direct labor cost per unit.....	8	8
Overhead cost		
Variable overhead cost per unit.....	3	3
Fixed overhead cost per unit.....	<u>10</u>	<u>-</u>
Total product cost per unit.....	\$25	\$15

NEED-TO-KNOW 3-1 (1 of 4)

Learning Objective P1: Compute unit cost under both absorption and variable costing

A manufacturer reports the following data.

Direct materials	\$6.00 per unit	
Direct labor	\$14.00 per unit	
Overhead costs:		
Variable overhead	\$220,000 per year	$\$220,000 / 20,000 \text{ units} = \11 per unit
Fixed overhead	\$680,000 per year	$\$680,000 / 20,000 \text{ units} = \34 per unit
Expected units produced	20,000 units	

NEED-TO-KNOW 3-1 (2 of 4)

Learning Objective P1: Compute unit cost under both absorption and variable costing

- 1) Compute the total product cost per unit under absorption costing.
- 2) Compute the total product cost per unit under variable costing.

NEED-TO-KNOW 3-1 (3 of 4)

Learning Objective P1: Compute unit cost under both absorption and variable costing

- Absorption Costing
 - Product Costs (\$65.00 per unit)
 - Direct Materials (\$6.00)
 - Direct Labor (\$14.00)
 - Variable Overhead (\$11.00)
 - Fixed Overhead (\$34.00)

NEED-TO-KNOW 3-1 (4 of 4)

Learning Objective P1: Compute unit cost under both absorption and variable costing

- Variable Costing
 - Product Costs (\$31.00 per unit)
 - Direct Materials ((\$6.00)
 - Direct Labor (\$14.00)
 - Variable Overhead (\$11.00)
 - Period Expenses
 - Fixed Overhead (\$34.00)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Absorption Costing Units Produced Equal Units Sold

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.2

IceAge Company Income Statement (Absorption Costing) For Year Ended December 31, 2015	
Sales (60,000 x \$40).....	\$2,400,000
Cost of goods sold (60,000 x \$25*).....	1,500,000
Gross margin.....	900,000
Selling and administrative expenses [\$200,000 + (60,000 x \$2)].....	320,000
Net income.....	<u>\$580,000</u>

*Units produced equal 60,000; units sold equal 60,000.
† See Exhibit 19.3 for unit cost computation under absorption and variable costing.

Notice that the net income is \$580,000

Variable Costing Units Produced Equal Units Sold (1 of 2)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.3

IceAge Company		
Income Statement (Variable Costing)		
For Year Ended December 31, 2015		
Sales (60,000 x \$40)		\$2,400,000
Variable expenses		
Variable production costs		
(60,000 x \$15*)	\$900,000	
Variable selling and administrative expenses (60,000 x \$2)	120,000	1,020,000
Contribution margin		1,380,000
Fixed expenses		
Fixed overhead	600,000	
Fixed selling and administrative expense	<u>200,000</u>	<u>\$800,000</u>
Net income		<u>\$580,000</u>

Variable Costing Units Produced Equal Units Sold (2 of 2)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

We can see that the income under variable costing is also \$580,000. This is because the number of units produced are equal to the number of units sold.

A performance report that excludes fixed expenses and net income is a **contribution margin report**. Its bottom line is contribution margin.

Production Cost Assignment Units Produced Equal Units Sold

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.4

Absorption Costing		For Year 2015	
Beginning finished goods inventory		\$	0
Cost of goods manufactured			
Direct materials	\$240,000		
Direct labor	480,000		
Variable manufacturing overhead	180,000		
Fixed manufacturing overhead	600,000		1,500,000
Cost of goods available for sale			1,500,000
Less: Ending finished goods inventory			0
Cost of goods sold			<u>\$1,500,000</u>

(Absorption) FG Inventory	
Beg.	0
COGM	1,500,000
	<hr/>
	1,500,000 COGS
End.	0

Variable Costing		For Year 2015	
Beginning finished goods inventory		\$	0
Cost of goods manufactured			
Direct materials	\$240,000		
Direct labor	480,000		
Variable manufacturing overhead	180,000		
Fixed manufacturing overhead	0		900,000
Cost of goods available for sale			900,000
Less: Ending finished goods inventory			0
Cost of goods sold			<u>900,000</u>
Period costs			
Fixed manufacturing overhead			600,000
Total expenses			<u>\$1,500,000</u>

(Variable) FG Inventory	
Beg.	0
COGM	900,000
	<hr/>
	900,000 COGS
End.	0

Units Produced Exceed Units Sold (1 of 5)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.5

ICEAGE COMPANY Income Statement (Absorption Costing) For Year Ended December 31, 2016	
Sales* (40,000 × \$40).....	\$1,600,000
Cost of goods sold (40,000 × \$25**)	<u>1,000,000</u>
Gross margin	600,000
Selling and administrative expenses [\$200,000 + (40,000 × \$2)].....	<u>280,000</u>
Net income	<u>\$ 320,000</u>

* Units produced equal 60,000; units sold equal 40,000.

** (\$4 DM + \$8 DL + \$3 VOH + \$10 FOH)

† (\$4 DM + \$8 DL + \$3 VOH)

ICEAGE COMPANY Income Statement (Variable Costing) For Year Ended December 31, 2016	
Sales* (40,000 × \$40).....	\$1,600,000
Variable expenses	
Variable production costs (40,000 × \$15†)	\$600,000
Variable selling and administrative expenses (40,000 × \$2).....	<u>80,000</u>
Contribution margin.....	<u>920,000</u>
Fixed expenses	
Fixed overhead	600,000
Fixed selling and administrative expense	<u>200,000</u>
Net income	<u>\$ 120,000</u>

Units Produced Exceed Units Sold (2 of 5)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.6

IceAge Company	
Income Statement (Absorption Costing)	
For Year Ended December 31, 2016	
Sales (40,000 x \$40)	\$1,600,000
Cost of goods sold (40,000 x \$25*)	1,000,000
Gross margin	600,000
Selling and administrative expenses [\$200,000 + (40,000 x \$2)]	280,000
Net income	\$320,000

*Units produced equal 60,000; units sold equal 40,000.
† See Exhibit 19.2 for unit cost computation under absorption and variable costing.

Income for 2016 is \$320,000

Units Produced Exceed Units Sold (3 of 5)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.6

IceAge Company		
Income Statement (Variable Costing)		
For Year Ended December 31, 2016		
Sales (40,000 x \$40)		\$1,600,000
Variable expenses		
Variable production costs (40,000 x \$15*)	\$600,000	
Variable selling and administrative expenses (40,000 x \$2)	80,000	680,000
Contribution margin		920,000
Fixed expenses		
Fixed overhead	600,000	
Fixed selling and administrative expense	200,000	800,000
Net income		\$120,000

Under variable costing, the net income is only \$120,000

Units Produced Exceed Units Sold (4 of 5)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.7

	Cost of Goods Sold	Ending Inventory	Period Cost (Expense)	Total Expense
Absorption Costing				
Direct materials	40,000 × \$4 \$160,000	20,000 × \$4 \$80,000		\$160,000
Direct labor	40,000 × \$8 320,000	20,000 × \$8 160,000		320,000
Variable overhead	40,000 × \$3 120,000	20,000 × \$3 60,000		120,000
Fixed overhead	40,000 × \$10 400,000	20,000 × \$10 200,000		400,000
Total costs	\$1,000,000	\$500,000		\$1,000,000

Units Produced Exceed Units Sold (5 of 5)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

	Cost of Goods Sold	Ending Inventory	Period Cost (Expense)	Total Expense
Variable Costing				
Direct materials	40,000 × \$4 \$160,000	20,000 × \$4 \$80,000		\$160,000
Direct labor	40,000 × \$8 320,000	20,000 × \$8 160,000		320,000
Variable overhead	40,000 × \$3 120,000	20,000 × \$3 60,000		120,000
Fixed overhead			<u>\$600,000</u>	<u>600,000</u>
Total expenses	\$600,000	\$300,000	\$600,000	<u>\$1,200,000</u>
Cost difference				(\$200,000)

Units Produced Less Than Units Sold (1 of 4)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.8

IceAge Company	
Income Statement (Absorption Costing)	
For Year Ended December 31, 2017	
Sales (80,000 x \$40)	\$3,200,000
Cost of goods sold (80,000 x \$25*)	2,000,000
Gross margin	1,200,000
Selling and administrative expenses [$\$200,000 + (80,000 \times \$2)$]	360,000
Net income	\$840,000

*Units produced equal 60,000; units sold equal 80,000.
† See Exhibit 19.3 for unit cost computation under absorption and variable costing.

Income is now \$840,000

Units Produced Less Than Units Sold (2 of 4)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.8

Ice Age Company Income Statement (Variable Costing) For Year Ended December 31, 2017		
Sales (80,000 x \$40)		\$3,200,000
Variable expenses		
Variable production costs (80,000 x \$15*)	\$1,200,000	
Variable selling and administrative expenses (\$80,000 x \$2)	<u>160,000</u>	<u>1,360,000</u>
Contribution margin		1,840,000
Fixed expenses		
Fixed overhead	600,000	
Fixed selling and administrative expense	<u>200,000</u>	<u>800,000</u>
Net income		<u>\$1,040,000</u>

Income under variable costing is \$1,040,000

Units Produced Less Than Units Sold (3 of 4)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.9

	Cost of Goods Sold (Expense)	Ending Inventory (Asset)	Period Cost (Expense)	Total Expense
Absorption Costing				
Direct materials	80,000 × \$4 \$320,000	0 × \$4 \$0		\$320,000
Direct labor	80,000 × \$8 640,000	0 × \$8 0		640,000
Variable overhead	80,000 × \$3 240,000	0 × \$3 0		240,000
Fixed overhead	<u>80,000 × \$10</u> <u>800,000</u>	0 × \$10 <u>0</u>		<u>800,000</u>
Total costs	\$2,000,000	\$0		\$2,000,000

Units Produced Less Than Units Sold (4 of 4)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

	Cost of Goods Sold (Expense)	Ending Inventory (Asset)	Period Cost (Expense)	Total Expense
Variable Costing				
Direct materials	80,000 × \$4 \$320,000	0 × \$4 \$0		\$320,000
Direct labor	80,000 × \$8 640,000	0 × \$8 0		640,000
Variable overhead	80,000 × \$3 240,000	0 × \$3 0		240,000
Fixed overhead	_____	_____	\$600,000	<u>600,000</u>
Total costs	\$1,200,000	\$0	\$600,000	<u>\$1,800,000</u>
Cost difference				<u>\$ 200,000</u>

Summarizing Income Reporting

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Exhibit 3.10

	Units Produced and Sold	Income for Absorption Costing	Income for Variable Costing	Difference
2015	Units produced: 60,000 Units sold: 60,000	\$580,000	\$580,000	\$0
2016	Units produced: 60,000 Units sold: 40,000	320,000	120,000	200,000
2017	Units produced: 60,000 Units sold: 80,000	<u>840,000</u>	<u>1,040,000</u>	<u>-200,000</u>
Total	Units produced: 180,000 Units sold: 180,000	<u>\$1,740,000</u>	<u>\$1,740,000</u>	<u>\$0</u>

NEED-TO-KNOW 3-2 (1 of 3)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Zbest Manufacturing reports the following costing data for the current year. 20,000 units were produced, and 14,000 units were sold.

Direct materials per unit	\$6 per unit
Direct labor per unit	\$11 per unit
Variable overhead per unit	\$3 per unit
Fixed overhead for the year	\$680,000 per year
Sales price	\$80 per unit
Variable selling and administrative cost per unit	\$2 per unit
Fixed selling and administrative cost per year	\$112,000 per year

NEED-TO-KNOW 3-2 (2 of 3)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

1. Prepare an income statement for the year using absorption costing.

Product cost per unit using Absorption Costing:

Direct materials per unit	\$6.00
Direct labor per unit	11.00
Variable overhead per unit	3.00
Fixed overhead per unit (\$680,000 / 20,000 units produced)	<u>34.00</u>
Cost per unit	<u>\$54.00</u>

NEED-TO-KNOW 3-2 (3 of 3)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Zbest Manufacturing Absorption Costing Income Statement		
Sales (14,000 units @ \$80 per unit)		\$1,120,000
Cost of goods sold (14,000 units @ \$54 per unit)		<u>756,000</u>
Gross margin		364,000
Selling, general and administrative expenses:		
Variable selling and administrative expenses (14,000 x \$2)	\$28,000	
Fixed selling and administrative expenses	<u>112,000</u>	
Total selling, general and administrative expenses		<u>140,000</u>
Net income (loss)		<u>\$224,000</u>

NEED-TO-KNOW 3-2 SOLUTION (1 of 4)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

1. Prepare an income statement for the year using absorption costing.

Product cost per unit using Absorption Costing:

Direct materials per unit	\$6.00
Direct labor per unit	11.00
Variable overhead per unit	3.00
Cost per unit	<u>\$20.00</u>

NEED-TO-KNOW 3-2 SOLUTION (2 of 4)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Zbest Manufacturing Variable Costing Income Statement		
Sales (14,000 units @ \$80 per unit)		\$1,120,000
Less: Variable costs		
Variable production costs (14,000 x \$20 per unit)	\$280,000	
Variable selling and administrative expenses (14,000 x \$2)	<u>28,000</u>	
Total variable costs		<u>308,000</u>
Contribution margin		812,000
Less: Fixed expenses		
Fixed overhead costs	680,000	
Fixed selling and administrative expenses	<u>112,000</u>	
Total fixed expenses		<u>792,000</u>
Net income (loss)		<u>\$20,000</u>

NEED-TO-KNOW 3-2 SOLUTION (3 of 4)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Zbest Manufacturing Absorption Costing Income Statement		
Sales (14,000 units @ \$80 per unit)		\$1,120,000
Cost of goods sold (14,000 units @ \$54 per unit)		<u>758,000</u>
Gross margin		364,000
Selling, general and administrative expenses:		
Variable selling and administrative expenses (14,000 x \$2)	28,000	
Fixed selling and administrative expenses	112,000	
Total selling, general and administrative expenses		140,000
Net income (loss)		<u>\$224,000</u>

NEED-TO-KNOW 3-2 SOLUTION (4 of 4)

Learning Objective P2: Prepare and analyze an income statement using absorption costing and using variable costing.

Zbest Manufacturing Variable Costing Income Statement		
Sales (14,000 units @ \$80 per unit)		\$1,120,000
Less: Variable costs		
Variable production costs (14,000 x \$20 per unit)	\$280,000	
Variable selling and administrative expenses (14,000 x \$2)	28,000	
Total variable costs		<u>308,000</u>
Contribution margin		812,000
Less: Fixed expenses		
Fixed overhead costs	680,000	
Fixed selling and administrative expenses	<u>112,000</u>	
Total fixed expenses		792,000
Net income (loss)		<u>\$20,000</u>

Number of units added to inventory	6,000
Fixed overhead per unit ($\$680,000 / 20,000$ units)	\$34.00
Change in income (Absorption vs. Variable)	<u>\$204,000</u>

Learning Objective C1: Describe how absorption costing can result in overproduction.

Planning Production (1 of 2)

Learning Objective C1: Describe how absorption costing can result in overproduction.

Exhibit 19.13

What would happen if *IceAge's* manager decided to produce 100,000 units instead of 60,000?

The 40,000 extra units would be stored in inventory and the total production cost PER UNIT **is \$4 less!**

When 60,000 Units are Produced	
Direct materials cost	\$4 per unit
Direct labor cost	8 per unit
Variable overhead	<u>3 per unit</u>
Total variable cost	15 per unit
Fixed overhead (\$600,000/60,000 units)	<u>10 per unit</u>
Total production cost	<u>\$25 per unit</u>

Planning Production (2 of 2)

Learning Objective C1: Describe how absorption costing can result in overproduction.

When 60,000 units are produced:

Fixed overhead per unit is: **$\$600,000 / 60,000 \text{ units} = \$10/\text{unit}$**

When 100,000 Units are Produced	
Direct materials	\$4 per unit
Direct labor	8 per unit
Variable overhead	<u>3 per unit</u>
Total variable cost	15 per unit
Fixed overhead (\$600,000/100,000 units)	<u>6 per unit</u>
Total production cost	<u>\$21 per unit</u>

When 100,000 units are produced:

Fixed overhead per unit is: **$\$600,000 / 100,000 \text{ units} = \$6/\text{unit}$**

Income under Absorption Costing for Different Production Levels (1 of 6)

Learning Objective C1: Describe how absorption costing can result in overproduction.

Exhibit 19.14

IceAge Company		
Income Statement (Absorption Costing)		
For Year Ended December 31, 2015		
[60,000 Units Produced; 60,000 Units Sold]		
Sales (60,000 x \$40)		\$2,400,000
Cost of goods sold (60,000 x \$25)		<u>1,500,000</u>
Gross margin		900,000
Selling and administrative expenses		
Variable (60,000 x \$2)	\$120,000	
Fixed	200,000	320,000
Net income		<u>\$580,000</u>

Income under Absorption Costing for Different Production Levels (2 of 6)

Learning Objective C1: Describe how absorption costing can result in overproduction.

Note: Income under absorption costing is \$240,000 greater if management produces 40,000 more units than necessary and builds up ending inventory.

Income under Absorption Costing for Different Production Levels (3 of 6)

Learning Objective C1: Describe how absorption costing can result in overproduction.

IceAge Company		
Income Statement (Absorption Costing)		
For Year Ended December 31, 2015		
[100,000 Units Produced; 60,000 Units Sold]		
Sales (60,000 x \$40)		\$2,400,000
Cost of goods sold (60,000 x \$21)		<u>1,260,000</u>
Gross margin		1,140,000
Selling and administrative expenses		
Variable (60,000 x \$2)	\$120,000	
Fixed	200,000	320,000
Net income		<u>\$820,000</u>

This shows that a manager can report increased income merely by producing more and disregarding whether the excess units can be sold or not.

Income under Absorption Costing for Different Production Levels (4 of 6)

Learning Objective C1: Describe how absorption costing can result in overproduction.

Exhibit 19.15

[60,000 Units Produced; 60,000 Units Sold]		
Sales (60,000 x \$40)		\$2,400,000
Variable expenses		
Variable production costs (60,000 x \$15)	\$900,000	
Variable selling and administrative expenses (60,000 x \$2)	<u>120,000</u>	<u>1,020,000</u>
Contribution margin		1,380,000
Fixed expenses		
Fixed overhead	600,000	
Fixed selling and administrative expense	<u>200,000</u>	<u>800,000</u>
Net income		<u>\$580,000</u>

Income under Absorption Costing for Different Production Levels (5 of 6)

Learning Objective C1: Describe how absorption costing can result in overproduction.

[100,000 Units Produced; 60,000 Units Sold]		
Sales (60,000 x \$40)		\$2,400,000
Variable expenses		
Variable production costs (60,000 x \$15)	\$900,000	
Variable selling and administrative expenses (60,000 x \$2)	<u>120,000</u>	<u>1,020,000</u>
Contribution margin		1,380,000
Fixed expenses		
Fixed overhead	600,000	
Fixed selling and administrative expense	<u>200,000</u>	<u>800,000</u>
Net income		<u>\$580,000</u>

Income under Absorption Costing for Different Production Levels (6 of 6)

Learning Objective C1: Describe how absorption costing can result in overproduction.

Under variable costing, even if I produce more units, it doesn't effect the reported net income. I actually have to SELL more units to increase my net income.

Learning objective D1:

Statement cost of goods
manufactured and cost of goods
Sold

Format Cost of Goods Manufactured

Direct materials.....	xxx
Direct labor.....	xxx
Overhead	xxx
Total manufacturing cost.....	xxx
Add: Beginning WIP	xxx
Less: Ending WIP	(xxx)
Cost of goods manufactured.....	<u>xxx</u>

Format : Cost of Goods Manufactured

Direct Material

Beginning inventory.....	xxx	
Add: Purchases	<u>xxx</u>	
Materials available.....	xxx	
Less: Ending inventory.....	<u>(xxx)</u>	
Direct materials used in production		xxx
Direct labor.....		xxx
Manufacturing overhead		<u>xxx</u>
Total manufacturing costs added		xxx
Add: Beginning work in process.....		xxx
Less: Ending work in process.....		<u>(xxx)</u>
Cost of goods manufactured.....		<u>xxx</u>

Format : Statement of Cost of Goods Sold

Cost of goods manufactured.....	xxx
Add: Beginning finished goods inventory	xxx
Cost of goods available for sale.....	xxx
Less: Ending finished goods inventory	(xxx)
Cost of goods sold	<u>xxx</u>

•
•
•
• Homework exercises

Chapter 3

Dr. Kawa Wali

Lecturer of Cost and Managerial
Accounting

Solved Exercise 0-3:

Assume that Renault's Factory has the following costs, sales and production:

Units Produced:	10,000	Variable Manufacturing Overhead:	\$20,000
Units Sold:	10,000	Fixed Manufacturing Overhead:	\$50,000
Price Per Unit :	\$25	Variable Selling & Admin Exp. :	\$30,000
Direct Materials:	\$50,000	Fixed Selling & Admin Exp.:	\$30,000
Direct Labor:	\$30,000		

Required: Prepare the income statement using absorption costing method

Solution: according to absorption costing method:

1) Computing of total cost

2) Computing of Cost per unit

Direct Materials	\$50,000
Direct Labor	\$30,000
Variable Manufacturing Overhead	\$20,000
Fixed Manufacturing Overhead	<u>\$50,000</u>
Total Costs	\$150,000

Divide by Number of Units Produced ÷ 10,000

Cost Per Unit \$15

Required: Prepare the income statement using variable costing method

Solution: according to variable costing method:

1) Computing of total variable cost

2) Computing of Cost per unit

Direct Materials	\$50,000
Direct Labor	\$30,000
Variable Manufacturing Overhead	<u>\$20,000</u>
Total Variable Manufacturing Costs	\$100,000

Divide by Number of Units Produced ÷ 10,000

Cost Per Unit \$10

3. Preparing income statement according to absorption and variable costing methods:

Sales	\$250,000	Sales	\$250,000
Less: C.O.G.S		Less: C.O.G.S	
Direct Materials	\$50,000	Direct Materials	\$50,000
Direct Labor	\$30,000	Direct Labor	\$30,000
Variable Manuf. Overh.	\$20,000	Variable Manuf. Overh.	\$20,000
Fixed Manuf. Overh.	<u>\$50,000</u>	Variable Sell. & Admin	\$30,000
Total Costs	<u>\$150,000</u>	Total V. Manu. Costs	<u>\$130,000</u>
Gross Margin	\$100,000	Contribution Margin	\$120,000
Less: Selling & Admin	<u>\$ 60,000</u>	Less: Fixed Manf. Overhead	\$50,000
		Less: Fixed Selling & Admin	<u>\$30,000</u>
Net Profit	\$ 40,000	Net Profit	\$40,000

Exercise 1.3: LGs company manufactures and sells a product for \$20/Kg. The data for the last year is given below:

Sales	75,000 Kg
Finished goods inventory at the beginning of the period	12,000 Kg
Finished goods inventory at the closing of the period	17,000 Kg
Manufacturing costs:	
Variable cost	\$8 per Kg
Fixed manufacturing overhead cost	\$320,000 per year
Marketing and administrative expenses:	
Variable expenses	\$2 per Kg of sale
Fixed expenses	\$300,000 per year

Required:

Prepare income statement using absorption and variable costing methods

Exercise:

2-3 Cost Definitions

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Avery Corporation's northwestern factory provided the following information for the last calendar year:

Beginning inventory:	
Direct materials	\$50,800
Work in process	58,500
Ending inventories:	
Direct materials	\$21,500
Work in process	23,500

During the year, direct materials purchases amounted to \$150,000, direct labor cost was \$200,000, and overhead cost was \$324,700. There were 100,000 units produced.

Required:

1. Calculate the total cost of direct materials used in production.
2. Calculate the cost of goods manufactured. Calculate the unit manufacturing cost.
3. Of the unit manufacturing cost calculated in Requirement 2, assume \$1.70 is direct materials and \$3.24 is overhead. What is the prime cost per unit? Conversion cost per unit?

Exercise 3-3

Cost of Goods Manufactured and Sold

Beckman Company manufactures staplers. At the beginning of November, the following information was supplied by its accountant:

Direct materials inventory	\$48,500
Work in process inventory	10,000
Finished goods inventory	10,075

During November, direct labor cost was \$22,000, direct materials purchases were \$70,000, and the total overhead cost was \$216,850. The inventories at the end of November were:

Direct materials inventory	\$15,900
Work in process inventory	6,050
Finished goods inventory	8,475

Required:

1. Prepare a cost of goods manufactured statement for November.
2. Prepare a cost of goods sold schedule for November.

Exercise 4.3

Income Statement, Cost Concepts, Service Company

Dorothy Gotay owns and operates three Compufix shops in the Boston area. Compufix repairs and upgrades computers on site. In August, purchases of materials equaled \$9,750, the beginning inventory of materials was \$850, and the ending inventory of materials was \$950. Payments for direct labor during the month totaled \$18,570. Overhead incurred was \$15,000. The Boston shops also spent \$5,000 on advertising during the month. Administrative costs (primarily accounting and legal services) amounted to \$3,000 for the month. Revenues for August were \$60,400.

Required:

1. What was the cost of materials used for repair and upgrade services during August?
2. What was the prime cost for August?
3. What was the conversion cost for August?
4. What was the total cost of services for August?
5. Prepare an income statement for August.