

Chapter 6: Variable Costing

DeAnne Company produces a single product. The company's variable costing income statement for August appears below:

DeAnne Company Income Statement For the month ended August 31	
Sales (\$15 per unit)	\$600,000
Variable expenses:	
Variable cost of goods sold	360,000
Variable selling expense	80,000
Total variable expenses	<u>440,000</u>
Contribution margin	<u>160,000</u>
Fixed expenses:	
Fixed manufacturing	105,000
Fixed selling and administrative	35,000
Total fixed expenses	<u>140,000</u>
Net operating income	<u>\$ 20,000</u>

$\div 15 = 40,000 \text{ units}$
 $\div 40,000 \text{ units} = \$9/\text{unit}$
 $\div 35,000 \text{ units produced} = \$3/\text{unit}$

The company produced 35,000 units in August and the beginning inventory consisted of 8,000 units. Variable production costs per unit and total fixed costs have remained constant over the past several months.

102. The value of the company's inventory on August 31 under the absorption costing method is:

- A. \$27,000
- B. \$42,000
- C. \$36,000**
- D. \$47,000

Inv. (units)	
BB 8,000	
35,000 produced	40,000 sold
EB 3,000	

Inv. (cost)	
\$ 36,000	

$$\frac{\$ 105,000 \text{ FMOH}}{35,000 \text{ units produced}} =$$

\$ 3 per unit produced

Per Unit
\$9
+ 3
<hr style="width: 50%; margin: 0 auto;"/>
\$12/unit

3,000 units x

102. The value of the company's inventory on August 31 under the absorption costing method is:

- A. \$27,000
- B. \$42,000
- C. \$36,000
- D. \$47,000

Units sold = $\$600,000 \div \15 per unit = 40,000 units

Units in beginning inventory + Units produced = Units sold + Units in ending inventory

8,000 units + 35,000 units = 40,000 units + Units in ending inventory

Units in ending inventory = 8,000 units + 35,000 units - 40,000 units = 3,000 units

Variable cost of goods sold ($\$360,000 \div 40,000$ units)	\$ 9
Fixed manufacturing overhead cost ($\$105,000 \div 35,000$ units).....	3
Absorption costing unit product cost (a).....	<u>\$12</u>
Units in ending inventory (b).....	3,000
Value of ending inventory under absorption costing (a) × (b)	\$36,000

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Bloom's: Application

Learning Objective: 06-01 Explain how variable costing differs from absorption costing and compute unit product costs under each method

Level: Hard

DeAnne Company produces a single product. The company's variable costing income statement for August appears below:

DeAnne Company
Income Statement
For the month ended August 31

Sales (\$15 per unit)	<u>\$600,000</u>
Variable expenses:	
Variable cost of goods sold	360,000
Variable selling expense	<u>80,000</u>
Total variable expenses	<u>440,000</u>
Contribution margin	<u>160,000</u>
Fixed expenses:	
Fixed manufacturing	105,000
Fixed selling and administrative ..	<u>35,000</u>
Total fixed expenses	<u>140,000</u>
Net operating income	<u>\$ 20,000</u>

The company produced 35,000 units in August and the beginning inventory consisted of 8,000 units. Variable production costs per unit and total fixed costs have remained constant over the past several months.

103. Under absorption costing, for the month ended August 31, the company would report a:

- A. \$20,000 profit
- B. \$5,000 loss
- C. \$35,000 profit
- D. \$5,000 profit

Inv (units)	
8000	3000
35,000 produced	40,000 sold

Inv (\$)
\$36,000

$$\Delta = 5000 \times \$3 = \underline{\underline{\$15,000}}$$

<u>Abs</u>
S
- CGS
<u>GP</u>
- S+A
<u>NI_{Abs}</u>
<u>5000</u>

<u>VC</u>
S
- VC
<u>CM</u>
- FC
<u>NI_{VC}</u>
<u>20,000</u>

103. Under absorption costing, for the month ended August 31, the company would report a:

- A. \$20,000 profit
- B. \$5,000 loss
- C. \$35,000 profit
- D. \$5,000 profit

Variable cost of goods sold (\$360,000 ÷ 40,000 units)	\$ 9
Fixed manufacturing overhead cost (\$105,000 ÷ 35,000 units).....	<u>3</u>
Absorption costing unit product cost	<u><u>\$12</u></u>

Sales (\$15 per unit × 40,000 units)	\$600,000
Cost of goods sold (\$12 per unit × 40,000 units).....	<u>480,000</u>
Gross margin	120,000
Selling and administrative expenses (\$80,000 + \$35,000) .	<u>115,000</u>
Net operating income	<u><u>\$ 5,000</u></u>

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Bloom's: Application

Learning Objective: 06-02 Prepare income statements using both variable and absorption costing

Level: Hard

Galino Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	\$99
Units in beginning inventory	0
Units produced	2,900
Units sold	2,600
Units in ending inventory	300
Variable costs per unit:	
Direct materials	\$27
Direct labor	\$11
Variable manufacturing overhead	\$6
Variable selling and administrative	\$7
Fixed costs:	
Fixed manufacturing overhead	\$104,400
Fixed selling and administrative	\$13,000

106. The total contribution margin for the month under the variable costing approach is:

- A. \$124,800
- B. \$49,400
- C. \$20,400
- D. \$143,000

$$\begin{array}{r}
 \text{VC} \\
 \hline
 \text{S} \\
 - \text{VC} \\
 \hline
 \text{CM} \\
 - \text{FC} \\
 \hline
 \text{NI} \\
 \text{vc}
 \end{array}
 \qquad
 \begin{array}{r}
 \text{1} \\
 \hline
 \$99 \\
 - 51 \\
 \hline
 \$48
 \end{array}
 \qquad
 \begin{array}{r}
 \text{2600} \\
 \hline
 \boxed{\$124,800}
 \end{array}$$

106. The total contribution margin for the month under the variable costing approach is:

- A. \$124,800
- B. \$49,400
- C. \$20,400
- D. \$143,000

Direct materials	\$27
Direct labor	11
Variable manufacturing overhead	6
Variable selling and administrative	7
Variable expense per unit.....	<u>\$51</u>

Selling price per unit	\$99
Variable expense per unit.....	<u>51</u>
Contribution margin per unit (a)	\$48
Units sold (b)	2,600
Total contribution margin (a) × (b).....	\$124,800

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Bloom's: Application

Learning Objective: 06-01 Explain how variable costing differs from absorption costing and compute unit product costs under each method

Learning Objective: 06-02 Prepare income statements using both variable and absorption costing

Level: Medium

Galino Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	\$99	
Units in beginning inventory	0	
Units produced	2,900	
Units sold	2,600	
Units in ending inventory	300	
Variable costs per unit:		
Direct materials	\$27	$\$27 + \$11 + \$6 = \44 $\$44 + 36 = \underline{\underline{\$80}}$
Direct labor	\$11	
Variable manufacturing overhead	\$6	
Variable selling and administrative	\$7	
Fixed costs:		
Fixed manufacturing overhead	\$104,400	$\div 2900 = \$36$
Fixed selling and administrative	\$13,000	

107. The total gross margin for the month under the absorption costing approach is:

- A. \$49,400
- B. \$18,200
- C. \$73,400
- D. \$124,800

Abs	1	<u>2600</u>
S	\$99	
- CGS	- 80	
<u>GP</u>	<u>\$19</u>	<u>\$49,400</u>
- S+A		
<u>NI</u>		
Abs		

107. The total gross margin for the month under the absorption costing approach is:

- A. \$49,400
- B. \$18,200
- C. \$73,400
- D. \$124,800

Unit product cost under absorption costing:

Direct materials	\$27
Direct labor	11
Variable manufacturing overhead	6
Fixed manufacturing overhead cost (\$104,400 ÷ 2,900 units produced) ...	<u>36</u>
Absorption costing unit product cost	<u><u>\$80</u></u>

Sales (\$99 per unit × 2,600 units)	\$257,400
Cost of goods sold (\$80 per unit × 2,600 units)....	<u>208,000</u>
Gross margin	<u><u>\$ 49,400</u></u>

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Bloom's: Application

Learning Objective: 06-01 Explain how variable costing differs from absorption costing and compute unit product costs under each method

Learning Objective: 06-02 Prepare income statements using both variable and absorption costing

Level: Medium

Galino Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	\$99
Units in beginning inventory	0
Units produced	2,900
Units sold	2,600
Units in ending inventory	300
Variable costs per unit:	
Direct materials	\$27
Direct labor	\$11
Variable manufacturing overhead	\$6
Variable selling and administrative	\$7
Fixed costs:	
Fixed manufacturing overhead	\$104,400
Fixed selling and administrative	\$13,000

$$104,400 \div 2,900 = \underline{\underline{\$36}}$$

108. What is the total period cost for the month under the variable costing approach?

- A. \$31,200
- B. \$104,400
- C. \$117,400
- D. \$135,600

VC

Prod Cost \Rightarrow DM, DL, VMOH

Period Cost \Rightarrow FMOH, VS+A, FS+A

$$104,400 + 2600 + 13,000 = \underline{\underline{\$135,600}}$$

$$\begin{array}{r} \\ \times 7 \\ \hline 18,200 \end{array}$$

108. What is the total period cost for the month under the variable costing approach?

- A. \$31,200
- B. \$104,400
- C. \$117,400
- D. \$135,600**

Variable selling and administrative	\$ 18,200
(\$7 per unit × 2,600 units sold).....	
Fixed manufacturing overhead	104,400
Fixed selling and administrative	13,000
Total period costs	<u>\$135,600</u>

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Bloom's: Application

Learning Objective: 06-01 Explain how variable costing differs from absorption costing and compute unit product costs under each method

Learning Objective: 06-02 Prepare income statements using both variable and absorption costing

Level: Hard

Galino Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	\$99
Units in beginning inventory	0
Units produced	2,900
Units sold	2,600
Units in ending inventory	300
Variable costs per unit:	
Direct materials	\$27
Direct labor	\$11
Variable manufacturing overhead	\$6
Variable selling and administrative	\$7
Fixed costs:	
Fixed manufacturing overhead	\$104,400
Fixed selling and administrative	\$13,000

109. What is the total period cost for the month under the absorption costing approach?

- A. \$104,400
- B. \$31,200**
- C. \$13,000
- D. \$135,600

Absorption

Prod Cost \Rightarrow DM, DL, VMOH, FMOH

Period Cost \Rightarrow VSA, FSA

$$\begin{array}{r}
 \$7 \\
 \times 2600 \\
 \hline
 18,200
 \end{array}
 + 13,000 = \boxed{\$31,200}$$

109. What is the total period cost for the month under the absorption costing approach?

- A. \$104,400
- B. \$31,200**
- C. \$13,000
- D. \$135,600

Variable selling and administrative (\$7 per unit × 2,600 units).....	\$18,200
Fixed selling and administrative	13,000
Total period costs	<u><u>\$31,200</u></u>

AACSB: Analytic

AICPA BB: Critical Thinking

AICPA FN: Measurement

Bloom's: Application

Learning Objective: 06-01 Explain how variable costing differs from absorption costing and compute unit product costs under each method

Learning Objective: 06-02 Prepare income statements using both variable and absorption costing

Level: Hard

182. Leigh Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	\$100
Units in beginning inventory.....	300
Units produced	1,200
Units sold.....	1,400
Units in ending inventory	100
Variable costs per unit:	
Direct materials	\$17
Direct labor	\$59
Variable manufacturing overhead.....	\$4
Variable selling and administrative.....	\$8
Fixed costs:	
Fixed manufacturing overhead.....	\$9,600
Fixed selling and administrative.....	\$1,400

The company produces the same number of units every month, although the sales in units vary from month to month. The company's variable costs per unit and total fixed costs have been constant from month to month.

Required:

- What is the unit product cost for the month under variable costing?
- What is the unit product cost for the month under absorption costing?
- Prepare a contribution format income statement for the month using variable costing.
- Prepare an income statement for the month using absorption costing.
- Reconcile the variable costing and absorption costing net operating incomes for the month.

a. & b. Unit product costs

Variable costing:

Direct materials	\$17
Direct labor.....	59
Variable manufacturing overhead.....	4
Unit product cost	<u>\$80</u>

Absorption costing:

Direct materials	\$17
Direct labor.....	59
Variable manufacturing overhead.....	4
Fixed manufacturing overhead.....	8
Unit product cost	<u>\$88</u>

c. & d. Income statements

Variable costing income statement

Sales.....		\$140,000
Variable expenses:		
Variable cost of goods sold	\$112,000	
Variable selling and administrative	11,200	123,200
Contribution margin		16,800
Fixed expenses:		
Fixed manufacturing overhead	9,600	
Fixed selling and administrative	1,400	11,000
Net operating income		<u>\$ 5,800</u>

Absorption costing income statement

Sales		\$140,000
Cost of goods sold		<u>123,200</u>
Gross margin		16,800
Selling and administrative expenses:		
Variable selling and administrative	\$11,200	
Fixed selling and administrative	1,400	12,600
Net operating income		<u>\$ 4,200</u>

e. Reconciliation

Variable costing net operating income	\$5,800
Deduct fixed manufacturing overhead costs released from inventory under absorption costing	(1,600)
Absorption costing net operating income	<u>\$4,200</u>

AACSB: Analytic; AICPA BB: Critical Thinking; AICPA FN: Measurement; Bloom's: Application; Learning Objective: 06-01 Explain how variable costing differs from absorption costing and compute unit product costs under each method; Learning Objective: 06-02 Prepare income statements using both variable and absorption costing; Learning Objective: 06-03 Reconcile net operating incomes and explain why the two amounts differ; Level: Hard