Horngren's Accounting

The Managerial Chapters

ELEVENTH EDITION

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ALWAYS LEARNING

PEARSON

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14. What is target profit?
15. What are the three approaches to calculating the sales required to achieve the target profit? Give the formula for each one.
16. Of the three approaches to calculate sales required to achieve target profit, which one(s) calculate the required sales in units and which one(s) calculate the required sales in dollars?
17. What is the breakeven point?
18. Why is the calculation to determine the breakeven point considered a variation of the target profit calculation?
19. On the CVP graph, where is the breakeven point shown? Why?
20. What is sensitivity analysis? How do managers use this tool?
21. What effect does an increase in sales price have on contribution margin? An increase in fixed costs? An increase in variable costs?
22. What is the margin of safety? What are the three ways it can be expressed?
23. What is a company's cost structure? How can cost structure affect a company's profits?
24. What is operating leverage? What does it mean if a company has a degree of operating leverage of 3?
25. How can CVP analysis be used by companies with multiple products?
26. What is a sales mix? Provide an example of a sales mix.

27A. What is absorption costing?

28A. What is variable costing?

29A. How are absorption costing and variable costing the same? How are they different?

30A. When units produced equal units sold, how does operating income differ between variable costing and absorption costing?

31A. When units produced exceed units sold, how does operating income differ between variable costing and absorption costing? Why?

32A. When units produced are less than units sold, how does operating income differ between variable costing and absorption costing? Why?

33A. Explain why the fixed manufacturing overhead cost per unit changes when there is a change in the number of units produced.

34A. Explain how increasing production can increase gross profit when using absorption costing.

> Short Exercises

Learning Objective 1

S21-1 Identifying variable, fixed, and mixed costs

Philadelphia Acoustics builds innovative speakers for music and home theater systems. Identify each cost as variable (V), fixed (F), or mixed (M), relative to number of speakers produced and sold.

1. Units of production depreciation on routers used to cut wood enclosures.
2. Wood for speaker enclosures.
3. Patents on crossover relays.
4. Total compensation to salesperson who receives a salary plus a commission based on meeting sales goals.
5. Crossover relays.

6. Straight-line depreciation on manufacturing plant.
7. Grill cloth.
8. Cell phone costs of salesperson.
9. Glue.
10. Quality inspector's salary.

S21-2 Identifying variable, fixed, and mixed costs — **Learning Objective 1**

Holly's Day Care has been in operation for several years. Identify each cost as variable (V), fixed (F), or mixed (M), relative to number of students enrolled.

1. Building rent.
2. Toys.
3. Compensation of the office manager, who receives a salary plus a bonus based on number of students enrolled.
4. Afternoon snacks.
5. Lawn service contract at $200 per month.
6. Holly's salary.
7. Wages of afterschool employees.
8. Drawing paper for student artwork.
9. Straight-line depreciation on furniture and playground equipment.
10. Fee paid to security company for monthly service.

S21-3 Using the high-low method — **Learning Objective 1**

Mark owns a machine shop. In reviewing the shop's utility bills for the past 12 months, he found that the highest bill of $2,400 occurred in August when the machines worked 1,000 machine hours. The lowest utility bill of $2,200 occurred in December when the machines worked 500 machine hours.

Requirements

1. Calculate the variable rate per machine hour and the total fixed utility cost.
2. Show the equation for determining the total utility cost for the machine shop.
3. If Mark anticipates using 700 machine hours in January, predict the shop's total utility bill using the equation from Requirement 2.

S21-4 Calculating contribution margin — **Learning Objective 2**

Gabby Company sells a product for $105 per unit. Variable costs are $65 per unit, and fixed costs are $2,200 per month. The company expects to sell 540 units in September. Calculate the contribution margin per unit, in total, and as a ratio.

S21-5 Preparing a contribution margin income statement — **Learning Objective 2**

Gabrick Company sells a product for $30 per unit. Variable costs are $20 per unit, and fixed costs are $2,500 per month. The company expects to sell 560 units in September. Prepare an income statement for September using the contribution margin format.

S21-6 Calculating required sales in units, contribution margin given — **Learning Objective 3**

Malden, Inc. sells a product with a contribution margin of $60 per unit. Fixed costs are $10,500 per month. How many units must Malden sell to earn an operating income of $15,000?

Learning Objective 3

S21-7 Calculating required sales in units, contribution margin ratio given

Summer Company sells a product with a contribution margin ratio of 60%. Fixed costs are $650 per month. What amount of sales (in dollars) must Summer Company have to earn an operating income of $7,000? If each unit sells for $30, how many units must be sold to achieve the desired operating income?

Learning Objectives 2, 3

S21-8 Computing contribution margin, units to achieve target profit, and breakeven point

Compute the missing amounts for the following table.

	A	B	C
Number of units	870 units	25,000 units	2,800 units
Sales price per unit	$ 1,000	$ 100	$ 160
Variable costs per unit	600	60	80
Total fixed costs	79,200	80,000	64,000
Target profit	268,800	920,000	160,000
Calculate:			
Contribution margin per unit	_____	_____	_____
Contribution margin ratio	_____	_____	_____
Required units to achieve target profit	_____	_____	_____
Required units to break even	_____	_____	_____
Required sales dollars to break even	_____	_____	_____

Use the following information to complete Short Exercises S21-9 through S21-14.

Playtime Park competes with Water World by providing a variety of rides. Playtime Park sells tickets at $60 per person as a one-day entrance fee. Variable costs are $24 per person, and fixed costs are $226,800 per month.

Learning Objectives 2, 3

S21-9 Computing contribution margin per unit, breakeven point in sales units

Compute the contribution margin per unit and the number of tickets Playtime Park must sell to break even. Perform a numerical proof to show that your answer is correct.

Learning Objectives 2, 3

S21-10 Computing contribution margin ratio, breakeven point in sales dollars

Compute Playtime Park's contribution margin ratio. Carry your computation to two decimal places. Use the contribution margin ratio approach to determine the sales revenue Playtime Park needs to break even.

Learning Objective 4

S21-11 Applying sensitivity analysis of changing sales price and variable cost

Using the Playtime Park information presented, do the following tasks.

Requirements

1. Suppose Playtime Park cuts its ticket price from $60 to $54 to increase the number of tickets sold. Compute the new breakeven point in tickets and in sales dollars.
2. Ignore the information in Requirement 1. Instead, assume that Playtime Park increases the variable cost from $24 to $30 per ticket. Compute the new breakeven point in tickets and in sales dollars.

S21-12 Applying sensitivity analysis of changing fixed costs — **Learning Objective 4**

Refer to the original information (ignoring the changes considered in Short Exercise S21-11). Suppose Playtime Park reduces fixed costs from $226,800 per month to $208,800 per month. Compute the new breakeven point in tickets and in sales dollars.

S21-13 Computing margin of safety — **Learning Objective 5**

Refer to the original information (ignoring the changes considered in Short Exercises S21-11 and S21-12). If Playtime Park expects to sell 7,000 tickets, compute the margin of safety in tickets and in sales dollars.

S21-14 Computing degree of operating leverage — **Learning Objective 5**

Refer to the original information (ignoring the changes considered in Short Exercises S21-11 and S21-12). If Playtime Park expects to sell 7,000 tickets, compute the degree of operating leverage. Estimate the operating income if sales increase by 15%.

Use the following information to complete Short Exercises S21-15 and S21-16.

SoakNFun Swim Park sells individual and family tickets. With a ticket, each person receives a meal, three beverages, and unlimited use of the swimming pools. SoakNFun has the following ticket prices and variable costs for 2016:

	Individual	Family
Sales price per ticket	$ 40	$ 120
Variable cost per ticket	25	100

SoakNFun expects to sell one individual ticket for every four family tickets. SoakNFun's total fixed costs are $76,000.

S21-15 Calculating breakeven point for two products — **Learning Objective 5**

Using the SoakNFun Swim Park information presented, do the following tasks.

Requirements

1. Compute the weighted-average contribution margin per ticket.
2. Calculate the total number of tickets SoakNFun must sell to break even.
3. Calculate the number of individual tickets and the number of family tickets the company must sell to break even.

S21-16 Calculating breakeven point for two products — **Learning Objective 5**

For 2017, SoakNFun expects a sales mix of four individual tickets for every one family ticket.

Requirements

1. Compute the new weighted-average contribution margin per ticket.
2. Calculate the total number of tickets SoakNFun must sell to break even.
3. Calculate the number of individual tickets and the number of family tickets the company must sell to break even.

Learning Objective 6
Appendix 21A

S21A-17 Classifying costs

Classify each cost by placing an X in the appropriate columns. The first cost is completed as an example.

	Absorption Costing		Variable Costing	
	Product Cost	**Period Cost**	**Product Cost**	**Period Cost**
a. Direct materials	X		X	
b. Direct labor				
c. Variable manufacturing overhead				
d. Fixed manufacturing overhead				
e. Variable selling and administrative costs				
f. Fixed selling and administrative costs				

Use the following information for Short Exercises S21A-18 and S21A-19.

Burlington Company reports the following information for June:

Sales Revenue	$ 745,000
Variable Cost of Goods Sold	240,000
Fixed Cost of Goods Sold	186,000
Variable Selling and Administrative Costs	152,000
Fixed Selling and Administrative Costs	65,000

Learning Objective 6
Appendix 21A

S21A-18 Calculating variable costs

Calculate the contribution margin and operating income for June using variable costing.

Learning Objective 6
Appendix 21A

S21A-19 Calculating absorption costs

Calculate the gross profit and operating income for June using absorption costing.

Use the following information for Short Exercises S21A-20 and S21A-21.

Matthew Company had the following costs:

Units produced		310	units
Direct materials	$	67	per unit
Direct labor		33	per unit
Variable manufacturing overhead		14	per unit
Fixed manufacturing overhead		6,200	per year
Variable selling and administrative costs		20	per unit
Fixed selling and administrative costs		3,100	per year

Learning Objective 6
Appendix 21A

S21A-20 Computing unit product cost, absorption costing

Calculate the unit product cost using absorption costing. Round your answer to the nearest cent.

S21A-21 Computing unit product cost, variable costing

Learning Objective 6
Appendix 21A

Calculate the unit product cost using variable costing. Round your answer to the nearest cent.

S21A-22 Computing absorption cost per unit

Learning Objective 7
Appendix 21A

Abrey, Inc. has the following cost data for Product X:

Direct materials	$ 41 per unit
Direct labor	60 per unit
Variable manufacturing overhead	8 per unit
Fixed manufacturing overhead	5,000 per year

Calculate the unit product cost using absorption costing when production is 250 units, 500 units, and 2,500 units.

Note: Short Exercise S21A-22 must be completed before attempting Short Exercise S21A-23.

S21A-23 Computing absorption costing gross profit

Learning Objective 7
Appendix 21A

Refer to your answers to Short Exercise S21A-22. Product X sells for $175 per unit. Calculate the gross profit using absorption costing when Abrey:

a. Produces and sells 250 units.

b. Produces 500 units and sells 250 units

c. Produces 2,500 units and sells 250 units.

S21A-24 Computing inventory balances

Learning Objective 7
Appendix 21A

Wong Company reports the following data:

Finished Goods Inventory:	
Beginning balance, in units	500
Units produced	3,100
Units sold	(1,500)
Ending balance, in units	2,100
Production Costs:	
Variable manufacturing costs per unit	$ 65
Total fixed manufacturing costs	40,300

Calculate the product cost per unit and the total cost of the 2,100 units in ending inventory using absorption costing and variable costing.