Chapter 7

Incremental Analysis

Feature Story

Make It or Buy It?

When is a manufacturer not a manufacturer? When it outsources. An extension of the classic "make or buy" decision, outsourcing involves hiring other companies to make all or part of a product or to perform services. Who is outsourcing? Nike, General Motors, Sara Lee, and Hewlett-Packard, to name a few. Even a recent trade journal article for small cabinet-makers outlined the pros and cons of building cabinet doors and drawers internally, or outsourcing them to other shops.

Gibson Greetings, Inc., one of the country's largest sellers of greeting cards, has experienced both the pros and cons of outsourcing. In April one year, it announced it would outsource the manufacturing of all of its cards and gift wrap. Gibson's stock price shot up quickly because investors believed the strategy could save the company $10 million a year, primarily by reducing manufacturing costs. But later in the same year, Gibson got a taste of the negative side of outsourcing: When one of its suppliers was unable to meet its production schedule, about $20 million of Christmas cards went to stores a month later than scheduled.

Outsourcing is often a point of dispute in labor negotiations. Although many of the jobs lost to outsourcing go overseas, that is not always the case. In fact, a recent trend is to hire out work to vendors located close to the company. This reduces shipping costs and can improve coordination of efforts.

The Navigator

- ☐ Scan Learning Objectives
- ☐ Read Feature Story
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- ☐ Read Text and answer **DO IT!** p. 297 ☐ p. 299 ☐ p. 304 ☐ p. 307
- ☐ Work Using the Decision Toolkit p. 309
- ☐ Review Summary of Learning Objectives
- ☐ Work Comprehensive **DO IT!** p. 310
- ☐ Answer Self-Test Questions
- ☐ Complete Assignments
- ☐ Go to **WileyPLUS** for practice and tutorials

Learning Objectives

After studying this chapter, you should be able to:

1. Identify the steps in management's decision-making process.
2. Describe the concept of incremental analysis.
3. Identify the relevant costs in accepting an order at a special price.
4. Identify the relevant costs in a make-or-buy decision.
5. Identify the relevant costs in determining whether to sell or process materials further.
6. Identify the relevant costs to be considered in repairing, retaining, or replacing equipment.
7. Identify the relevant costs in deciding whether to eliminate an unprofitable segment or product.

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One company that has benefited from local outsourcing is Solectron Corporation in Silicon Valley. It makes things like cell phones, printers, and computers for high-tech companies in the region. To the surprise of many, it has kept thousands of people employed in California rather than watching those jobs go overseas. What is its secret? It produces high-quality products efficiently. Solectron has to be efficient because it operates on a very thin profit margin—that is, it makes a tiny amount of money on each part—but it makes millions and millions of parts. It has proved the logic of outsourcing as a management decision, both for the companies for which it makes parts and for its owners and employees.

Watch the Method video in WileyPLUS to learn more about incremental analysis in the real world.

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Preview of Chapter 7

An important purpose of management accounting is to provide managers with relevant information for decision-making. Companies of all sorts must make product decisions. Philip Morris decided to cut prices to raise market share. Oral-B Laboratories opted to produce a new, higher-priced ($5) toothbrush. General Motors discontinued making the Buick Riviera and announced the closure of its Oldsmobile Division. Quaker Oats decided to sell off a line of beverages, at a price more than $1 billion less than it paid for that product line only a few years before. Ski manufacturers like Dynastar had to decide whether to use their limited resources to make snowboards instead of downhill skis.

This chapter explains management's decision-making process and a decision-making approach called incremental analysis. The use of incremental analysis is demonstrated in a variety of situations.

The content and organization of this chapter are as follows.

INCREMENTAL ANALYSIS

Management's Decision-Making Process	Types of Incremental Analysis	Other Considerations
• Incremental analysis • How incremental analysis works	• Accept an order at a special price • Make or buy • Sell or process further • Repair, retain, or replace equipment • Eliminate an unprofitable segment or product	• Qualitative factors • Incremental analysis and ABC

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Management's Decision-Making Process

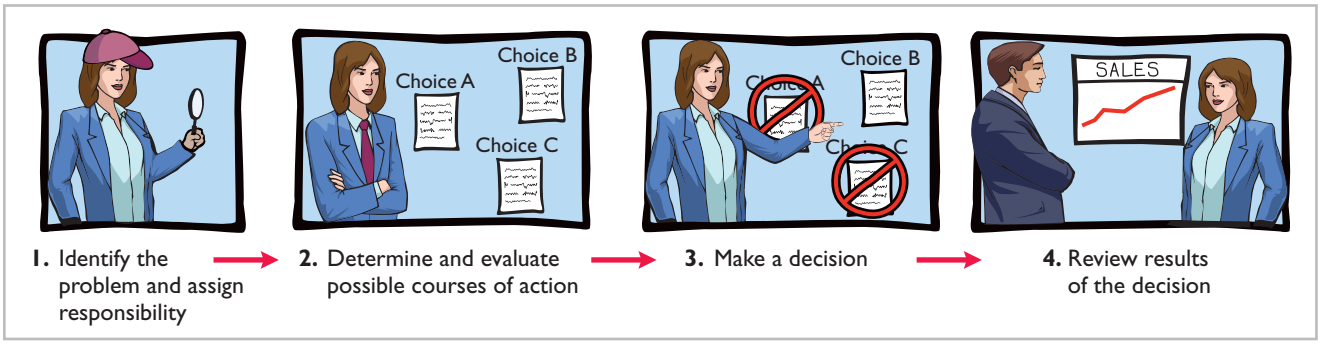
LEARNING OBJECTIVE 1

Identify the steps in management's decision-making process.

Making decisions is an important management function. Management's decision-making process does not always follow a set pattern because decisions vary significantly in their scope, urgency, and importance. It is possible, though, to identify some steps that are frequently involved in the process. These steps are shown in Illustration 7-1 below.

Accounting's contribution to the decision-making process occurs primarily in Steps 2 and 4—evaluating possible courses of action, and reviewing results. In Step 2, for each possible course of action, relevant revenue and cost data are provided. These show the expected overall effect on net income. In Step 4, internal reports are prepared that review the actual impact of the decision.

Illustration 7-1
Management's decision-making process



In making business decisions, management ordinarily considers both financial and nonfinancial information. **Financial** information is related to revenues and costs and their effect on the company's overall profitability. **Nonfinancial** information relates to such factors as the effect of the decision on employee turnover, the environment, or the overall image of the company in the community. (These are considerations that we touched on in our Chapter 1 discussion of corporate social responsibility.) Although nonfinancial information can be as important as financial information, we will focus primarily on financial information that is relevant to the decision.

Incremental Analysis Approach

LEARNING OBJECTIVE 2

Describe the concept of incremental analysis.

Decisions involve a choice among alternative courses of action. Suppose you face the personal financial decision of whether to purchase or lease a car. The financial data relate to the cost of leasing versus the cost of purchasing. For example, leasing would involve periodic lease payments; purchasing would require "up-front" payment of the purchase price. In other words, the financial data relevant to the decision are the data that would vary in the future among the possible alternatives. The process used to identify the financial data that change under alternative courses of action is called **incremental analysis**. In some cases, you will find that when you use incremental analysis, both costs **and** revenues will vary. In other cases, only costs **or** revenues will vary.

Just as your decision to buy or lease a car will affect your future financial situation, similar decisions, on a larger scale, will affect a company's future. Incremental analysis identifies the probable effects of those decisions on future earnings. Such analysis inevitably involves estimates and uncertainty. Gathering data for incremental analyses may involve market analysts, engineers, and accountants. In quantifying the data, the accountant is expected to produce the most reliable information available at the time the decision must be made.

Alternative Terminology
Incremental analysis is also called *differential analysis* because the analysis focuses on differences.

How Incremental Analysis Works

The basic approach in incremental analysis is illustrated in the following example.

Illustration 7-2
Basic approach in incremental analysis

Incremental Analysis.xls

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	A	B	C	D
1		Alternative A	Alternative B	Net Income Increase (Decrease)
2	Revenues	$125,000	$110,000	$ (15,000)
3	Costs	100,000	80,000	20,000
4	Net income	$ 25,000	$ 30,000	$ 5,000
5				

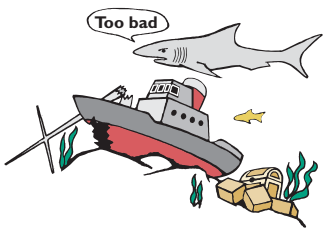
This example compares alternative B with alternative A. The net income column shows the differences between the alternatives. In this case, incremental revenue will be $15,000 less under alternative B than under alternative A. But a $20,000 incremental cost saving will be realized.[1] Thus, alternative B will produce $5,000 more net income than alternative A.

In the following pages, you will encounter three important cost concepts used in incremental analysis, as defined and discussed in Illustration 7-3.

Illustration 7-3
Key cost concepts in incremental analysis

- **Relevant cost** In incremental analysis, the only factors to be considered are those costs and revenues that differ across alternatives. Those factors are called **relevant costs**. Costs and revenues that do not differ across alternatives can be ignored when trying to choose between alternatives.

- **Opportunity cost** Often in choosing one course of action, the company must give up the opportunity to benefit from some other course of action. For example, if a machine is used to make one type of product, the benefit of making another type of product with that machine is lost. This lost benefit is referred to as **opportunity cost**.



- **Sunk cost** Costs that have already been incurred and will not be changed or avoided by any present or future decisions are referred to as **sunk costs**. For example, the amount you spent in the past to purchase or repair a machine should have no bearing on your decision whether to buy a new machine. **Sunk costs are not relevant costs.**

[1]Although income taxes are sometimes important in incremental analysis, they are ignored in the chapter for simplicity's sake.

Incremental analysis sometimes involves changes that at first glance might seem contrary to your intuition. For example, sometimes variable costs **do not change** under the alternative courses of action. Also, sometimes fixed costs **do change**. For example, direct labor, normally a variable cost, is not an incremental cost in deciding between two new factory machines if each asset requires the same amount of direct labor. In contrast, rent expense, normally a fixed cost, is an incremental cost in a decision whether to continue occupancy of a building or to purchase or lease a new building.

It is also important to understand that **the approaches to incremental analysis discussed in this chapter do not take into consideration the time value of money**. That is, amounts to be paid or received in future years are not discounted for the cost of interest. Time value of money is addressed in Chapter 12 and Appendix A.

SERVICE COMPANY INSIGHT

That Letter from AmEx Might Not Be a Bill

No doubt every one of you has received an invitation from a credit card company to open a new account—some of you have probably received three in one day. But how many of you have received an offer of $300 to close out your credit card account? American Express decided to offer some of its customers $300 if they would give back their credit card. You could receive the $300 even if you hadn't paid off your balance yet, as long as you agreed to give up your credit card.

Source: Aparajita Saha-Bubna and Lauren Pollock, "AmEx Offers Some Holders $300 to Pay and Leave," *Wall Street Journal Online* (February 23, 2009).

? What are the relevant costs that American Express would need to know in order to determine to whom to make this offer? (See page 331.)

Types of Incremental Analysis

A number of different types of decisions involve incremental analysis. The more common types of decisions are whether to:

1. Accept an order at a special price.
2. Make or buy component parts or finished products.
3. Sell products or process them further.
4. Repair, retain, or replace equipment.
5. Eliminate an unprofitable business segment or product.

We will consider each of these types of decisions in the following pages.

Accept an Order at a Special Price

LEARNING OBJECTIVE 3

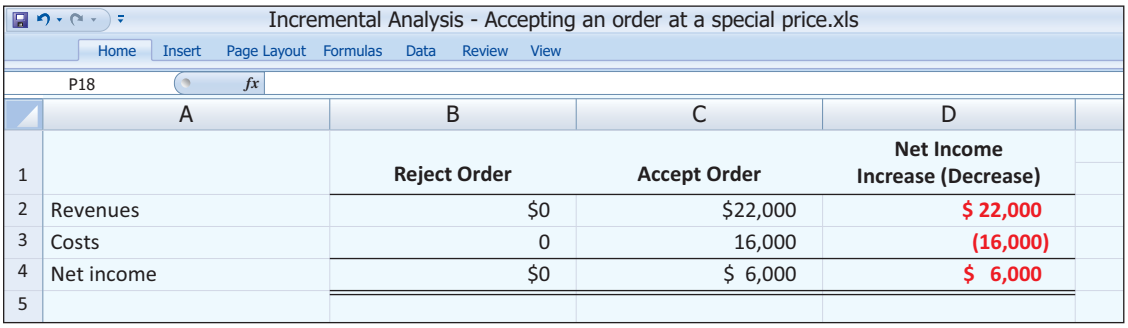
Identify the relevant costs in accepting an order at a special price.

Sometimes a company may have an opportunity to obtain additional business if it is willing to make a major price concession to a specific customer. To illustrate, assume that Sunbelt Company produces 100,000 Smoothie blenders per month, which is 80% of plant capacity. Variable manufacturing costs are $8 per unit. Fixed manufacturing costs are $400,000, or $4 per unit. The Smoothie blenders are normally sold directly to retailers at $20 each. Sunbelt has an offer from Kensington Co. (a foreign wholesaler) to purchase an additional 2,000 blenders at

$11 per unit. Acceptance of the offer would not affect normal sales of the product, and the additional units can be manufactured without increasing plant capacity. What should management do?

If management makes its decision on the basis of the total cost per unit of $12 ($8 variable + $4 fixed), the order would be rejected because costs per unit ($12) would exceed revenues per unit ($11) by $1 per unit. However, since the units can be produced within existing plant capacity, the special order **will not increase fixed costs**. Let's identify the relevant data for the decision. First, the variable manufacturing costs will increase $16,000 ($8 × 2,000). Second, the expected revenue will increase $22,000 ($11 × 2,000). Thus, as shown in Illustration 7-4, Sunbelt will increase its net income by $6,000 by accepting this special order.

Helpful Hint
This is a good example of different costs for different purposes. In the long run all costs are relevant, but for this decision only costs that change are relevant.



	A	B	C	D
1		Reject Order	Accept Order	Net Income Increase (Decrease)
2	Revenues	$0	$22,000	$ 22,000
3	Costs	0	16,000	(16,000)
4	Net income	$0	$ 6,000	$ 6,000
5				

Illustration 7-4
Incremental analysis—accepting an order at a special price

Two points should be emphasized: First, we assume that sales of the product in other markets **would not be affected by this special order**. If other sales were affected, then Sunbelt would have to consider the lost sales in making the decision. Second, if Sunbelt is operating **at full capacity**, it is likely that the special order would be rejected. Under such circumstances, the company would have to expand plant capacity. In that case, the special order would have to absorb these additional fixed manufacturing costs, as well as the variable manufacturing costs.

> DO IT!

Special Orders

Cobb Company incurs costs of $28 per unit ($18 variable and $10 fixed) to make a product that normally sells for $42. A foreign wholesaler offers to buy 5,000 units at $25 each. Cobb will incur additional shipping costs of $1 per unit. Compute the increase or decrease in net income Cobb will realize by accepting the special order, assuming Cobb has excess operating capacity. Should Cobb Company accept the special order?

Action Plan

- ✔ Identify all revenues that will change as a result of accepting the order.
- ✔ Identify all costs that will change as a result of accepting the order, and net this amount against the change in revenues.

Solution

	Reject	Accept	Net Income Increase (Decrease)
Revenue	$–0–	$125,000*	$125,000
Costs	–0–	95,000**	(95,000)
Net income	$–0–	$ 30,000	$ 30,000

*5,000 × $25
**(5,000 × $18) + (5,000 × $1)

The analysis indicates net income will increase by $30,000; therefore, Cobb Company should accept the special order.

Related exercise material: BE7-3, E7-2, E7-3, E7-4, and DO IT! 7-1.

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Make or Buy

LEARNING OBJECTIVE 4

Identify the relevant costs in a make-or-buy decision.

When a manufacturer assembles component parts in producing a finished product, management must decide whether to make or buy the components. The decision to buy parts or services is often referred to as outsourcing. For example, as discussed in the Feature Story, a company such as General Motors Corporation may either make or buy the batteries, tires, and radios used in its cars. Similarly, Hewlett-Packard Corporation may make or buy the electronic circuitry, cases, and printer heads for its printers. Boeing recently sold some of its commercial aircraft factories in an effort to cut production costs and focus instead on engineering and final assembly rather than manufacturing. The decision to make or buy components should be made on the basis of incremental analysis.

Baron Company makes motorcycles and scooters. It incurs the following annual costs in producing 25,000 ignition switches for scooters.

Illustration 7-5
Annual product cost data

Direct materials	$ 50,000
Direct labor	75,000
Variable manufacturing overhead	40,000
Fixed manufacturing overhead	60,000
Total manufacturing costs	$225,000
Total cost per unit ($225,000 ÷ 25,000)	**$9.00**

Instead of making its own switches, Baron Company might purchase the ignition switches from Ignition, Inc. at a price of $8 per unit. What should management do?

At first glance, it appears that management should purchase the ignition switches for $8 rather than make them at a cost of $9. However, a review of operations indicates that if the ignition switches are purchased from Ignition, Inc., *all* of Baron's variable costs but only $10,000 of its fixed manufacturing costs will be eliminated (avoided). Thus, $50,000 of the fixed manufacturing costs will remain if the ignition switches are purchased. The relevant costs for incremental analysis, therefore, are as shown below.

Illustration 7-6
Incremental analysis—make or buy

Incremental Analysis - Make or buy.xls

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	A	B	C	D
1		Make	Buy	Net Income Increase (Decrease)
2	Direct materials	$ 50,000	$ 0	$ 50,000
3	Direct labor	75,000	0	75,000
4	Variable manufacturing costs	40,000	0	40,000
5	Fixed manufacturing costs	60,000	50,000	10,000
6	Purchase price (25,000 × $8)	0	200,000	(200,000)
7	Total annual cost	$225,000	$250,000	$ (25,000)
8				

This analysis indicates that Baron Company would incur $25,000 of additional costs by buying the ignition switches rather than making them. Therefore, Baron should continue to make the ignition switches even though the total manufacturing

cost is $1 higher per unit than the purchase price. The primary cause of this result is that, even if the company purchases the ignition switches, it will still have fixed costs of $50,000 to absorb.

OPPORTUNITY COST

The foregoing make-or-buy analysis is complete only if it is assumed that the productive capacity used to make the ignition switches cannot be converted to another purpose. If there is an opportunity to use this productive capacity in some other manner, then this opportunity cost must be considered. As indicated earlier, **opportunity cost** is the potential benefit that may be obtained by following an alternative course of action.

To illustrate, assume that through buying the switches, Baron Company can use the released productive capacity to generate additional income of $38,000 from producing a different product. This lost income is an additional cost of continuing to make the switches in the make-or-buy decision. This opportunity cost is therefore added to the "Make" column for comparison. As shown in Illustration 7-7, it is now advantageous to buy the ignition switches. The company's income would increase by $13,000.

Ethics Note

In the make-or-buy decision, it is important for management to take into account the social impact of its choice. For instance, buying may be the most economically feasible solution, but such action could result in the closure of a manufacturing plant that employs many good workers.

Illustration 7-7
Incremental analysis—make or buy, with opportunity cost

Incremental Analysis - Make or buy with opportunity cost.xls

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	A	B	C	D
1		Make	Buy	Net Income Increase (Decrease)
2	Total annual cost	$225,000	$250,000	$(25,000)
3	Opportunity cost	38,000	0	38,000
4	Total cost	$263,000	$250,000	$ 13,000
5				

The qualitative factors in this decision include the possible loss of jobs for employees who produce the ignition switches. In addition, management must assess how well the supplier will be able to satisfy the company's quality control standards at the quoted price per unit.

> DO IT!

Make or Buy

Juanita Company must decide whether to make or buy some of its components for the appliances it produces. The costs of producing 166,000 electrical cords for its appliances are as follows.

Direct materials	$90,000	Variable overhead	$32,000
Direct labor	$20,000	Fixed overhead	$24,000

Instead of making the electrical cords at an average cost per unit of $1.00 ($166,000 ÷ 166,000), the company has an opportunity to buy the cords at $0.90 per unit. If the company purchases the cords, all variable costs and one-fourth of the fixed costs will be eliminated.

(a) Prepare an incremental analysis showing whether the company should make or buy the electrical cords. (b) Will your answer be different if the released productive capacity will generate additional income of $5,000?

Action Plan

- ✔ Look for the costs that change.
- ✔ Ignore the costs that do not change.
- ✔ Use the format in the chapter for your answer.
- ✔ Recognize that opportunity cost can make a difference.

Solution

(a)

	Make	Buy	Net Income Increase (Decrease)
Direct materials	$ 90,000	$ –0–	$ 90,000
Direct labor	20,000	–0–	20,000
Variable manufacturing costs	32,000	–0–	32,000
Fixed manufacturing costs	24,000	18,000*	6,000
Purchase price	–0–	149,400**	(149,400)
Total cost	$166,000	$167,400	$ (1,400)

*.75 × $24,000
**$166,000 × .90

This analysis indicates that Juanita Company will incur $1,400 of additional costs if it buys the electrical cords rather than making them.

(b)

	Make	Buy	Net Income Increase (Decrease)
Total cost	$166,000	$167,400	$(1,400)
Opportunity cost	5,000	–0–	5,000
Total cost	$171,000	$167,400	$ 3,600

Yes, the answer is different: The analysis shows that net income will be increased by $3,600 if Juanita Company purchases the electrical cords rather than making them.

Related exercise material: **BE7-4, E7-5, E7-6, E7-7, E7-8, and DO IT! 7-2.**

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SERVICE COMPANY INSIGHT

Giving Away the Store?

In an earlier chapter, we discussed Amazon.com's incredible growth. However, some analysts have questioned whether some of the methods that Amazon uses to increase its sales make good business sense. For example, a few years ago, Amazon initiated a "Prime" free-shipping subscription program. For a $79 fee per year, Amazon's customers get free shipping on as many goods as they want to buy. At the time, CEO Jeff Bezos promised that the program would be costly in the short-term but benefit the company in the long-term. Six years later, it was true that Amazon's sales had grown considerably. It was also estimated that its Prime customers buy two to three times as much as non-Prime customers. But, its shipping costs rose from 2.8% of sales to 4% of sales, which is remarkably similar to the drop in its gross margin from 24% to 22.3%. Perhaps even less easy to justify is a proposal by Mr. Bezos to start providing a free Internet movie-streaming service to Amazon's Prime customers. Perhaps some incremental analysis is in order?

Source: Martin Peers, "Amazon's Prime Numbers," *Wall Street Journal Online* (February 3, 2011).

? What are the relevant revenues and costs that Amazon should consider relative to the decision whether to offer the Prime free-shipping subscription? (See page 331.)

Sell or Process Further

LEARNING OBJECTIVE 5

Identify the relevant costs in determining whether to sell or process materials further.

Many manufacturers have the option of selling products at a given point in the production cycle or continuing to process with the expectation of selling them at a later point at a higher price. For example, a bicycle manufacturer such as Trek could sell its bicycles to retailers either unassembled or assembled. A furniture manufacturer such as Ethan Allen could sell its dining room sets to furniture stores either unfinished or finished. The sell-or-process-further decision should be made on the basis of incremental analysis. The basic decision rule is: **Process further as long as the incremental revenue from such processing exceeds the incremental processing costs.**

SINGLE-PRODUCT CASE

Assume, for example, that Woodmasters Inc. makes tables. It sells unfinished tables for $50. The cost to manufacture an unfinished table is $35, computed as follows.

Direct materials	$15
Direct labor	10
Variable manufacturing overhead	6
Fixed manufacturing overhead	4
Manufacturing cost per unit	**$35**

Illustration 7-8
Per unit cost of unfinished table

Woodmasters currently has unused productive capacity that is expected to continue indefinitely. Some of this capacity could be used to finish the tables and sell them at $60 per unit. For a finished table, direct materials will increase $2 and direct labor costs will increase $4. Variable manufacturing overhead costs will increase by $2.40 (60% of direct labor). No increase is anticipated in fixed manufacturing overhead.

Should the company sell the unfinished tables, or should it process them further? The incremental analysis on a per unit basis is as follows.

Helpful Hint
Current net income is known. Net income from processing further is an estimate. In making its decision, management could add a "risk" factor for the estimate.

Incremental Analysis - Sell or process further.xls

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	A	B	C	D
1		Sell Unfinished	Process Further	Net Income Increase (Decrease)
2	Sales price per unit	$50.00	$60.00	$10.00
3	Cost per unit			
4	Direct materials	15.00	17.00	(2.00)
5	Direct labor	10.00	14.00	(4.00)
6	Variable manufacturing overhead	6.00	8.40	(2.40)
7	Fixed manufacturing overhead	4.00	4.00	0.00
8	Total	35.00	43.40	(8.40)
9	Net income per unit	$ 15.00	$ 16.60	$ 1.60
10				

Illustration 7-9
Incremental analysis—sell or process further

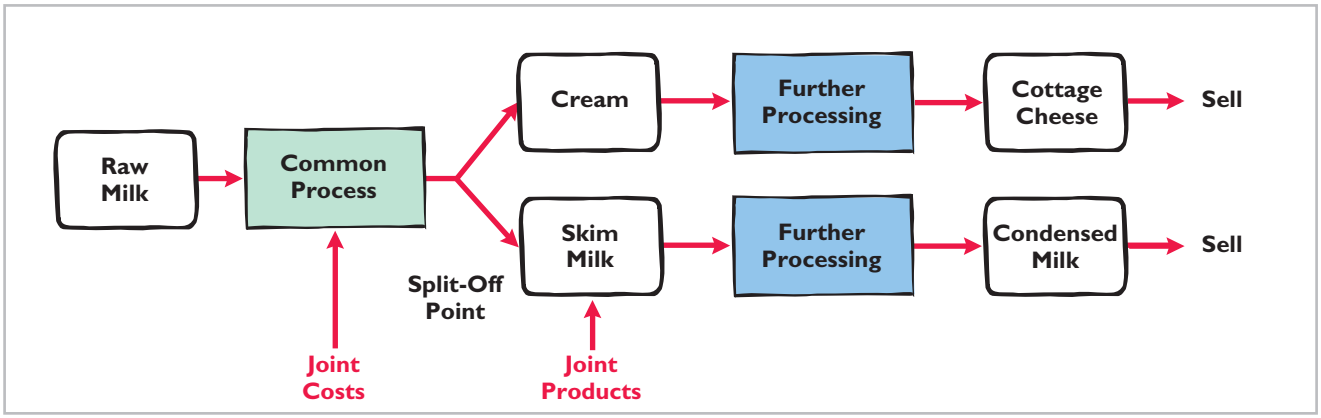
It would be advantageous for Woodmasters to process the tables further. The incremental revenue of $10.00 from the additional processing is $1.60 higher than the incremental processing costs of $8.40.

MULTIPLE-PRODUCT CASE

Sell-or-process-further decisions are particularly applicable to production processes that produce multiple products simultaneously. In many industries, a number of end-products are produced from a single raw material and a common production process. These multiple end-products are commonly referred to as **joint products**. For example, in the meat-packing industry, Armour processes a cow or pig to produce meat, internal organs, hides, bones, and fat. In the petroleum industry, ExxonMobil refines crude oil to produce gasoline, lubricating oil, kerosene, paraffin, and ethylene.

Illustration 7-10 presents a joint product situation for Marais Creamery involving a decision **to sell or process further** cream and skim milk. Cream and skim milk are joint products that result from the processing of raw milk.

Illustration 7-10
Joint production process—Creamery



Marais incurs many costs prior to the manufacture of the cream and skim milk. All costs incurred prior to the point at which the two products are separately identifiable (the *split-off point*) are called **joint costs**. For purposes of determining the cost of each product, joint product costs must be allocated to the individual products. This is frequently done based on the relative sales value of the joint products. While this allocation is important for determination of product cost, **it is irrelevant for any sell-or-process-further decisions**. The reason is that these **joint product costs are sunk costs.** That is, they have already been incurred, and they cannot be changed or avoided by any subsequent decision.

Illustration 7-11 provides the daily cost and revenue data for Marais Creamery related to cream and cottage cheese.

Illustration 7-11
Cost and revenue data per day for cream

Costs (per day)	
Joint cost allocated to cream	$ 9,000
Cost to process cream into cottage cheese	10,000
Revenues from Products (per day)	
Cream	$19,000
Cottage cheese	27,000

From this information, we can determine whether the company should simply sell the cream or process it further into cottage cheese. Illustration 7-12 shows the necessary analysis. Note that the joint cost that is allocated to the cream is not included in this decision. It is not relevant to the decision because it is a sunk cost. It has been incurred in the past and will remain the same no matter whether the cream is subsequently processed into cottage cheese or not.

Incremental Analysis - Sell or process further - Cottage cheese.xls

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	A	B	C	D
1		Sell	Process Further	Net Income Increase (Decrease)
2	Sales per day	$19,000	$27,000	$ 8,000
3	Cost per day to process cream into cottage cheese	0	10,000	(10,000)
4		$19,000	$ 17,000	$ (2,000)
5				

Illustration 7-12
Analysis of whether to sell cream or process into cottage cheese

From this analysis, we can see that Marais should not process the cream further because it will sustain an incremental loss of $2,000.

Illustration 7-13 provides the daily cost and revenue data for the company related to skim milk and condensed milk.

Costs (per day)	
Joint cost allocated to skim milk	$ 5,000
Cost to process skim milk into condensed milk	8,000
Revenues from Products (per day)	
Skim milk	$11,000
Condensed milk	26,000

Illustration 7-13
Cost and revenue data per day for skim milk

Illustration 7-14 shows that Marais Company should process the skim milk into condensed milk, as it will increase net income by $7,000.

Incremental Analysis - Sell or process further - Skim milk or process condensed milk.xls

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	A	B	C	D
1		Sell	Process Further	Net Income Increase (Decrease)
2	Sales per day	$11,000	$26,000	$15,000
3	Cost per day to process skim milk into condensed milk	0	8,000	(8,000)
4		$11,000	$ 18,000	$ 7,000
5				

Illustration 7-14
Analysis of whether to sell skim milk or process into condensed milk

Again, note that the $5,000 of joint cost allocated to the skim milk is irrelevant in deciding whether to sell or process further. Why? The joint cost remains the same, whether or not further processing is performed.

It is important to understand that these decisions need to be reevaluated as market conditions change. For example, if the price of skim milk increases relative to the price of condensed milk, it may become more profitable to sell the skim milk rather than process it into condensed milk. Consider also oil refineries. As market conditions change, they must constantly re-assess which products to produce from the oil they receive at their plants.

> DO IT!

Sell or Process Further

Easy Does It manufactures unpainted furniture for the do-it-yourself (DIY) market. It currently sells a child's rocking chair for $25. Production costs are $12 variable and $8 fixed. Easy Does It is considering painting the rocking chair and selling it for $35. Variable costs to paint each chair are expected to be $9, and fixed costs are expected to be $2.

Prepare an analysis showing whether Easy Does It should sell unpainted or painted chairs.

Action Plan

- ✔ Identify the revenues that will change as a result of painting the rocking chair.
- ✔ Identify all costs that will change as a result of painting the rocking chair, and net the amount against the revenues.

Solution

	Sell	Process Further	Net Income Increase (Decrease)
Revenues	$25	$35	$10
Variable costs	12	21	(9)
Fixed costs	8	10	(2)
Net income	$ 5	$ 4	$ (1)

The analysis indicates that the rocking chair should be sold unpainted because net income per chair will be $1 greater.

Related exercise material: BE7-5, BE7-6, E7-9, E7-10, E7-11, E7-12, and DO IT! 7-3.

✔ The Navigator

Repair, Retain, or Replace Equipment

LEARNING OBJECTIVE 6

Identify the relevant costs to be considered in repairing, retaining, or replacing equipment.

Management often has to decide whether to continue using an asset, repair, or replace it. For example, Delta Airlines must decide whether to replace old jets with new, more fuel-efficient ones. To illustrate, assume that Jeffcoat Company has a factory machine that originally cost $110,000. It has a balance in Accumulated Depreciation of $70,000, so its book value is $40,000. It has a remaining useful life of four years. The company is considering replacing this machine with a new machine. A new machine is available that costs $120,000. It is expected to have zero salvage value at the end of its four-year useful life. If the new machine is acquired, variable manufacturing costs are expected to decrease from $160,000 to $125,000 annually, and the old unit could be sold for $5,000. The incremental analysis for the **four-year period** is as follows.

Illustration 7-15
Incremental analysis—retain or replace equipment

Incremental Analysis - Retain or replace equipment.xls

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P18 fx

	A	B	C	D	E	F
1		Retain Equipment		Replace Equipment		Net Income Increase (Decrease)
2	Variable manufacturing costs	$640,000	a	$500,000	b	$140,000
3	New machine cost			120,000		(120,000)
4	Sale of old machine			(5,000)		5,000
5	Total	$640,000		$ 615,000		$ 25,000
6						
7	[a](4 years × $160,000)					
8	[b](4 years × $125,000)					
9						

In this case, it would be to the company's advantage to replace the equipment. The lower variable manufacturing costs due to replacement more than offset the cost of the new equipment. Note that the $5,000 received from the sale of the old machine

is relevant to the decision because it will only be received if the company chooses to replace its equipment. In general, any trade-in allowance or cash disposal value of existing assets is relevant to the decision to retain or replace equipment.

One other point should be mentioned regarding Jeffcoat's decision: **The book value of the old machine does not affect the decision.** Book value is a **sunk cost**, which is a cost that cannot be changed by any present or future decision. **Sunk costs are not relevant in incremental analysis.** In this example, if the asset is retained, book value will be depreciated over its remaining useful life. Or, if the new unit is acquired, book value will be recognized as a loss of the current period. Thus, the effect of book value on current and future earnings is the same regardless of the replacement decision.

Sometimes, decisions regarding whether to replace equipment are clouded by behavioral decision-making errors. For example, suppose a manager spent $90,000 repairing a machine two months ago. Now, suppose that the machine breaks down again today. The manager might be inclined to think that, because the company recently spent a large amount of money to repair the machine, the machine should now be repaired rather than replaced. However, the amount spent in the past to repair the machine is irrelevant to the current decision. It is a sunk cost.

Similarly, suppose a manager spent $5,000,000 to purchase a new machine. Six months later, a new machine comes on the market that is significantly more efficient than the one recently purchased. The manager might be inclined to think that he or she should not buy the new machine because of the recent purchase. In fact, the manager might fear that buying a different machine so quickly might call into question the merit of the previous decision. Again, the fact that the company recently bought a new machine is not relevant. Instead, the manager should use incremental analysis to determine whether the savings generated by the efficiencies of the new machine would justify its purchase.

Eliminate an Unprofitable Segment or Product

LEARNING OBJECTIVE 7

Identify the relevant costs in deciding whether to eliminate an unprofitable segment or product.

Management sometimes must decide whether to eliminate an unprofitable business segment or product. For example, in recent years, many airlines quit servicing certain cities or cut back on the number of flights. Goodyear quit producing several brands in the low-end tire market. Again, the key is to **focus on the relevant costs—the data that change under the alternative courses of action**. To illustrate, assume that Venus Company manufactures tennis racquets in three models: Pro, Master, and Champ. Pro and Master are profitable lines. Champ (highlighted in red in the table below) operates at a loss. Condensed income statement data are as follows.

Illustration 7-16
Segment income data

	Pro	Master	Champ	Total
Sales	$800,000	$300,000	**$100,000**	$1,200,000
Variable costs	520,000	210,000	**90,000**	820,000
Contribution margin	280,000	90,000	**10,000**	380,000
Fixed costs	80,000	50,000	**30,000**	160,000
Net income	$200,000	$ 40,000	**$ (20,000)**	$ 220,000

Helpful Hint
A decision to discontinue a segment based solely on the bottom line—net loss—is inappropriate.

You might think that total net income will increase by $20,000 to $240,000 if the unprofitable Champ line of racquets is eliminated. However, **net income may actually decrease if the Champ line is discontinued**. The reason is that the fixed costs allocated to the Champ racquets will have to be absorbed by the other products. To illustrate, assume that the $30,000 of fixed costs applicable to the unprofitable segment are allocated ⅔ to the Pro model and ⅓ to the Master model if the Champ model is eliminated. Fixed costs will increase to $100,000 ($80,000 + $20,000) in the Pro line and to $60,000 ($50,000 + $10,000) in the Master line. The revised income statement is:

Illustration 7-17
Income data after eliminating unprofitable product line

	Pro	Master	Total
Sales	$800,000	$300,000	$1,100,000
Variable costs	520,000	210,000	730,000
Contribution margin	280,000	90,000	370,000
Fixed costs	**100,000**	**60,000**	160,000
Net income	$180,000	$ 30,000	**$ 210,000**

Illustration 7-18
Incremental analysis—eliminating unprofitable segment with no reduction in fixed costs

Total net income has decreased $10,000 ($220,000 − $210,000). This result is also obtained in the following incremental analysis of the Champ racquets.

Incremental Analysis - Eliminating an unprofitable segment.xls

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P18 fx

	A	B	C	D
1		Continue	Eliminate	Net Income Increase (Decrease)
2	Sales	$100,000	$ 0	$(100,000)
3	Variable costs	90,000	0	90,000
4	Contribution margin	10,000	0	(10,000)
5	Fixed costs	30,000	30,000	0
6	Net income	$(20,000)	$(30,000)	$ (10,000)
7				

The loss in net income is attributable to the Champ line's contribution margin ($10,000) that will not be realized if the segment is discontinued.

Illustration 7-19
Incremental analysis—eliminating unprofitable segment with reduction in fixed costs

Assume the same facts as above, except now assume that $22,000 of the fixed costs attributed to the Champ line can be eliminated if the line is discontinued. Illustration 7-19 presents the incremental analysis based on this revised assumption.

Incremental Analysis - Eliminating an unprofitable segment.xls

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P18 fx

	A	B	C	D
1		Continue	Eliminate	Net Income Increase (Decrease)
2	Sales	$100,000	$ 0	$(100,000)
3	Variable costs	90,000	0	90,000
4	Contribution margin	10,000	0	(10,000)
5	Fixed costs	30,000	8,000	22,000
6	Net income	$(20,000)	$(8,000)	$ 12,000
7				

In this case, because the company is able to eliminate some of its fixed costs by eliminating the division, it can increase its net income by $12,000. **This occurs because the $22,000 savings that results from the eliminated fixed costs exceeds the $10,000 in lost contribution margin by $12,000 ($22,000 − $10,000).**

In deciding on the future status of an unprofitable segment, management should consider the effect of elimination on related product lines. It may be possible for continuing product lines to obtain some or all of the sales lost by the discontinued product line. In some businesses, services or products may be linked—for example, free checking accounts at a bank, or coffee at a donut shop. In addition, management should consider the effect of eliminating the product line on employees who may have to be discharged or retrained.

> DO IT!

Unprofitable Segments

Lambert, Inc. manufactures several types of accessories. For the year, the knit hats and scarves line had sales of $400,000, variable expenses of $310,000, and fixed expenses of $120,000. Therefore, the knit hats and scarves line had a net loss of $30,000. If Lambert eliminates the knit hats and scarves line, $20,000 of fixed costs will remain. Prepare an analysis showing whether the company should eliminate the knit hats and scarves line.

Action Plan

- ✔ Identify the revenues that will change as a result of eliminating a product line.
- ✔ Identify all costs that will change as a result of eliminating a product line, and net the amount against the revenues.

Solution

	Continue	Eliminate	Net Income Increase (Decrease)
Sales	$400,000	$ 0	$(400,000)
Variable costs	310,000	0	310,000
Contribution margin	90,000	0	(90,000)
Fixed costs	120,000	20,000	100,000
Net income	$(30,000)	$(20,000)	$ 10,000

The analysis indicates that Lambert should eliminate the knit hats and scarves line because net income will increase $10,000.

Related exercise material: BE7-8, E7-15, E7-16, E7-17, and DO IT! 7-4.

✔ The Navigator

MANAGEMENT INSIGHT

Time to Move to a New Neighborhood?

If you have ever moved, then you know how complicated and costly it can be. Now consider what it would be like for a manufacturing company with 260 employees and a 170,000-square-foot facility to move from southern California to Idaho. That is what Buck Knives did in order to save its company from financial ruin. Electricity rates in Idaho were half those in California, workers' compensation was one-third the cost, and factory wages were 20% lower. Combined, this would reduce manufacturing costs by $600,000 per year. Moving the factory would cost about $8.5 million, plus $4 million to move key employees. Offsetting these costs was the estimated $11 million selling price of the California property. Based on these estimates, the move would pay for itself in three years.

Ultimately, the company received only $7.5 million for its California property, only 58 of 75 key employees were willing to move, construction was delayed by a year which caused the new plant to increase in price by $1.5 million, and wages surged in Idaho due to low unemployment. Despite all of these complications, though, the company considers the move a great success.

Source: Chris Lydgate, "The Buck Stopped," *Inc. Magazine* (May 2006), pp. 87–95.

? What were some of the factors that complicated the company's decision to move? How should the company have incorporated such factors into its incremental analysis? (See page 331.)

DECISION TOOLKIT

DECISION CHECKPOINTS	INFO NEEDED FOR DECISION	TOOL TO USE FOR DECISION	HOW TO EVALUATE RESULTS
Which alternative should the company choose?	All relevant costs including opportunity cost	Compare relevant cost of each alternative	Choose the alternative that maximizes net income.

Other Considerations in Decision-Making

Qualitative Factors

In this chapter, we have focused primarily on the quantitative factors that affect a decision—those attributes that can be easily expressed in terms of numbers or dollars. However, many of the decisions involving incremental analysis have important qualitative features. Though not easily measured, they should not be ignored.

Consider, for example, the potential effects of the make-or-buy decision or of the decision to eliminate a line of business on existing employees and the community in which the plant is located. The cost savings that may be obtained from outsourcing or from eliminating a plant should be weighed against these qualitative attributes. One example would be the cost of lost morale that might result. Al "Chainsaw" Dunlap was a so-called "turnaround" artist who went into many companies, identified inefficiencies (using incremental analysis techniques), and tried to correct these problems to improve corporate profitability. Along the way, he laid off thousands of employees at numerous companies. As head of Sunbeam, it was Al Dunlap who lost his job because his Draconian approach failed to improve Sunbeam's profitability. It was widely reported that Sunbeam's employees openly rejoiced for days after his departure. Clearly, qualitative factors can matter.

Relationship of Incremental Analysis and Activity-Based Costing

In Chapter 4, we noted that many companies have shifted to activity-based costing to allocate overhead costs to products. The primary reason for using activity-based costing is that it results in a more accurate allocation of overhead. The concepts presented in this chapter are completely consistent with the use of activity-based costing. In fact, activity-based costing will result in better identification of relevant costs and, therefore, better incremental analysis.

MANAGEMENT INSIGHT

What Is the Real Cost of Packaging Options?

The existence of excess plant capacity is frequently the incentive for management to add new products. Adding one new product may not add much incremental cost. But continuing to add products will at some point create new constraints, perhaps requiring additional investments in people, equipment, and facilities.

The effects of product and product line proliferation are generally understood. But the effect on incremental overhead costs of changes *in servicing customers* is less understood. For example, if a company newly offers its customers the option of product delivery by case or by pallet, the new service may appear to be simple and low in cost. But, if the manufacturing process must be realigned to package in two different forms; if two sets of inventory records must be maintained; and if warehousing, handling, and shipping require two different arrangements or sets of equipment, the additional costs of this new option could be as high as a whole new product. If the customer service option were adopted for all products, the product line could effectively be doubled—but so might many overhead costs.

Source: Elizabeth Haas Edersheim and Joan Wilson, "Complexity at Consumer Goods Companies: Naming and Taming the Beast," *Journal of Cost Management* (Fall 1992), pp. 26–36.

? If your marketing director suggests that, in addition to selling your cereal in a standard-size box, you should sell a jumbo size and an individual size, what issues must you consider? (See page 331.)

USING THE DECISION TOOLKIT

Suppose Hewlett-Packard Company (HP) must decide whether to make or buy some of its components from Solectron Corp. The cost of producing 50,000 electrical connectors for its printers is $110,000, broken down as follows.

Direct materials	$60,000	Variable manufacturing overhead	$12,000
Direct labor	$30,000	Fixed manufacturing overhead	$ 8,000

Instead of making the electrical connectors at an average cost per unit of $2.20 ($110,000 ÷ 50,000), HP has an opportunity to buy the connectors at $2.15 per unit. If the connectors are purchased, all variable costs and one-half of the fixed costs will be eliminated.

Instructions

(a) Prepare an incremental analysis showing whether HP should make or buy the electrical connectors.

(b) Will your answer be different if the released productive capacity resulting from the purchase of the connectors will generate additional income of $25,000?

Solution

(a)

	Make	Buy	Net Income Increase (Decrease)
Direct materials	$ 60,000	$ –0–	$ 60,000
Direct labor	30,000	–0–	30,000
Variable manufacturing costs	12,000	–0–	12,000
Fixed manufacturing costs	8,000	4,000*	4,000
Purchase price	–0–	107,500**	(107,500)
Total cost	$110,000	$111,500	$ (1,500)

*$8,000 × .50; **$2.15 × 50,000

This analysis indicates that HP will incur $1,500 of additional costs if it buys the electrical connectors. HP therefore would choose to make the connectors.

(b)

	Make	Buy	Net Income Increase (Decrease)
Total cost	$110,000	$111,500	$ (1,500)
Opportunity cost	25,000	–0–	25,000
Total cost	$135,000	$111,500	$23,500

Yes, the answer is different. The analysis shows that if additional capacity is released, net income will be increased by $23,500 if the electrical connectors are purchased. In this case, HP would choose to purchase the connectors.

✔ The Navigator

SUMMARY OF LEARNING OBJECTIVES

✔ The Navigator

1 **Identify the steps in management's decision-making process.** Management's decision-making process consists of (a) identifying the problem and assigning responsibility for the decision, (b) determining and evaluating possible courses of action, (c) making the decision, and (d) reviewing the results of the decision.

2 **Describe the concept of incremental analysis.** Incremental analysis identifies financial data that change under alternative courses of action. These data are relevant to the decision because they will vary in the future among the possible alternatives.

3 **Identify the relevant costs in accepting an order at a special price.** The relevant costs are those that change if the order is accepted. The relevant information in accepting an order at a special price is the difference between the variable manufacturing costs to produce the special order and expected revenues. Any changes in fixed costs, opportunity cost, or other incremental costs or savings (such as additional shipping) should be considered.

4 **Identify the relevant costs in a make-or-buy decision.** In a make-or-buy decision, the relevant costs are (a) the

variable manufacturing costs that will be saved as well as changes to fixed manufacturing costs, (b) the purchase price, and (c) opportunity cost.

5 **Identify the relevant costs in determining whether to sell or process materials further.** The decision rule for whether to sell or process materials further is: Process further as long as the incremental revenue from processing exceeds the incremental processing costs.

6 **Identify the relevant costs to be considered in repairing, retaining, or replacing equipment.** The relevant costs to be considered in determining whether equipment should be repaired, retained, or replaced are the effects on variable costs and the cost of the new equipment. Also, any disposal value of the existing asset must be considered.

7 **Identify the relevant costs in deciding whether to eliminate an unprofitable segment or product.** In deciding whether to eliminate an unprofitable segment or product, the relevant costs are the variable costs that drive the contribution margin, if any, produced by the segment or product. Disposition of the segment's or the product's fixed expenses and opportunity cost must also be considered.

DECISION TOOLKIT A SUMMARY

DECISION CHECKPOINTS	INFO NEEDED FOR DECISION	TOOL TO USE FOR DECISION	HOW TO EVALUATE RESULTS
Which alternative should the company choose?	All relevant costs including opportunity cost	Compare the relevant cost of each alternative	Choose the alternative that maximizes net income.

GLOSSARY

Incremental analysis The process of identifying the financial data that change under alternative courses of action. (p. 294).

Joint costs For joint products, all costs incurred prior to the point at which the two products are separately identifiable (known as the *split-off point*). (p. 302).

Joint products Multiple end-products produced from a single raw material and a common production process. (p. 302).

Opportunity cost The potential benefit that is lost when one course of action is chosen rather than an alternative course of action. (p. 295).

Relevant costs Those costs and revenues that differ across alternatives. (p. 295).

Sunk cost A cost that cannot be changed or avoided by any present or future decision. (p. 295).

> Comprehensive DO IT!

Walston Company produces kitchen cabinets for homebuilders across the western United States. The cost of producing 5,000 cabinets is as follows.

Materials	$ 500,000
Labor	250,000
Variable overhead	100,000
Fixed overhead	400,000
Total	$1,250,000

Walston also incurs selling expenses of $20 per cabinet. Wellington Corp. has offered Walston $165 per cabinet for a special order of 1,000 cabinets. The cabinets would be sold to homebuilders in the eastern United States and thus would not conflict with Walston's current sales. Selling expenses per cabinet would be only $5 per cabinet. Walston has available capacity to do the work.

Instructions

(a) Prepare an incremental analysis for the special order.

(b) Should Walston accept the special order? Why or why not?

Action Plan

- ✔ Determine the relevant cost per unit of the special order.
- ✔ Identify the relevant costs and revenues for the units to be produced.
- ✔ Compare the results related to accepting the special order versus rejecting the special order.

Solution to Comprehensive DO IT!

(a) Relevant costs per unit would be:

Materials	$500,000/5,000 =	$100
Labor	250,000/5,000 =	50
Variable overhead	100,000/5,000 =	20
Selling expenses		5
Total relevant cost per unit		$175

	Reject Order	Accept Order	Net Income Increase (Decrease)
Revenues	$0	$165,000	$165,000
Costs	0	175,000	(175,000)
Net income	$0	$ (10,000)	$ (10,000)

(b) Walston should reject the offer. The incremental benefit of $165 per cabinet is less than the incremental cost of $175. By accepting the order, Walston's net income would actually decline by $10,000.

✔ The Navigator

WILEY PLUS Self-Test, Brief Exercises, Exercises, Problem Set A, and many more resources are available for practice in WileyPLUS.

SELF-TEST QUESTIONS

Answers are at the end of the chapter.

(LO 1) **1.** Three of the steps in management's decision-making process are (1) review results of decision, (2) determine and evaluate possible courses of action, and (3) make the decision. The steps are prepared in the following order:
(a) (1), (2), (3). (c) (2), (1), (3).
(b) (3), (2), (1). (d) (2), (3), (1).

(LO 2) **2.** Incremental analysis is the process of identifying the financial data that:
(a) do not change under alternative courses of action.
(b) change under alternative courses of action.
(c) are mixed under alternative courses of action.
(d) No correct answer is given.

(LO1, 2) **3.** In making business decisions, management ordinarily considers:
(a) quantitative factors but not qualitative factors.
(b) financial information only.
(c) both financial and nonfinancial information.
(d) relevant costs, opportunity cost, and sunk costs.

(LO 2) **4.** A company is considering the following alternatives:

	Alternative A	Alternative B
Revenues	$50,000	$50,000
Variable costs	24,000	24,000
Fixed costs	12,000	15,000

Which of the following are relevant in choosing between these alternatives?
(a) Revenues, variable costs, and fixed costs.
(b) Variable costs and fixed costs.
(c) Variable costs only.
(d) Fixed costs only.

(LO 3) **5.** It costs a company $14 of variable costs and $6 of fixed costs to produce product Z200 that sells for $30. A foreign buyer offers to purchase 3,000 units at $18 each. If the special offer is accepted and produced with unused capacity, net income will:
(a) decrease $6,000. (c) increase $12,000.
(b) increase $6,000. (d) increase $9,000.

(LO 3) **6.** It costs a company $14 of variable costs and $6 of fixed costs to produce product Z200. Product Z200 sells for $30. A buyer offers to purchase 3,000 units at $18 each. The seller will incur special shipping costs of $5 per unit. If the special offer is accepted and produced with unused capacity, net income will:
(a) increase $3,000. (c) decrease $12,000.
(b) increase $12,000. (d) decrease $3,000.

(LO 3) **7.** Jobart Company is currently operating at full capacity. It is considering buying a part from an outside supplier rather than making it in-house. If Jobart purchases the part, it can use the released productive capacity to generate additional income of $30,000 from producing a different product. When conducting incremental analysis in this make-or-buy decision, the company should:
(a) ignore the $30,000.
(b) add $30,000 to other costs in the "Make" column.

(c) add $30,000 to other costs in the "Buy" column.
(d) subtract $30,000 from the other costs in the "Make" column.

(LO 4) **8.** In a make-or-buy decision, relevant costs are:
(a) manufacturing costs that will be saved.
(b) the purchase price of the units.
(c) the opportunity cost.
(d) All of the above.

(LO 4) **9.** Derek is performing incremental analysis in a make-or-buy decision for Item X. If Derek buys Item X, he can use its released productive capacity to produce Item Z. Derek will sell Item Z for $12,000 and incur production costs of $8,000. Derek's incremental analysis should include an opportunity cost of:
(a) $12,000. (c) $4,000.
(b) $8,000. (d) $0.

(LO 5) **10.** The decision rule in a sell-or-process-further decision is: process further as long as the incremental revenue from processing exceeds:
(a) incremental processing costs.
(b) variable processing costs.
(c) fixed processing costs.
(d) No correct answer is given.

(LO 5) **11.** Walton, Inc. makes an unassembled product that it currently sells for $55. Production costs are $20. Walton is considering assembling the product and selling it for $68. The cost to assemble the product is estimated at $12. What decision should Walton make?
(a) Sell before assembly; net income per unit will be $12 greater.
(b) Sell before assembly; net income per unit will be $1 greater.
(c) Process further; net income per unit will be $13 greater.
(d) Process further; net income per unit will be $1 greater.

(LO 6) **12.** In a decision to retain or replace equipment, the book value of the old equipment is a (an):
(a) opportunity cost. (c) incremental cost.
(b) sunk cost. (d) marginal cost.

(LO 7) **13.** If an unprofitable segment is eliminated:
(a) net income will always increase.
(b) variable expenses of the eliminated segment will have to be absorbed by other segments.
(c) fixed expenses allocated to the eliminated segment will have to be absorbed by other segments.
(d) net income will always decrease.

(LO 7) **14.** A segment of Hazard Inc. has the following data.

Sales	$200,000
Variable expenses	140,000
Fixed expenses	100,000

If this segment is eliminated, what will be the effect on the remaining company? Assume that 50% of the fixed expenses will be eliminated and the rest will be allocated to the segments of the remaining company.
(a) $120,000 increase. (c) $50,000 increase.
(b) $10,000 decrease. (d) $10,000 increase.

Go to the book's companion website, www.wiley.com/college/weygandt, for additional Self-Test Questions.

The Navigator

QUESTIONS

1. What steps are frequently involved in management's decision-making process?
2. Your roommate, Anna Polis, contends that accounting contributes to most of the steps in management's decision-making process. Is your roommate correct? Explain.
3. "Incremental analysis involves the accumulation of information concerning a single course of action." Do you agree? Why?
4. Sydney Greene asks for your help concerning the relevance of variable and fixed costs in incremental analysis. Help Sydney with her problem.
5. What data are relevant in deciding whether to accept an order at a special price?
6. Emil Corporation has an opportunity to buy parts at $9 each that currently cost $12 to make. What manufacturing costs are relevant to this make-or-buy decision?
7. Define the term "opportunity cost." How may this cost be relevant in a make-or-buy decision?
8. What is the decision rule in deciding whether to sell a product or process it further?
9. What are joint products? What accounting issue results from the production process that creates joint products?
10. How are allocated joint costs treated when making a sell-or-process-further decision?
11. Your roommate, Gale Dunham, is confused about sunk costs. Explain to your roommate the meaning of sunk costs and their relevance to a decision to retain or replace equipment.
12. Huang Inc. has one product line that is unprofitable. What circumstances may cause overall company net income to be lower if the unprofitable product line is eliminated?

BRIEF EXERCISES

BE7-1 The steps in management's decision-making process are listed in random order below. Indicate the order in which the steps should be executed.

Identify the steps in management's decision-making process.

(LO 1), AP

_____ Make a decision
_____ Review results of the decision
_____ Identify the problem and assign responsibility
_____ Determine and evaluate possible courses of action

BE7-2 Bogart Company is considering two alternatives. Alternative A will have revenues of $160,000 and costs of $100,000. Alternative B will have revenues of $180,000 and costs of $125,000. Compare Alternative A to Alternative B showing incremental revenues, costs, and net income.

Determine incremental changes.

(LO 2), AP

BE7-3 At Jaymes Company, it costs $30 per unit ($20 variable and $10 fixed) to make a product at full capacity that normally sells for $45. A foreign wholesaler offers to buy 3,000 units at $25 each. Jaymes will incur special shipping costs of $2 per unit. Assuming that Jaymes has excess operating capacity, indicate the net income (loss) Jaymes would realize by accepting the special order.

Determine whether to accept a special order.

(LO 3), AP

BE7-4 Manson Industries incurs unit costs of $8 ($5 variable and $3 fixed) in making a subassembly part for its finished product. A supplier offers to make 10,000 of the assembly part at $6 per unit. If the offer is accepted, Manson will save all variable costs but no fixed costs. Prepare an analysis showing the total cost saving, if any, Manson will realize by buying the part.

Determine whether to make or buy a part.

(LO 4), AP

BE7-5 Chudrick Inc. makes unfinished bookcases that it sells for $62. Production costs are $36 variable and $10 fixed. Because it has unused capacity, Chudrick is considering finishing the bookcases and selling them for $70. Variable finishing costs are expected to be $7 per unit with no increase in fixed costs. Prepare an analysis on a per unit basis showing whether Chudrick should sell unfinished or finished bookcases.

Determine whether to sell or process further.

(LO 5), AP

BE7-6 Each day, Adama Corporation processes 1 ton of a secret raw material into two resulting products, AB1 and XY1. When it processes 1 ton of the raw material, the company incurs joint processing costs of $60,000. It allocates $25,000 of these costs to AB1 and $35,000 of these costs to XY1. The resulting AB1 can be sold for $100,000. Alternatively, it can be processed further to make AB2 at an additional processing cost of $45,000, and sold for $150,000. Each day's batch of XY1 can be sold for $95,000. Alternatively, it can be processed further to create XY2, at an additional processing cost of $50,000, and sold for $130,000. Discuss what products Adama Corporation should make.

Determine whether to sell or process further, joint products.

(LO 5), AP

BE7-7 Kobe Company has a factory machine with a book value of $90,000 and a remaining useful life of 5 years. It can be sold for $30,000. A new machine is available at a cost of $300,000. This machine will have a 5-year useful life with no salvage value. The new machine will lower annual variable manufacturing costs from $600,000 to $500,000. Prepare an analysis showing whether the old machine should be retained or replaced.

Determine whether to retain or replace equipment.

(LO 6), AP

BE7-8 Lisah, Inc., manufactures golf clubs in three models. For the year, the Big Bart line has a net loss of $10,000 from sales $200,000, variable costs $180,000, and fixed costs $30,000. If the Big Bart line is eliminated, $20,000 of fixed costs will remain. Prepare an analysis showing whether the Big Bart line should be eliminated.

Determine whether to eliminate an unprofitable segment.

(LO 7), AP

> DO IT! REVIEW

DO IT! 7-1 Maize Company incurs a cost of $35 per unit, of which $20 is variable, to make a product that normally sells for $58. A foreign wholesaler offers to buy 6,000 units at $30 each. Maize will incur additional costs of $3 per unit to imprint a logo and to pay for shipping. Compute the increase or decrease in net income Maize will realize by accepting the special order, assuming Maize has sufficient excess operating capacity. Should Maize Company accept the special order?

Evaluate special order.

(LO 3), AN

Evaluate make-or-buy opportunity.
(LO 4), AN

DO IT! 7-2 Rubble Company must decide whether to make or buy some of its components. The costs of producing 60,000 switches for its generators are as follows.

Direct materials	$30,000	Variable overhead	$45,000
Direct labor	$42,000	Fixed overhead	$60,000

Instead of making the switches at an average cost of $2.95 ($177,000 ÷ 60,000), the company has an opportunity to buy the switches at $2.70 per unit. If the company purchases the switches, all the variable costs and one-fourth of the fixed costs will be eliminated.

(a) Prepare an incremental analysis showing whether the company should make or buy the switches. (b) Would your answer be different if the released productive capacity will generate additional income of $34,000?

Sell or process further.
(LO 5), AP

DO IT! 7-3 Mesa Verde manufactures unpainted furniture for the do-it-yourself (DIY) market. It currently sells a table for $75. Production costs are $40 variable and $10 fixed. Mesa Verde is considering staining and sealing the table to sell it for $100. Variable costs to finish each table are expected to be $17, and fixed costs are expected to be $3.

Prepare an analysis showing whether Mesa Verde should sell unpainted or finished tables.

Analyze whether to eliminate unprofitable segment.
(LO 7), AP

DO IT! 7-4 Gator Corporation manufactures several types of accessories. For the year, the gloves and mittens line had sales of $500,000, variable expenses of $370,000, and fixed expenses of $150,000. Therefore, the gloves and mittens line had a net loss of $20,000. If Gator eliminates the line, $38,000 of fixed costs will remain.

Prepare an analysis showing whether the company should eliminate the gloves and mittens line.

✔ The Navigator

EXERCISES

Analyze statements about decision-making and incremental analysis.
(LO 1, 2), C

E7-1 Ortega has prepared the following list of statements about decision-making and incremental analysis.

1. The first step in management's decision-making process is, "Determine and evaluate possible courses of action."
2. The final step in management's decision-making process is to actually make the decision.
3. Accounting's contribution to management's decision-making process occurs primarily in evaluating possible courses of action and in reviewing the results.
4. In making business decisions, management ordinarily considers only financial information because it is objectively determined.
5. Decisions involve a choice among alternative courses of action.
6. The process used to identify the financial data that change under alternative courses of action is called incremental analysis.
7. Costs that are the same under all alternative courses of action sometimes affect the decision.
8. When using incremental analysis, some costs will always change under alternative courses of action, but revenues will not.
9. Variable costs will change under alternative courses of action, but fixed costs will not.

Instructions

Identify each statement as true or false. If false, indicate how to correct the statement.

Use incremental analysis for special-order decision.
(LO 3), AN

E7-2 Gruden Company produces golf discs which it normally sells to retailers for $7 each. The cost of manufacturing 20,000 golf discs is:

Materials	$ 10,000
Labor	30,000
Variable overhead	20,000
Fixed overhead	40,000
Total	$100,000

Gruden also incurs 5% sales commission ($0.35) on each disc sold.

McGee Corporation offers Gruden $4.80 per disc for 5,000 discs. McGee would sell the discs under its own brand name in foreign markets not yet served by Gruden. If Gruden accepts the offer, its fixed overhead will increase from $40,000 to $46,000 due to the purchase of a new imprinting machine. No sales commission will result from the special order.

Instructions

(a) Prepare an incremental analysis for the special order.
(b) Should Gruden accept the special order? Why or why not?
(c) What assumptions underlie the decision made in part (b)?

E7-3 Leno Company manufactures toasters. For the first 8 months of 2014, the company reported the following operating results while operating at 75% of plant capacity:

Use incremental analysis for special order.

(LO 3), AN

Sales (350,000 units)	$4,375,000
Cost of goods sold	2,600,000
Gross profit	1,775,000
Operating expenses	840,000
Net income	$ 935,000

Cost of goods sold was 70% variable and 30% fixed; operating expenses were 75% variable and 25% fixed.

In September, Leno Company receives a special order for 15,000 toasters at $7.60 each from Centro Company of Ciudad Juarez. Acceptance of the order would result in an additional $3,000 of shipping costs but no increase in fixed operating expenses.

Instructions

(a) Prepare an incremental analysis for the special order.
(b) Should Leno Company accept the special order? Why or why not?

E7-4 Klean Fiber Company is the creator of Y-Go, a technology that weaves silver into its fabrics to kill bacteria and odor on clothing while managing heat. Y-Go has become very popular as an undergarment for sports activities. Operating at capacity, the company can produce 1,000,000 undergarments of Y-Go a year. The per unit and the total costs for an individual garment when the company operates at full capacity are as follows.

Use incremental analysis for special order.

(LO 3), AN

	Per Undergarment	Total
Direct materials	$2.00	$2,000,000
Direct labor	0.75	750,000
Variable manufacturing overhead	1.00	1,000,000
Fixed manufacturing overhead	1.50	1,500,000
Variable selling expenses	0.25	250,000
Totals	$5.50	$5,500,000

The U.S. Army has approached Klean Fiber and expressed an interest in purchasing 250,000 Y-Go undergarments for soldiers in extremely warm climates. The Army would pay the unit cost for direct materials, direct labor, and variable manufacturing overhead costs. In addition, the Army has agreed to pay an additional $1 per undergarment to cover all other costs and provide a profit. Presently, Klean Fiber is operating at 70% capacity and does not have any other potential buyers for Y-Go. If Klean Fiber accepts the Army's offer, it will not incur any variable selling expenses related to this order.

Instructions

Using incremental analysis, determine whether Klean Fiber should accept the Army's offer.

E7-5 Schopp Inc. has been manufacturing its own shades for its table lamps. The company is currently operating at 100% of capacity, and variable manufacturing overhead is charged to production at the rate of 70% of direct labor cost. The direct materials and direct labor cost per unit to make the lamp shades are $4 and $5, respectively. Normal production is 30,000 table lamps per year.

Use incremental analysis for make-or-buy decision.

(LO 4), AN

A supplier offers to make the lamp shades at a price of $12.75 per unit. If Schopp Inc. accepts the supplier's offer, all variable manufacturing costs will be eliminated, but the $45,000 of fixed manufacturing overhead currently being charged to the lamp shades will have to be absorbed by other products.

Instructions

(a) Prepare the incremental analysis for the decision to make or buy the lamp shades.
(b) Should Schopp Inc. buy the lamp shades?
(c) Would your answer be different in (b) if the productive capacity released by not making the lamp shades could be used to produce income of $25,000?

Use incremental analysis for make-or-buy decision.

(LO 4), E

E7-6 Jobs, Inc. has recently started the manufacture of Tri-Robo, a three-wheeled robot that can scan a home for fires and gas leaks and then transmit this information to a mobile phone. The cost structure to manufacture 20,000 Tri-Robos is as follows.

	Cost
Direct materials ($50 per robot)	$1,000,000
Direct labor ($40 per robot)	800,000
Variable overhead ($6 per robot)	120,000
Allocated fixed overhead ($30 per robot)	600,000
Total	$2,520,000

Jobs is approached by Tienh Inc., which offers to make Tri-Robo for $115 per unit or $2,300,000.

Instructions

(a) Using incremental analysis, determine whether Jobs should accept this offer under each of the following independent assumptions.
  (1) Assume that $405,000 of the fixed overhead cost can be reduced (avoided).
  (2) Assume that none of the fixed overhead can be reduced (avoided). However, if the robots are purchased from Tienh Inc., Jobs can use the released productive resources to generate additional income of $405,000.
(b) Describe the qualitative factors that might affect the decision to purchase the robots from an outside supplier.

Prepare incremental analysis for make-or-buy decision.

(LO 4), E

E7-7 Gibbs Company purchases sails and produces sailboats. It currently produces 1,200 sailboats per year, operating at normal capacity, which is about 80% of full capacity. Gibbs purchases sails at $250 each, but the company is considering using the excess capacity to manufacture the sails instead. The manufacturing cost per sail would be $100 for direct materials, $80 for direct labor, and $100 for overhead. The $100 overhead is based on $78,000 of annual fixed overhead that is allocated using normal capacity.

The president of Gibbs has come to you for advice. "It would cost me $280 to make the sails," she says, "but only $250 to buy them. Should I continue buying them, or have I missed something?"

Instructions

(a) Prepare a per unit analysis of the differential costs. Briefly explain whether Gibbs should make or buy the sails.
(b) If Gibbs suddenly finds an opportunity to rent out the unused capacity of its factory for $77,000 per year, would your answer to part (a) change? Briefly explain.
(c) Identify three qualitative factors that should be considered by Gibbs in this make-or-buy decision.

(CGA adapted)

Prepare incremental analysis concerning make-or-buy decision.

(LO 4), E

E7-8 Innova uses 1,000 units of the component IMC2 every month to manufacture one of its products. The unit costs incurred to manufacture the component are as follows.

Direct materials	$ 65.00
Direct labor	45.00
Overhead	126.50
Total	$236.50

Overhead costs include variable material handling costs of $6.50, which are applied to products on the basis of direct material costs. The remainder of the overhead costs are applied on the basis of direct labor dollars and consist of 60% variable costs and 40% fixed costs.

A vendor has offered to supply the IMC2 component at a price of $200 per unit.

Instructions

(a) Should Innova purchase the component from the outside vendor if Innova's capacity remains idle?

(b) Should Innova purchase the component from the outside vendor if it can use its facilities to manufacture another product? What information will Innova need to make an accurate decision? Show your calculations.

(c) What are the qualitative factors that Innova will have to consider when making this decision?

(CGA adapted)

Use incremental analysis for further processing of materials decision.

(LO 5), AN

E7-9 Rachel Rey recently opened her own basketweaving studio. She sells finished baskets in addition to the raw materials needed by customers to weave baskets of their own. Rachel has put together a variety of raw material kits, each including materials at various stages of completion. Unfortunately, owing to space limitations, Rachel is unable to carry all varieties of kits originally assembled and must choose between two basic packages.

The basic introductory kit includes undyed, uncut reeds (with dye included) for weaving one basket. This basic package costs Rachel $14 and sells for $30. The second kit, called Stage 2, includes cut reeds that have already been dyed. With this kit the customer need only soak the reeds and weave the basket. Rachel is able to produce the second kit by using the basic materials included in the first kit and adding one hour of her own time, which she values at $18 per hour. Because she is more efficient at cutting and dying reeds than her average customer, Rachel is able to make two kits of the dyed reeds, in one hour, from one kit of undyed reeds. The Stage 2 kit sells for $35.

Instructions

Determine whether Rachel's basketweaving shop should carry the basic introductory kit with undyed and uncut reeds or the Stage 2 kit with reeds already dyed and cut. Prepare an incremental analysis to support your answer.

Determine whether to sell or process further, joint products.

(LO 5), AN

E7-10 Stahl Inc. produces three separate products from a common process costing $100,000. Each of the products can be sold at the split-off point or can be processed further and then sold for a higher price. Shown below are cost and selling price data for a recent period.

	Sales Value at Split-Off Point	Cost to Process Further	Sales Value after Further Processing
Product 10	$60,000	$100,000	$190,000
Product 12	15,000	30,000	35,000
Product 14	55,000	150,000	215,000

Instructions

(a) Determine total net income if all products are sold at the split-off point.

(b) Determine total net income if all products are sold after further processing.

(c) Using incremental analysis, determine which products should be sold at the split-off point and which should be processed further.

(d) Determine total net income using the results from (c) and explain why the net income is different from that determined in (b).

Determine whether to sell or process further, joint products.

(LO 5), AN

E7-11 Chen Minerals processes materials extracted from mines. The most common raw material that it processes results in three joint products: Larco, Marco, and Narco. Each of these products can be sold as is, or each can be processed further and sold for a higher price. The company incurs joint costs of $180,000 to process one batch of the raw material that produces the three joint products. The following cost and sales information is available for one batch of each product.

	Sales Value at Split-Off Point	Allocated Joint Costs	Cost to Process Further	Sales Value of Processed Product
Larco	$200,000	$40,000	$110,000	$300,000
Marco	300,000	60,000	85,000	400,000
Narco	405,000	80,000	250,000	800,000

Instructions

Determine whether each of the three joint products should be sold as is, or processed further.

Prepare incremental analysis for whether to sell or process materials further.

(LO 5), E

E7-12 A company manufactures three products using the same production process. The costs incurred up to the split-off point are $200,000. These costs are allocated to the products on the basis of their sales value at the split-off point. The number of units produced, the selling prices per unit of the three products at the split-off point and after further processing, and the additional processing costs are as follows.

Product	Number of Units Produced	Selling Price at Split-Off	Selling Price after Processing	Additional Processing Costs
D	4,000	$10.00	$15.00	$14,000
E	6,000	11.60	16.20	20,000
F	2,000	19.40	22.60	9,000

Instructions

(a) Which information is relevant to the decision on whether or not to process the products further? Explain why this information is relevant.

(b) Which product(s) should be processed further and which should be sold at the split-off point?

(c) Would your decision be different if the company was using the quantity of output to allocate joint costs? Explain.

(CGA adapted)

Use incremental analysis for retaining or replacing equipment decision.

(LO 6), E

E7-13 On January 2, 2013, Benson Hospital purchased a $100,000 special radiology scanner from Picard Inc. The scanner had a useful life of 4 years and was estimated to have no disposal value at the end of its useful life. The straight-line method of depreciation is used on this scanner. Annual operating costs with this scanner are $105,000.

Approximately one year later, the hospital is approached by Dyno Technology salesperson, Meg Ryan, who indicated that purchasing the scanner in 2013 from Picard Inc. was a mistake. She points out that Dyno has a scanner that will save Benson Hospital $30,000 a year in operating expenses over its 3-year useful life. She notes that the new scanner will cost $110,000 and has the same capabilities as the scanner purchased last year. The hospital agrees that both scanners are of equal quality. The new scanner will have no disposal value. Ryan agrees to buy the old scanner from Benson Hospital for $40,000.

Instructions

(a) If Benson Hospital sells its old scanner on January 2, 2014, compute the gain or loss on the sale.

(b) Using incremental analysis, determine if Benson Hospital should purchase the new scanner on January 2, 2014.

(c) Explain why Benson Hospital might be reluctant to purchase the new scanner, regardless of the results indicated by the incremental analysis in (b).

Use incremental analysis for retaining or replacing equipment decision.

(LO 6), AN

E7-14 Johnson Enterprises uses a computer to handle its sales invoices. Lately, business has been so good that it takes an extra 3 hours per night, plus every third Saturday, to keep up with the volume of sales invoices. Management is considering updating its computer with a faster model that would eliminate all of the overtime processing.

	Current Machine	New Machine
Original purchase cost	$15,000	$25,000
Accumulated depreciation	$ 6,000	—
Estimated annual operating costs	$25,000	$20,000
Useful life	5 years	5 years

If sold now, the current machine would have a salvage value of $6,000. If operated for the remainder of its useful life, the current machine would have zero salvage value. The new machine is expected to have zero salvage value after 5 years.

Instructions

Should the current machine be replaced?

Use incremental analysis concerning elimination of division.

(LO 7), AN

E7-15 Judy Jean, a recent graduate of Rolling's accounting program, evaluated the operating performance of Artie Company's six divisions. Judy made the following presentation to Artie's board of directors and suggested the Huron Division be eliminated. "If the Huron Division is eliminated," she said, "our total profits would increase by $26,000."

	The Other Five Divisions	Huron Division	Total
Sales	$1,664,200	$100,000	$1,764,200
Cost of goods sold	978,520	76,000	1,054,520
Gross profit	685,680	24,000	709,680
Operating expenses	527,940	50,000	577,940
Net income	$ 157,740	$ (26,000)	$ 131,740

In the Huron Division, cost of goods sold is $61,000 variable and $15,000 fixed, and operating expenses are $26,000 variable and $24,000 fixed. None of the Huron Division's fixed costs will be eliminated if the division is discontinued.

Instructions

Is Judy right about eliminating the Huron Division? Prepare a schedule to support your answer.

E7-16 Cawley Company makes three models of tasers. Information on the three products is given below.

Use incremental analysis for elimination of a product line.

(LO 7), AN

	Tingler	Shocker	Stunner
Sales	$300,000	$500,000	$200,000
Variable expenses	150,000	200,000	145,000
Contribution margin	150,000	300,000	55,000
Fixed expenses	120,000	230,000	95,000
Net income	$ 30,000	$ 70,000	$ (40,000)

Fixed expenses consist of $300,000 of common costs allocated to the three products based on relative sales, and additional fixed expenses of $30,000 (Tingler), $80,000 (Shocker), and $35,000 (Stunner). The common costs will be incurred regardless of how many models are produced. The other fixed expenses would be eliminated if a model is phased out.

James Watt, an executive with the company, feels the Stunner line should be discontinued to increase the company's net income.

Instructions

(a) Compute current net income for Cawley Company.
(b) Compute net income by product line and in total for Cawley Company if the company discontinues the Stunner product line. (*Hint:* Allocate the $300,000 common costs to the two remaining product lines based on their relative sales.)
(c) Should Cawley eliminate the Stunner product line? Why or why not?

E7-17 Twyla Company operates a small factory in which it manufactures two products: C and D. Production and sales results for last year were as follows.

Prepare incremental analysis concerning keeping or dropping a product to maximize operating income.

(LO 2, 7), AN

	C	D
Units sold	9,000	20,000
Selling price per unit	$95	$75
Variable cost per unit	50	40
Fixed cost per unit	22	22

For purposes of simplicity, the firm averages total fixed costs over the total number of units of C and D produced and sold.

The research department has developed a new product (E) as a replacement for product D. Market studies show that Twyla Company could sell 10,000 units of E next year at a price of $115; the variable cost per unit of E is $40. The introduction of product E will lead to a 10% increase in demand for product C and discontinuation of product D. If the company does not introduce the new product, it expects next year's results to be the same as last year's.

Instructions

Should Twyla Company introduce product E next year? Explain why or why not. Show calculations to support your decision.

(CMA-Canada adapted)

Identify relevant costs for different decisions.

(LO 3, 4, 5, 6, 7), C

E7-18 The costs listed below relate to a variety of different decision situations.

Cost	Decision
1. Unavoidable fixed overhead	Eliminate an unprofitable segment
2. Direct labor	Make or buy
3. Original cost of old equipment	Equipment replacement
4. Joint production costs	Sell or process further
5. Opportunity cost	Accepting a special order
6. Segment manager's salary	Eliminate an unprofitable segment (manager will be terminated)
7. Cost of new equipment	Equipment replacement
8. Incremental production costs	Sell or process further
9. Direct materials	Equipment replacement (the amount of materials required does not change)
10. Rent expense	Purchase or lease a building

Instructions

For each cost listed above, indicate if it is relevant or not to the related decision. For those costs determined to be irrelevant, briefly explain why.

EXERCISES: SET B AND CHALLENGE EXERCISES

Visit the book's companion website, at **www.wiley.com/college/weygandt**, and choose the Student Companion site to access Exercise Set B and Challenge Exercises.

PROBLEMS: SET A

Use incremental analysis for special order and identify nonfinancial factors in the decision.

(LO 3), E

P7-1A ShurShot Sports Inc. manufactures basketballs for the National Basketball Association (NBA). For the first 6 months of 2014, the company reported the following operating results while operating at 80% of plant capacity and producing 120,000 units.

	Amount
Sales	$4,800,000
Cost of goods sold	3,600,000
Selling and administrative expenses	405,000
Net income	$ 795,000

Fixed costs for the period were cost of goods sold $960,000, and selling and administrative expenses $225,000.

In July, normally a slack manufacturing month, ShurShot Sports receives a special order for 10,000 basketballs at $27 each from the Greek Basketball Association (GBA). Acceptance of the order would increase variable selling and administrative expenses $0.50 per unit because of shipping costs but would not increase fixed costs and expenses.

Instructions

(a) NI increase $30,000

(a) Prepare an incremental analysis for the special order.
(b) Should ShurShot Sports Inc. accept the special order? Explain your answer.
(c) What is the minimum selling price on the special order to produce net income of $4.00 per ball?
(d) What nonfinancial factors should management consider in making its decision?

Use incremental analysis related to make or buy, consider opportunity cost, and identify nonfinancial factors.

(LO 4), E

P7-2A The management of Shatner Manufacturing Company is trying to decide whether to continue manufacturing a part or to buy it from an outside supplier. The part, called CISCO, is a component of the company's finished product.

The following information was collected from the accounting records and production data for the year ending December 31, 2014.

1. 8,000 units of CISCO were produced in the Machining Department.
2. Variable manufacturing costs applicable to the production of each CISCO unit were: direct materials $4.80, direct labor $4.30, indirect labor $0.43, utilities $0.40.
3. Fixed manufacturing costs applicable to the production of CISCO were:

Cost Item	Direct	Allocated
Depreciation	$2,100	$ 900
Property taxes	500	200
Insurance	900	600
	$3,500	$1,700

   All variable manufacturing and direct fixed costs will be eliminated if CISCO is purchased. Allocated costs will have to be absorbed by other production departments.
4. The lowest quotation for 8,000 CISCO units from a supplier is $80,000.
5. If CISCO units are purchased, freight and inspection costs would be $0.35 per unit, and receiving costs totaling $1,300 per year would be incurred by the Machining Department.

Instructions

(a) Prepare an incremental analysis for CISCO. Your analysis should have columns for (1) Make CISCO, (2) Buy CISCO, and (3) Net Income Increase/(Decrease). (a) NI (decrease) $(1,160)

(b) Based on your analysis, what decision should management make?

(c) Would the decision be different if Shatner Company has the opportunity to produce $3,000 of net income with the facilities currently being used to manufacture CISCO? Show computations. (c) NI increase $1,840

(d) What nonfinancial factors should management consider in making its decision?

P7-3A Sutton Industrial Products Inc. (SIPI) is a diversified industrial-cleaner processing company. The company's Verde plant produces two products: a table cleaner and a floor cleaner from a common set of chemical inputs (CDG). Each week 900,000 ounces of chemical input are processed at a cost of $210,000 into 600,000 ounces of floor cleaner and 300,000 ounces of table cleaner. The floor cleaner has no market value until it is converted into a polish with the trade name FloorShine. The additional processing costs for this conversion amount to $240,000.

Determine if product should be sold or processed further.

(LO 5), AN

FloorShine sells at $20 per 30-ounce bottle. The table cleaner can be sold for $18 per 25-ounce bottle. However, the table cleaner can be converted into two other products by adding 300,000 ounces of another compound (TCP) to the 300,000 ounces of table cleaner. This joint process will yield 300,000 ounces each of table stain remover (TSR) and table polish (TP). The additional processing costs for this process amount to $100,000. Both table products can be sold for $14 per 25-ounce bottle.

The company decided not to process the table cleaner into TSR and TP based on the following analysis.

		Process Further		
	Table Cleaner	Table Stain Remover (TSR)	Table Polish (TP)	Total
Production in ounces	300,000	300,000	300,000	
Revenue	$216,000	$168,000	$168,000	$336,000
Costs:				
CDG costs	70,000*	52,500	52,500	105,000**
TCP costs	0	50,000	50,000	100,000
Total costs	70,000	102,500	102,500	205,000
Weekly gross profit	$146,000	$ 65,500	$ 65,500	$131,000

*If table cleaner is not processed further, it is allocated 1/3 of the $210,000 of CDG cost, which is equal to 1/3 of the total physical output.

**If table cleaner is processed further, total physical output is 1,200,000 ounces. TSR and TP combined account for 50% of the total physical output and are each allocated 25% of the CDG cost.

Instructions

(a) Determine if management made the correct decision to not process the table cleaner further by doing the following.
  (1) Calculate the company's total weekly gross profit assuming the table cleaner is not processed further.
(2) Gross profit $186,000
  (2) Calculate the company's total weekly gross profit assuming the table cleaner is processed further.
  (3) Compare the resulting net incomes and comment on management's decision.
(b) Using incremental analysis, determine if the table cleaner should be processed further.

(CMA adapted)

Compute gain or loss, and determine if equipment should be replaced.

(LO 6), S

P7-4A Last year (2013), Richter Condos installed a mechanized elevator for its tenants. The owner of the company, Ron Richter, recently returned from an industry equipment exhibition where he watched a computerized elevator demonstrated. He was impressed with the elevator's speed, comfort of ride, and cost efficiency. Upon returning from the exhibition, he asked his purchasing agent to collect price and operating cost data on the new elevator. In addition, he asked the company's accountant to provide him with cost data on the company's elevator. This information is presented below.

	Old Elevator	New Elevator
Purchase price	$120,000	$160,000
Estimated salvage value	0	0
Estimated useful life	5 years	4 years
Depreciation method	Straight-line	Straight-line
Annual operating costs other than depreciation:		
Variable	$ 35,000	$ 10,000
Fixed	23,000	8,500

Annual revenues are $240,000, and selling and administrative expenses are $29,000, regardless of which elevator is used. If the old elevator is replaced now, at the beginning of 2014, Richter Condos will be able to sell it for $25,000.

Instructions

(a) Determine any gain or loss if the old elevator is replaced.
(b) Prepare a 4-year summarized income statement for each of the following assumptions:
  (1) The old elevator is retained.
(b) (2) NI $539,000
  (2) The old elevator is replaced.
(c) NI increase $23,000
(c) Using incremental analysis, determine if the old elevator should be replaced.
(d) Write a memo to Ron Richter explaining why any gain or loss should be ignored in the decision to replace the old elevator.

Prepare incremental analysis concerning elimination of divisions.

(LO 7), AN

P7-5A Gutierrez Company has four operating divisions. During the first quarter of 2014, the company reported aggregate income from operations of $213,000 and the following divisional results.

	Division			
	I	II	III	IV
Sales	$250,000	$200,000	$500,000	$450,000
Cost of goods sold	200,000	192,000	300,000	250,000
Selling and administrative expenses	75,000	60,000	60,000	50,000
Income (loss) from operations	$ (25,000)	$ (52,000)	$140,000	$150,000

Analysis reveals the following percentages of variable costs in each division.

	I	II	III	IV
Cost of goods sold	75%	90%	80%	75%
Selling and administrative expenses	40	70	50	60

Discontinuance of any division would save 50% of the fixed costs and expenses for that division.

Top management is very concerned about the unprofitable divisions (I and II). Consensus is that one or both of the divisions should be discontinued.

Instructions

(a) Compute the contribution margin for Divisions I and II. (a) I $70,000

(b) Prepare an incremental analysis concerning the possible discontinuance of (1) Division I and (2) Division II. What course of action do you recommend for each division?

(c) Prepare a columnar condensed income statement for Gutierrez Company, assuming Division II is eliminated. (Use the CVP format.) Division II's unavoidable fixed costs are allocated equally to the continuing divisions. (c) Income III $133,800

(d) Reconcile the total income from operations ($213,000) with the total income from operations without Division II.

PROBLEMS: SET B

P7-1B Morello Inc. manufactures basketballs for the National Basketball Association (NBA). For the first 6 months of 2014, the company reported the following operating results while operating at 90% of plant capacity and producing 90,000 units.

Use incremental analysis for special order and identify nonfinancial factors in decision.

(LO 3), E

	Amount	Per Unit
Sales	$4,500,000	$50
Cost of goods sold	3,060,000	34
Selling and administrative expenses	360,000	4
Net income	$1,080,000	$12

Fixed costs for the period were cost of goods sold $900,000, and selling and administrative expenses $180,000.

In July, normally a slack manufacturing month, Morello receives a special order for 10,000 basketballs at $30 each from the Chinese Basketball Association (CBA). Acceptance of the order would increase variable selling and administrative expenses $0.50 per unit because of shipping costs but would not increase fixed costs and expenses.

Instructions

(a) Prepare an incremental analysis for the special order. (a) NI increase $35,000

(b) Should Morello Inc. accept the special order?

(c) What is the minimum selling price on the special order to produce net income of $5.50 per ball?

(d) What nonfinancial factors should management consider in making its decision?

P7-2B The management of Gill Corporation is trying to decide whether to continue manufacturing a part or to buy it from an outside supplier. The part, called FIZBE, is a component of the company's finished product.

Use incremental analysis related to make or buy; consider opportunity cost and identify nonfinancial factors.

(LO 4), E

The following information was collected from the accounting records and production data for the year ending December 31, 2014.

1. 5,000 units of FIZBE were produced in the Machining Department.
2. Variable manufacturing costs applicable to the production of each FIZBE unit were: direct materials $4.75, direct labor $4.60, indirect labor $0.45, utilities $0.35.
3. Fixed manufacturing costs applicable to the production of FIZBE were:

Cost Item	Direct	Allocated
Depreciation	$1,100	$ 900
Property taxes	500	200
Insurance	900	600
	$2,500	$1,700

All variable manufacturing and direct fixed costs will be eliminated if FIZBE is purchased. Allocated costs will have to be absorbed by other production departments.

4. The lowest quotation for 5,000 FIZBE units from a supplier is $56,000.
5. If FIZBE units are purchased, freight and inspection costs would be $0.30 per unit, and receiving costs totaling $500 per year would be incurred by the Machining Department.

Instructions

(a) NI (decrease) ($4,750)

(a) Prepare an incremental analysis for FIZBE. Your analysis should have columns for (1) Make FIZBE, (2) Buy FIZBE, and (3) Net Income Increase/Decrease.

(b) Based on your analysis, what decision should management make?

(c) NI increase $1,250

(c) Would the decision be different if Gill Corporation has the opportunity to produce $6,000 of net income with the facilities currently being used to manufacture FIZBE? Show computations.

(d) What nonfinancial factors should management consider in making its decision?

Determine if product should be sold or processed further.

(LO 5), AN

P7-3B Ohio Household Products Co. (OHPC) is a diversified household-cleaner processing company. The company's Mishawaka plant produces two products: an appliance cleaner and a general-purpose cleaner from a common set of chemical inputs (NPR). Each week 1,000,000 ounces of chemical input are processed at a cost of $200,000 into 750,000 ounces of appliance cleaner and 250,000 ounces of general-purpose cleaner. The appliance cleaner has no market value until it is converted into a polish with the trade name Shine Brite. The additional processing costs for this conversion amount to $300,000. Shine Brite sells at $15 per 25-ounce bottle. The general-purpose cleaner can be sold for $20 per 20-ounce bottle. However, the general-purpose cleaner can be converted into two other products by adding 250,000 ounces of another compound (PST) to the 250,000 ounces of general-purpose cleaner. This joint process will yield 250,000 ounces each of premium cleaner (PC) and premium stain remover (PSR). The additional processing costs for this process amount to $140,000. Both premium products can be sold for $16 per 20-ounce bottle.

The company decided not to process the general-purpose cleaner into PC and PSR based on the following analysis.

		Process Further		
	General-Purpose Cleaner	Premium Cleaner (PC)	Premium Stain Remover (PSR)	Total
Production in ounces	250,000	250,000	250,000	
Revenue	$250,000	$200,000	$200,000	$400,000
Costs:				
NPR costs	50,000*	40,000	40,000	80,000**
PST costs	0	70,000	70,000	140,000
Total costs	50,000	110,000	110,000	220,000
Weekly gross profit	$200,000	$ 90,000	$ 90,000	$180,000

*If general-purpose cleaner is not processed further, it is allocated 1/4 of the $200,000 of NPR cost, which is equal to 1/4 of the total physical output.

**If general-purpose cleaner is processed further, total physical output is 1,250,000 ounces. PC and PSR combined account for 40% of the total output and are each allocated 20% of the NPR cost.

Instructions

(a) Determine if management made the correct decision to not process the general-purpose cleaner further by doing the following.

(1) Calculate the company's total weekly gross profit assuming the general-purpose cleaner is not processed further.

(a) (2) Gross profit $210,000

(2) Calculate the company's total weekly gross profit assuming the general-purpose cleaner is processed further.

(3) Compare the resulting net incomes and comment on management's decision.

(b) Using incremental analysis, determine if the general-purpose cleaner should be processed further.

(CMA adapted)

Compute gain or loss, and determine if equipment should be replaced.

(LO 6), S

P7-4B Last year (2013), Simmons Company installed new factory equipment. The owner of the company, Gene Simmons, recently returned from an industry equipment exhibition where he watched computerized equipment demonstrated. He was impressed with the equipment's speed and cost efficiency. Upon returning from the exhibition, he asked his purchasing

agent to collect price and operating cost data on the new equipment. In addition, he asked the company's accountant to provide him with cost data on the company's equipment. This information is presented below.

	Old Equipment	New Equipment
Purchase price	$210,000	$250,000
Estimated salvage value	0	0
Estimated useful life	5 years	4 years
Depreciation method	Straight-line	Straight-line
Annual operating costs other than depreciation:		
Variable	$50,000	$12,000
Fixed	30,000	5,000

Annual revenues are $360,000, and selling and administrative expenses are $45,000, regardless of which equipment is used. If the old equipment is replaced now, at the beginning of 2014, Simmons Company will be able to sell it for $58,000.

Instructions

(a) Determine any gain or loss if the old equipment is replaced.
(b) Prepare a 4-year summarized income statement for each of the following assumptions:
  (1) The old equipment is retained.
  (2) The old equipment is replaced.
(c) Using incremental analysis, determine if the old equipment should be replaced.
(d) Write a memo to Gene Simmons explaining why any gain or loss should be ignored in the decision to replace the old equipment.

(b) (2) NI $832,000
(c) NI increase $60,000

P7-5B Panda Corporation has four operating divisions. During the first quarter of 2014, the company reported aggregate income from operations of $129,000 and the divisional results shown below.

Prepare incremental analysis concerning elimination of divisions.

(LO 7), AN

	Division			
	I	II	III	IV
Sales	$510,000	$400,000	$310,000	$170,000
Cost of goods sold	300,000	250,000	270,000	156,000
Selling and administrative expenses	60,000	80,000	75,000	70,000
Income (loss) from operations	$150,000	$ 70,000	$ (35,000)	$ (56,000)

Analysis reveals the following percentages of variable costs in each division.

	I	II	III	IV
Cost of goods sold	70%	80%	70%	90%
Selling and administrative expenses	40	50	60	70

Discontinuance of any division would save 50% of the fixed costs and expenses for that division.

Top management is very concerned about the unprofitable divisions (III and IV). Consensus is that one or both of the divisions should be discontinued.

Instructions

(a) Compute the contribution margin for Divisions III and IV.
(b) Prepare an incremental analysis concerning the possible discontinuance of (1) Division III and (2) Division IV. What course of action do you recommend for each division?
(c) Prepare a columnar condensed income statement for Panda Corporation, assuming Division IV is eliminated. (Use the CVP format.) Division IV's unavoidable fixed costs are allocated equally to the continuing divisions.
(d) Reconcile the total income from operations ($129,000) with the total income from operations without Division IV.

(a) III $76,000
(c) II $63,900

PROBLEMS: SET C

Visit the book's companion website, at **www.wiley.com/college/weygandt**, and choose the Student Companion site to access Problem Set C.

WATERWAYS CONTINUING PROBLEM

(This is a continuation of the Waterways Problem from Chapters 1–6.)

WCP7 Waterways Corporation is considering various business opportunities. It wants to make the best use of its production facilities to maximize income. This problem asks you to help Waterways do incremental analysis on these various opportunities.

Go to the book's companion website, **www.wiley.com/college/weygandt**, *to find the remainder of this problem.*

Broadening Your PERSPECTIVE

Management Decision-Making

Decision-Making at Current Designs

BYP7-1 Current Designs faces a number of important decisions that require incremental analysis. Consider each of the following situations independently.

Situation 1

Recently, Mike Cichanowski, owner and CEO of Current Designs, received a phone call from the president of a brewing company. He was calling to inquire about the possibility of Current Designs producing "floating coolers" for a promotion his company was planning. These coolers resemble a kayak but are about one-third the size. They are used to float food and beverages while paddling down the river on a weekend leisure trip. The company would be interested in purchasing 100 coolers for the upcoming summer. It is willing to pay $250 per cooler. The brewing company would pick up the coolers upon completion of the order.

Mike met with Diane Buswell, controller, to identify how much it would cost Current Designs to produce the coolers. After careful analysis, the following costs were identified.

Direct materials	$80/unit	Variable overhead	$20/unit
Direct labor	$60/unit	Fixed overhead	$1,000

Current Designs would be able to modify an existing mold to produce the coolers. The cost of these modifications would be approximately $2,000.

Instructions

(a) Prepare an incremental analysis to determine whether Current Designs should accept this special order to produce the coolers.

(b) Discuss additional factors that Mike and Diane should consider if Current Designs is currently operating at full capacity.

Situation 2

Current Designs is always working to identify ways to increase efficiency while becoming more environmentally conscious. During a recent brainstorming session, one employee suggested to Diane Buswell, controller, that the company should consider replacing the current rotomold oven as a way to realize savings from reduced energy consumption. The oven operates on natural gas, using 17,000 therms of natural gas for an entire year. A new, energy-efficient rotomold oven would operate on 15,000 therms of natural gas for an entire year. After seeking out price quotes from a few suppliers, Diane determined that it would cost approximately $250,000 to purchase a new,

energy-efficient rotomold oven. She determines that the expected useful life of the new oven would be 10 years, and it would have no salvage value at the end of its useful life. Current Designs would be able to sell the current oven for $10,000.

Instructions

(a) Prepare an incremental analysis to determine if Current Designs should purchase the new rotomold oven, assuming that the average price for natural gas over the next 10 years will be $0.65 per therm.

(b) Diane is concerned that natural gas prices might increase at a faster rate over the next 10 years. If the company projects that the average natural gas price of the next 10 years could be as high as $0.85 per therm, discuss how that might change your conclusion in (a).

Situation 3

One of Current Designs' competitive advantages is found in the ingenuity of its owner and CEO, Mike Cichanowski. His involvement in the design of kayak molds and production techniques has led to Current Designs being recognized as an industry leader in the design and production of kayaks. This ingenuity was evident in an improved design of one of the most important components of a kayak, the seat. The "Revolution Seating System" is a one-of-a-kind, rotating axis seat that gives unmatched, full-contact, under-leg support. It is quickly adjustable with a lever-lock system that allows for a customizable seat position that maximizes comfort for the rider.

Having just designed the "Revolution Seating System," Current Designs must now decide whether to produce the seats internally or buy them from an outside supplier. The costs for Current Designs to produce the seats are as follows.

Direct materials	$20/unit	Direct labor	$15/unit
Variable overhead	$12/unit	Fixed overhead	$20,000

Current Designs will need to produce 3,000 seats this year; 25% of the fixed overhead will be avoided if the seats are purchased from an outside vendor. After soliciting prices from outside suppliers, the company determined that it will cost $50 to purchase a seat from an outside vendor.

Instructions

(a) Prepare an incremental analysis showing whether Current Designs should make or buy the "Revolution Seating System."

(b) Would your answer in (a) change if the productive capacity released by not making the seats could be used to produce income of $20,000?

Decision-Making Across the Organization

BYP7-2 Aurora Company is considering the purchase of a new machine. The invoice price of the machine is $140,000, freight charges are estimated to be $4,000, and installation costs are expected to be $6,000. Salvage value of the new equipment is expected to be zero after a useful life of 5 years. Existing equipment could be retained and used for an additional 5 years if the new machine is not purchased. At that time, the salvage value of the equipment would be zero. If the new machine is purchased now, the existing machine would have to be scrapped. Aurora's accountant, Lisah Huang, has accumulated the following data regarding annual sales and expenses with and without the new machine.

1. Without the new machine, Aurora can sell 12,000 units of product annually at a per unit selling price of $100. If the new machine is purchased, the number of units produced and sold would increase by 10%, and the selling price would remain the same.
2. The new machine is faster than the old machine, and it is more efficient in its usage of materials. With the old machine the gross profit rate will be 25% of sales, whereas the rate will be 30% of sales with the new machine.
3. Annual selling expenses are $180,000 with the current equipment. Because the new equipment would produce a greater number of units to be sold, annual selling expenses are expected to increase by 10% if it is purchased.
4. Annual administrative expenses are expected to be $100,000 with the old machine, and $113,000 with the new machine.
5. The current book value of the existing machine is $36,000. Aurora uses straight-line depreciation.

Instructions

With the class divided into groups, prepare an incremental analysis for the 5 years showing whether Aurora should keep the existing machine or buy the new machine. (Ignore income tax effects.)

Managerial Analysis

BYP7-3 MiniTek manufactures private-label small electronic products, such as alarm clocks, calculators, kitchen timers, stopwatches, and automatic pencil sharpeners. Some of the products are sold as sets, and others are sold individually. Products are studied as to their sales potential, and then cost estimates are made. The Engineering Department develops production plans, and then production begins. The company has generally had very successful product introductions. Only two products introduced by the company have been discontinued.

One of the products currently sold is a multi-alarm clock. The clock has four alarms that can be programmed to sound at various times and for varying lengths of time. The company has experienced a great deal of difficulty in making the circuit boards for the clocks. The production process has never operated smoothly. The product is unprofitable at the present time, primarily because of warranty repairs and product recalls. Two models of the clocks were recalled, for example, because they sometimes caused an electric shock when the alarms were being shut off. The Engineering Department is attempting to revise the manufacturing process, but the revision will take another 6 months at least.

The clocks were very popular when they were introduced, and since they are private-label, the company has not suffered much from the recalls. Presently, the company has a very large order for several items from Kmart Stores. The order includes 5,000 of the multi-alarm clocks. When the company suggested that Kmart purchase the clocks from another manufacturer, Kmart threatened to rescind the entire order unless the clocks were included.

The company has therefore investigated the possibility of having another company make the clocks for them. The clocks were bid for the Kmart order based on an estimated $6.90 cost to manufacture:

Circuit board, 1 each @ $2.00	$2.00
Plastic case, 1 each @ $0.80	0.80
Alarms, 4 @ $0.15 each	0.60
Labor, 15 minutes @ $12/hour	3.00
Overhead, $2.00 per labor hour	0.50

MiniTek could purchase clocks to fill the Kmart order for $10 from Trans-Tech Asia, a Korean manufacturer with a very good quality record. Trans-Tech has offered to reduce the price to $7.50 after MiniTek has been a customer for 6 months, placing an order of at least 1,000 units per month. If MiniTek becomes a "preferred customer" by purchasing 15,000 units per year, the price would be reduced still further to $4.50.

Omega Products, a local manufacturer, has also offered to make clocks for MiniTek. They have offered to sell 5,000 clocks for $5 each. However, Omega Products has been in business for only 6 months. They have experienced significant turnover in their labor force, and the local press has reported that the owners may face tax evasion charges soon. The owner of Omega Products is an electronic engineer, however, and the quality of the clocks is likely to be good.

If MiniTek decides to purchase the clocks from either Trans-Tech or Omega, all the costs to manufacture could be avoided, except a total of $5,000 in overhead costs for machine depreciation. The machinery is fairly new, and has no alternate use.

Instructions

(a) What is the difference in profit under each of the alternatives if the clocks are to be sold for $14.50 each to Kmart?

(b) What are the most important nonfinancial factors that MiniTek should consider when making this decision?

(c) What do you think MiniTek should do in regard to the Kmart order? What should it do in regard to continuing to manufacture the multi-alarm clocks? Be prepared to defend your answer.

Real-World Focus

BYP7-4 Founded in 1983, Beverly Hills Fan Company is located in Woodland Hills, California. With 23 employees and sales of less than $10 million, the company is relatively small. Management feels that there is potential for growth in the upscale market for ceiling fans and lighting. They are particularly optimistic about growth in Mexican and Canadian markets.

Presented below is information from the president's letter in the company's annual report.

Beverly Hills Fan Company
President's Letter

An aggressive product development program was initiated during the past year resulting in new ceiling fan models planned for introduction this year. Award winning industrial designer Ron Rezek created several new fan models for the Beverly Hills Fan and L.A. Fan lines, including a new Showroom Collection, designed specifically for the architectural and designer markets. Each of these models has received critical acclaim, and order commitments for this year have been outstanding. Additionally, our Custom Color and special order fans continued to enjoy increasing popularity and sales gains as more and more customers desire fans that match their specific interior decors. Currently, Beverly Hills Fan Company offers a product line of over 100 models of contemporary, traditional, and transitional ceiling fans.

Instructions
(a) What points did the company management need to consider before deciding to offer the special-order fans to customers?
(b) How would incremental analysis be employed to assist in this decision?

BYP7-5 Outsourcing by both manufacturers and service companies is becoming increasingly common. There are now many firms that specialize in outsourcing consulting.

Address: **www.alsbridge.com**, or go to **www.wiley.com/college/weygandt**

Instructions
Go to the Web page of Alsbridge, Inc. at the address shown above, and answer the following questions.
(a) What are some of the types of outsourcing for which the company provides assistance?
(b) What is insourcing?
(c) What are some of the potential benefits of insourcing?

Critical Thinking

Communication Activity

BYP7-6 Hank Jewell is a production manager at a metal fabricating plant. Last night, he read an article about a new piece of equipment that would dramatically reduce his division's costs. Hank was very excited about the prospect, and the first thing he did this morning was to bring the article to his supervisor, Preston Thiese, the plant manager. The following conversation occurred:

Hank: Preston, I thought you would like to see this article on the new PDD1130; they've made some fantastic changes that could save us millions of dollars.

Preston: I appreciate your interest, Hank, but I actually have been aware of the new machine for two months. The problem is that we just bought a new machine last year. We spent $2 million on that machine, and it was supposed to last us 12 years. If we replace it now, we would have to write its book value off of the books for a huge loss. If I go to top management now and say that I want a new machine, they will fire me. I think we should use our existing machine for a couple of years, and then when it becomes obvious that we have to have a new machine, I will make the proposal.

Instructions
Hank just completed a course in managerial accounting, and he believes that Preston is making a big mistake. Write a memo from Hank to Preston explaining Preston's decision-making error.

Ethics Case

BYP7-7 Blake Romney became Chief Executive Officer of Peters Inc. two years ago. At the time, the company was reporting lagging profits, and Blake was brought in to "stir things up." The company has three divisions, electronics, fiber optics, and plumbing supplies. Blake has no interest in plumbing supplies, and one of the first things he did was to put pressure on his accountants to reallocate some of the company's fixed costs away from the other two divisions to the plumbing division. This had the effect of causing the plumbing division to report losses during the last two years; in the past it had always reported low, but acceptable, net income. Blake felt that this reallocation would shine a favorable light on him in front of the board of directors because it meant that the electronics and fiber optics divisions would look like they were improving. Given that these are "businesses of the future," he believed that the stock market would react favorably to these increases, while not penalizing the poor results of the plumbing division. Without this shift in the allocation of fixed costs, the profits of the electronics and fiber optics divisions would not have improved. But now the board of directors has suggested that the plumbing division be closed because it is reporting losses. This would mean that nearly 500 employees, many of whom have worked for Peters their whole lives, would lose their jobs.

Instructions

(a) If a division is reporting losses, does that necessarily mean that it should be closed?
(b) Was the reallocation of fixed costs across divisions unethical?
(c) What should Blake do?

All About You

BYP7-8 Managerial accounting techniques can be used in a wide variety of settings. As we have frequently pointed out, you can use them in many personal situations. They also can be useful in trying to find solutions for societal issues that appear to be hard to solve.

Instructions

Read the Fortune article, "The Toughest Customers: How Hardheaded Business Metrics Can Help the Hard-core Homeless," by Cait Murphy, available at *http://money.cnn.com/magazines/fortune/fortune_archive/2006/04/03/8373067/index.htm*. Answer the following questions.

(a) How does the article define "chronic" homelessness?
(b) In what ways does homelessness cost a city money? What are the estimated costs of a chronic homeless person to various cities?
(c) What are the steps suggested to address the problem?
(d) What is the estimated cost of implementing this program in New York? What results have been seen?
(e) In terms of incremental analysis, frame the relevant costs in this situation.

Considering Your Costs and Benefits

BYP7-9 School costs money. Is this an expenditure that you should have avoided? A year of tuition at a public four-year college costs about $8,655, and a year of tuition at a public two-year college costs about $1,359. If you did not go to college, you might avoid mountains of school-related debt. In fact, each year, about 600,000 students decide to drop out of school. Many of them never return. Suppose that you are working two jobs and going to college, and that you are not making ends meet. Your grades are suffering due to your lack of available study time. You feel depressed. Should you drop out of school?

> **YES:** You can always go back to school. If your grades are bad and you are depressed, what good is school doing you anyway?
> **NO:** Once you drop out, it is very hard to get enough momentum to go back. Dropping out will dramatically reduce your long-term opportunities. It is better to stay in school, even if you take only one class per semester. While you cannot go back and redo your initial decision, you can look at some facts to evaluate the wisdom of your decision.

Instructions

Write a response indicating your position regarding this situation. Provide support for your view.

Answers to Chapter Questions

Answers to Insight and Accounting Across the Organization Questions

p. 296 That Letter from AmEx Might Not Be a Bill Q: What are the relevant costs that American Express would need to know in order to determine to whom to make this offer? **A:** Clearly, American Express would make this offer to those customers that are most likely to default on their bills. The most important relevant cost would be the "expected loss" that an at-risk customer posed. If a customer has a high probability of defaulting and if the expected loss exceeds the $300 cost, then American Express can probably save money by paying that customer to quit using its card so that the customer doesn't ring up an even bigger bill.

p. 300 Giving Away the Store? Q: What are the relevant revenues and costs that Amazon should consider relative to the decision whether to offer the Prime free-shipping subscription? **A:** The relevant revenues to consider would be the estimated change in revenue that would result from offering free shipping and the $79 annual fee for a Prime subscription. The relevant costs would be the estimated additional shipping costs that the company would incur.

p. 307 Time to Move to a New Neighborhood? Q: What were some of the factors that complicated the company's decision to move? How should the company have incorporated such factors into its incremental analysis? **A:** The company received only $7.5 million for its California property, only 58 of 75 key employees were willing to move, construction was delayed by a year which caused the new plant to increase in price by $1.5 million, and wages surged in Idaho due to low unemployment. In performing incremental analysis of the decision to move, a company should perform sensitivity analysis. This would include evaluating the impact on the decision if all costs were, for example, 10% higher than expected or if cost savings were 10% lower than expected.

p. 308 What Is the Real Cost of Packaging Options? Q: If your marketing director suggests that, in addition to selling your cereal in a standard-size box, you should sell a jumbo size and an individual size, what issues must you consider? **A:** In evaluating this decision, you should identify the incremental revenues as well as incremental costs. The marketing manager is most likely focusing on the fact that by offering alternative packaging options, the company can market the product to a broader range of customers. However, alternative packaging options will also result in additional costs. It will increase the number of setups, require different types of storage and handling, and increase the need for additional storage space for the packages and the packaged products.

Answers to Self-Test Questions

1. d **2.** b **3.** c **4.** d **5.** c ($3,000 × $4) **6.** d [$18 − ($14 + $5)] × 3,000 **7.** b **8.** d **9.** c ($12,000 − $8,000) **10.** a **11.** d [($68 − $55) − $12] **12.** b **13.** c **14.** b (.5 × $100,000) − ($200,000 − $140,000)

✔ Remember to go back to The Navigator box on the chapter opening page and check off your completed work.

Chapter 8

Pricing

Feature Story

They've Got Your Size—and Color

Nick Swinmum was shopping for a pair of shoes. He found a store with the right style, but not the right color. The next store had the right color, but not the right size. After visiting numerous stores, he went home, figuring he would buy them on the Web. After all, it was 1999, so you could buy everything on the Web, right? Well, apparently not shoes. After an exhaustive search, Nick still came up shoeless.

Nick lived in San Francisco, where, in 1999, everybody with even half an idea started an Internet company and became a millionaire. Or so it seemed. So Nick started Zappos.com. The company is dedicated to providing the best selection in shoes in terms of brands, styles, colors, size, and most importantly service.

To make sure that Zappos.com had a fighting chance of evolving from a half-baked idea to a thriving business, Nick brought in Tony Hsieh. At the age of 24, Tony had developed and recently sold a business to Microsoft for $265 million. Tony originally contributed to Zappos as an investor and advisor, but soon he took over as CEO. Tony then brought in Alfred Lin to manage the company's finances. Tony and Alfred had met when Tony was running a pizza business. (Alfred was Tony's best pizza customer, but his competencies apparently extended

The Navigator

- ☐ Scan Learning Objectives
- ☐ Read Feature Story
- ☐ Read Preview
- ☐ Read Text and answer **DO IT!** p. 336 ☐ p. 340 ☐ p. 344 ☐ p. 349
- ☐ Work Using the Decision Toolkit p. 353
- ☐ Review Summary of Learning Objectives
- ☐ Work Comprehensive **DO IT!** p. 360
- ☐ Answer Self-Test Questions
- ☐ Complete Assignments
- ☐ Go to **WileyPLUS** for practice and tutorials

Learning Objectives

After studying this chapter, you should be able to:

1. Compute a target cost when the market determines a product price.
2. Compute a target selling price using cost-plus pricing.
3. Use time-and-material pricing to determine the cost of services provided.
4. Determine a transfer price using the negotiated, cost-based, and market-based approaches.
5. Explain issues involved in transferring goods between divisions in different countries.

The Navigator