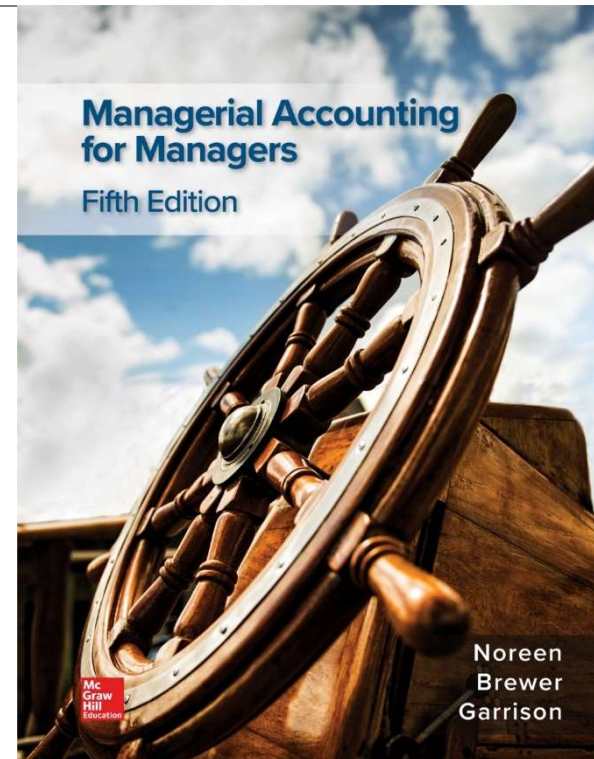


Managerial Accounting and Cost Concepts

CHAPTER 1

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Needs of Management

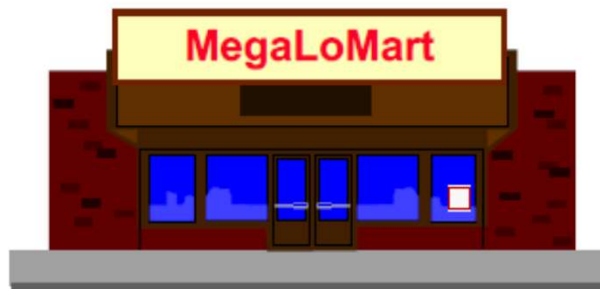
Financial accounting is concerned with reporting financial information to external parties, such as stockholders, creditors, and regulators.

Managerial accounting is concerned with providing information to managers within an organization so that they can formulate plans, control operations, and make decisions.

Commercial vs manufacturing companies

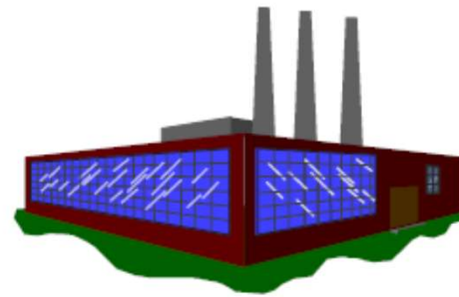
Commercial:

- **Buy finished goods.**
- **Sell finished goods.**



Manufacturing:

- **Buy raw materials**
- **Produce and sell finished goods.**



Purposes of Cost Classification

1. Assigning costs to cost objects
2. Accounting for costs in manufacturing companies
3. Preparing financial statements
4. Predicting cost behavior in response to changes in activity
5. Making decisions

Purposes of Cost Classification

Purpose of Cost Classification	Cost Classifications
Assigning costs to cost objects	<ul style="list-style-type: none"> • Direct cost (can be easily traced) • Indirect cost (cannot be easily traced)
Accounting for costs in manufacturing companies	<ul style="list-style-type: none"> • Manufacturing costs <ul style="list-style-type: none"> • Direct materials • Direct labor • Manufacturing overhead • Nonmanufacturing costs <ul style="list-style-type: none"> • Selling costs • Administrative costs
Preparing financial statements	<ul style="list-style-type: none"> • Product costs (inventoriable) • Period costs (expensed)
Predicting cost behavior in response to changes in activity	<ul style="list-style-type: none"> • Variable cost (proportional to activity) • Fixed cost (constant in total) • Mixed cost (has variable and fixed elements)
Making decisions	<ul style="list-style-type: none"> • Differential cost (differs between alternatives) • Sunk cost (should be ignored) • Opportunity cost (foregone benefit)

Learning Objective 1

Understand cost classification used for assigning costs to cost objects: direct cost and indirect cost.

Assigning Costs to Cost Objects


Direct costs

- Costs that can be easily and conveniently traced to a unit of product or other cost object.
- Examples: direct material and direct labor

Indirect costs

- Costs that cannot be easily and conveniently traced to a unit of product or other cost object.
- Example: manufacturing overhead

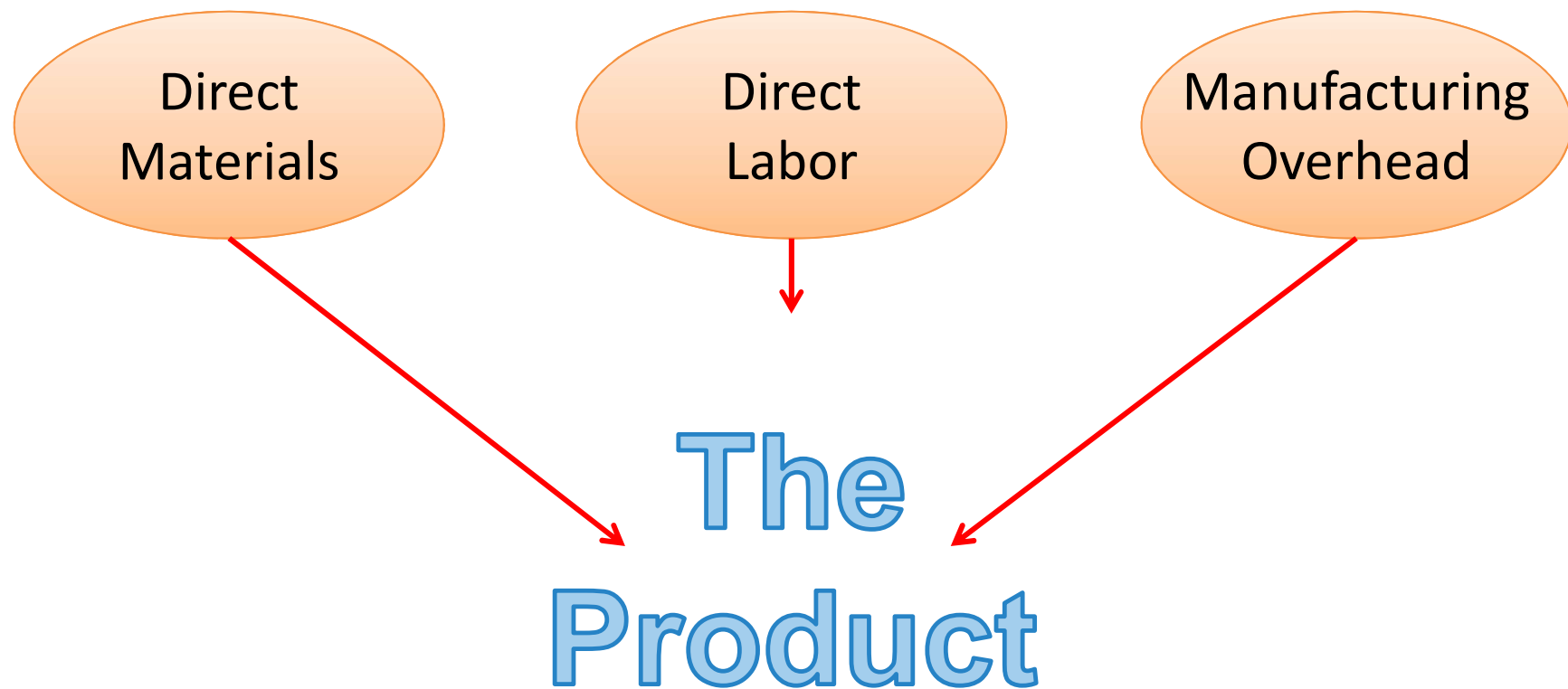
Common costs

- Indirect costs incurred to support a number of cost objects. These costs cannot be traced to any individual cost object.
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Learning Objective 2

Identify and give examples of each of the three basic manufacturing cost categories.

Classifications of Manufacturing Costs



Direct Materials

Direct materials are raw materials that become an integral part of the product and that can be conveniently traced directly to it.

Example: A radio installed in an automobile

Direct Labor

Direct labor costs are those labor costs that can be easily traced to individual units of product.

Example: Wages paid to automobile assembly workers

Manufacturing Overhead

Manufacturing overhead includes all manufacturing costs **except** direct material and direct labor. These costs cannot be readily traced to finished products.

Includes indirect materials that cannot be easily or conveniently traced to specific units of product.

Includes indirect labor costs that cannot be easily or conveniently traced to specific units of product.

Example: lubricants and cleaning supplies used in the automobile assembly plant

Example: maintenance workers and security guards

Manufacturing Overhead – Examples

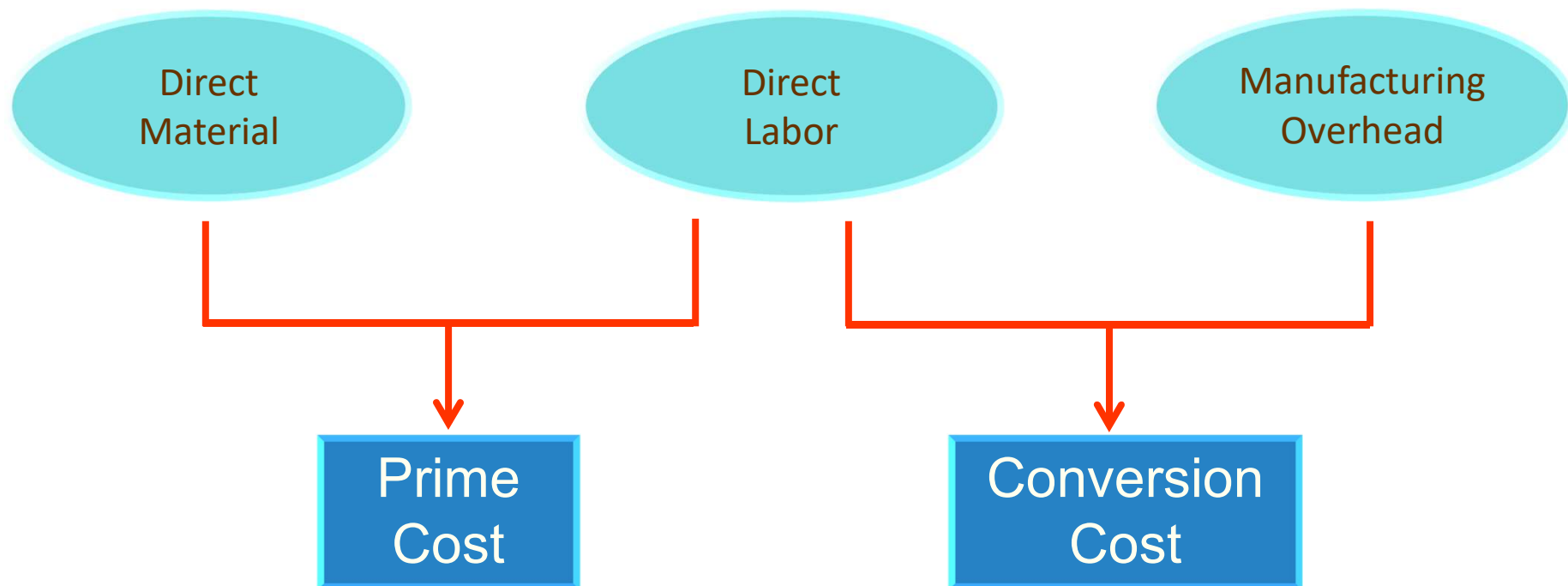
Examples of manufacturing overhead:

- Depreciation of manufacturing equipment
- Utility costs
- Property taxes
- Insurance premiums incurred to operate a manufacturing facility

Only those indirect costs associated with operating the factory are included in manufacturing overhead.

Prime Costs and Conversion Costs

Manufacturing costs are often classified as follows:



Nonmanufacturing Costs

```
graph TD; A([Selling Costs]) --> B[Costs necessary to secure the order and deliver the product. Selling costs can be either direct or indirect costs.]; C([Administrative Costs]) --> D[All executive, organizational, and clerical costs. Administrative costs can be either direct or indirect costs.];
```

Selling Costs

Costs necessary to secure the order and deliver the product. Selling costs can be either direct or indirect costs.

Administrative Costs

All executive, organizational, and clerical costs. Administrative costs can be either direct or indirect costs.

Learning Objective 3

Understand cost classifications used to prepare financial statements: product costs and period costs.

Product Costs

Product costs include all costs that are involved in acquiring or making a product.

Product costs “attach” to a unit of product as it is purchased or manufactured and they stay attached to each unit of product as long as it remains in inventory awaiting sale.

Manufacturing Product Costs

For manufacturing companies, product costs include:

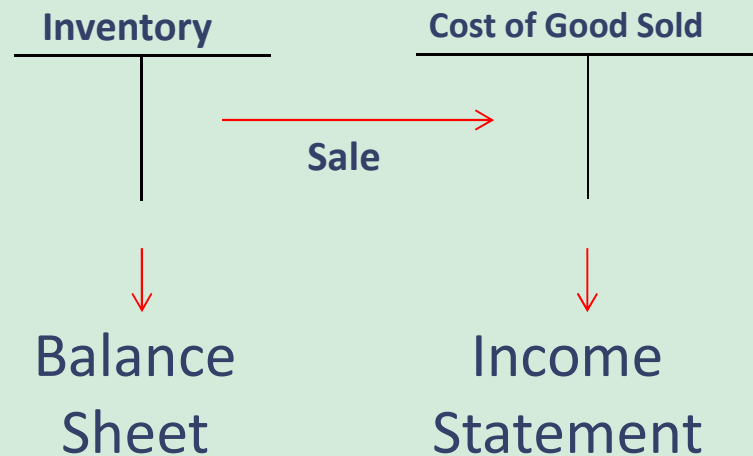
- **Raw materials:** includes any materials that go into the final product.
- **Work in process:** consists of units of product that are only partially complete and will require further work before they are ready for sale to the customer.
- **Finished goods costs:** consists of completed units of product that have not yet been sold to customers.

Transfer of Product Costs

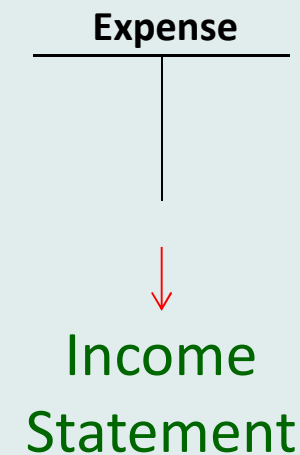
- When direct materials are used in production, their costs are transferred from Raw Materials to Work in Process.
- Direct labor and manufacturing overhead costs are added to Work in Process to convert direct materials into finished goods.
- Once units of product are completed, their costs are transferred from Work in Process to Finished Goods.
- When a manufacturer sells its finished goods to customers, the costs are transferred from Finished Goods to Cost of Goods Sold.

Product Costs Versus Period Costs

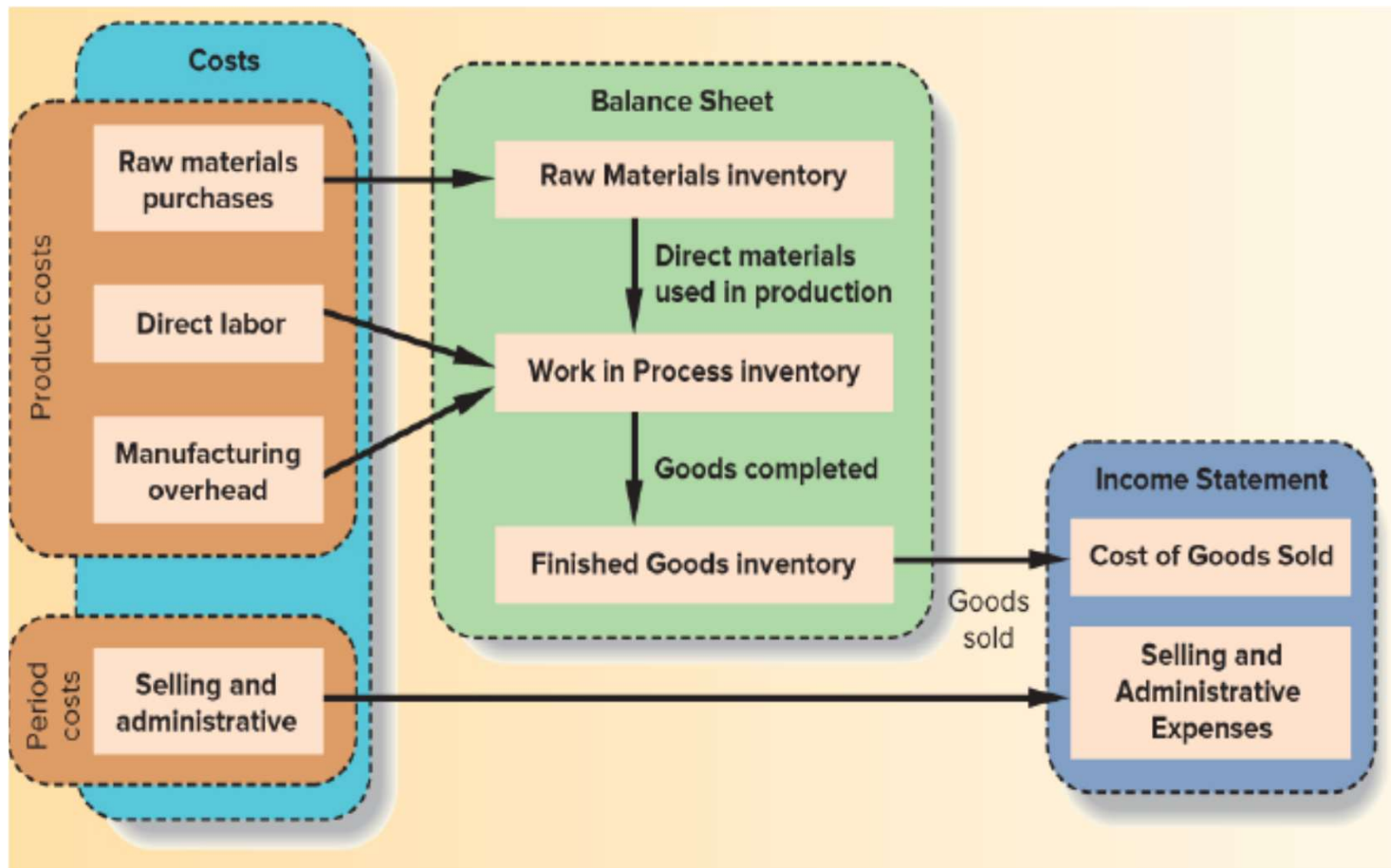
Product costs include direct materials, direct labor, and manufacturing overhead.



Period costs include all **selling costs** and **administrative costs**.



Cost flows and classification in a manufacturing company



Balance Sheet

A financial statement that reports assets, liabilities and owner's equity on a specific date.

$$\text{Assets} = \text{Liability} + \text{Equity}$$

Example

Example Company Balance Sheet December 31, 2016			
ASSETS		LIABILITIES	
Current assets		Current liabilities	
Cash	\$ 2,100	Notes payable	\$ 5,000
Petty cash	100	Accounts payable	35,900
Temporary investments	10,000	Wages payable	8,500
Accounts receivable - net	40,500	Interest payable	2,900
Inventory	31,000	Taxes payable	6,100
Supplies	3,800	Warranty liability	1,100
Prepaid insurance	1,500	Unearned revenues	1,500
Total current assets	<u>89,000</u>	Total current liabilities	<u>61,000</u>
Investments	<u>36,000</u>	Long-term liabilities	
Property, plant & equipment		Notes payable	20,000
Land	5,500	Bonds payable	400,000
Land improvements	6,500	Total long-term liabilities	<u>420,000</u>
Buildings	180,000		
Equipment	201,000	Total liabilities	<u>481,000</u>
Less: accum depreciation	<u>(56,000)</u>		
Prop, plant & equip - net	<u>337,000</u>		
Intangible assets		STOCKHOLDERS' EQUITY	
Goodwill	105,000	Common stock	110,000
Trade names	200,000	Retained earnings	220,000
Total intangible assets	<u>305,000</u>	Accum other comprehensive income	9,000
Other assets	<u>3,000</u>	Less: Treasury stock	<u>(50,000)</u>
Total assets	<u>\$ 770,000</u>	Total stockholders' equity	<u>289,000</u>
		Total liabilities & stockholders' equity	<u>\$ 770,000</u>
The notes to the sample balance sheet have been omitted.			

Income Statement

$$\text{Assets} = \text{Liability} + \text{Equity}$$

Example

Example Corporation Income Statement For the year ended December 31, 2016

Sales (all on credit)	\$500,000
Cost of goods sold	<u>380,000</u>
Gross profit	<u>120,000</u>
Operating expenses	
Selling expenses	35,000
Administrative expenses	<u>45,000</u>
Total operating expenses	<u>80,000</u>
Operating income	40,000
Interest expense	<u>12,000</u>
Income before taxes	28,000
Income tax expense	<u>5,000</u>
Net income after taxes	<u><u>\$ 23,000</u></u>

Quick Check 1

Which of the following costs would be considered a period rather than a product cost in a manufacturing company?

- A. Manufacturing equipment depreciation.
- B. Property taxes on corporate headquarters.
- C. Direct materials costs.
- D. Electrical costs to light the production facility.
- E. Sales commissions.

Quick Check 1a

Which of the following costs would be considered a period rather than a product cost in a manufacturing company?

- A. Manufacturing equipment depreciation.
- ☒ B. Property taxes on corporate headquarters.
- C. Direct materials costs.
- D. Electrical costs to light the production facility.
- ☒ E. Sales commissions.

Learning Objective 4

Understand cost classifications used to predict cost behavior: variable costs, fixed costs, and mixed costs.

Cost Classifications for Predicting Cost Behavior

Cost behavior refers to how a cost will react to changes in the level of activity.

The most common classifications are:

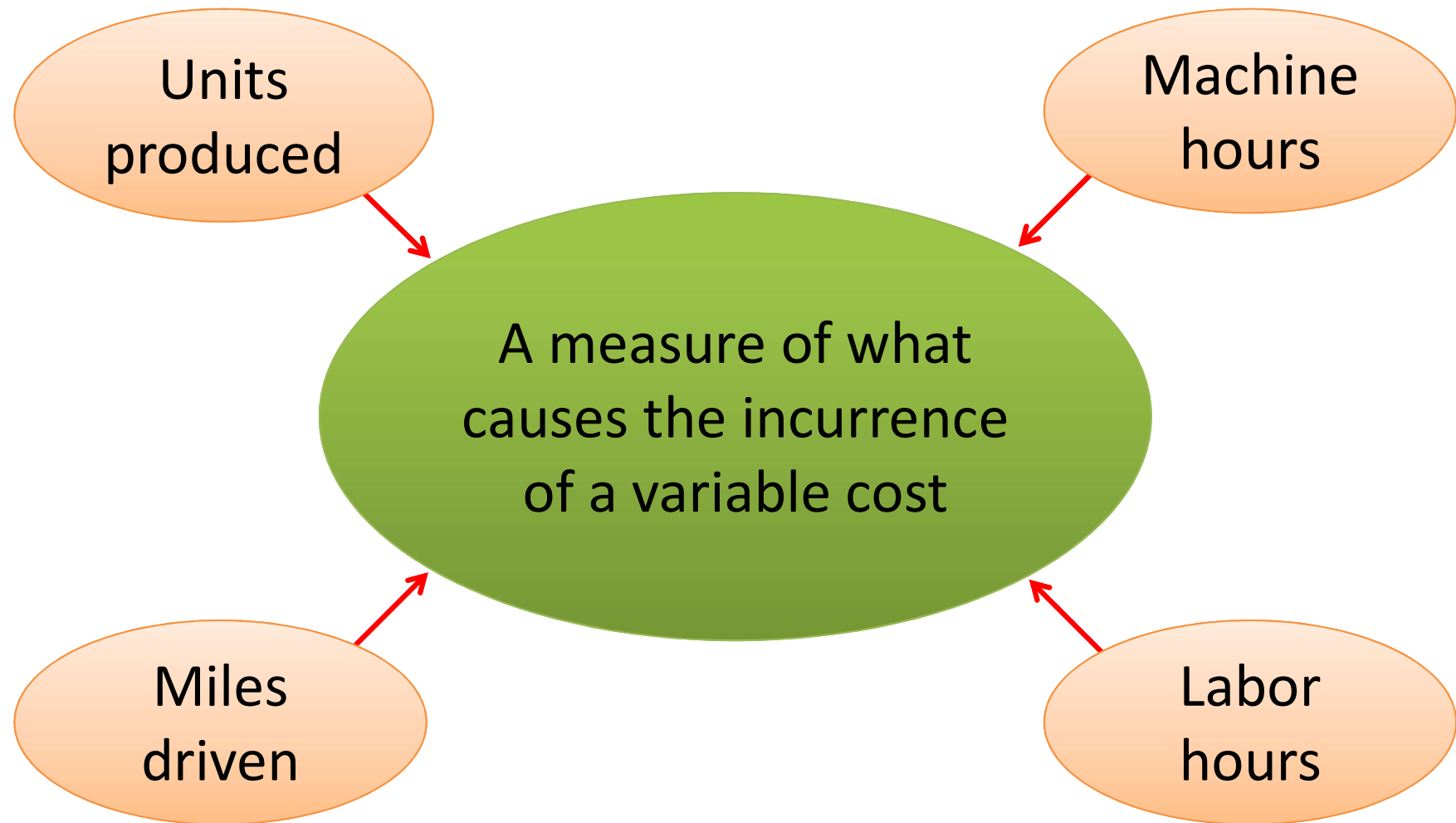
- **Variable costs.**
- **Fixed costs.**
- **Mixed costs.**

Variable Cost

A cost that varies, in total, in direct proportion to changes in the level of activity.

A variable cost per unit is constant.

The Activity Base (Cost Driver)

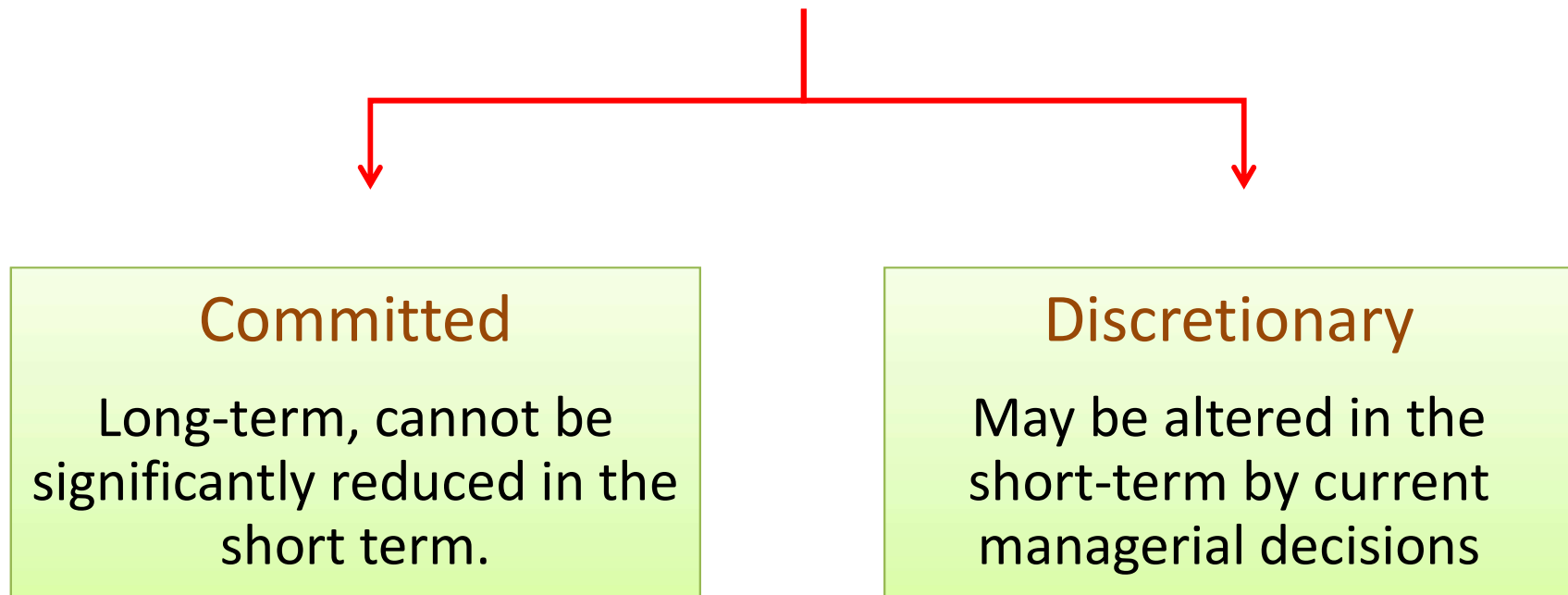


Fixed Cost

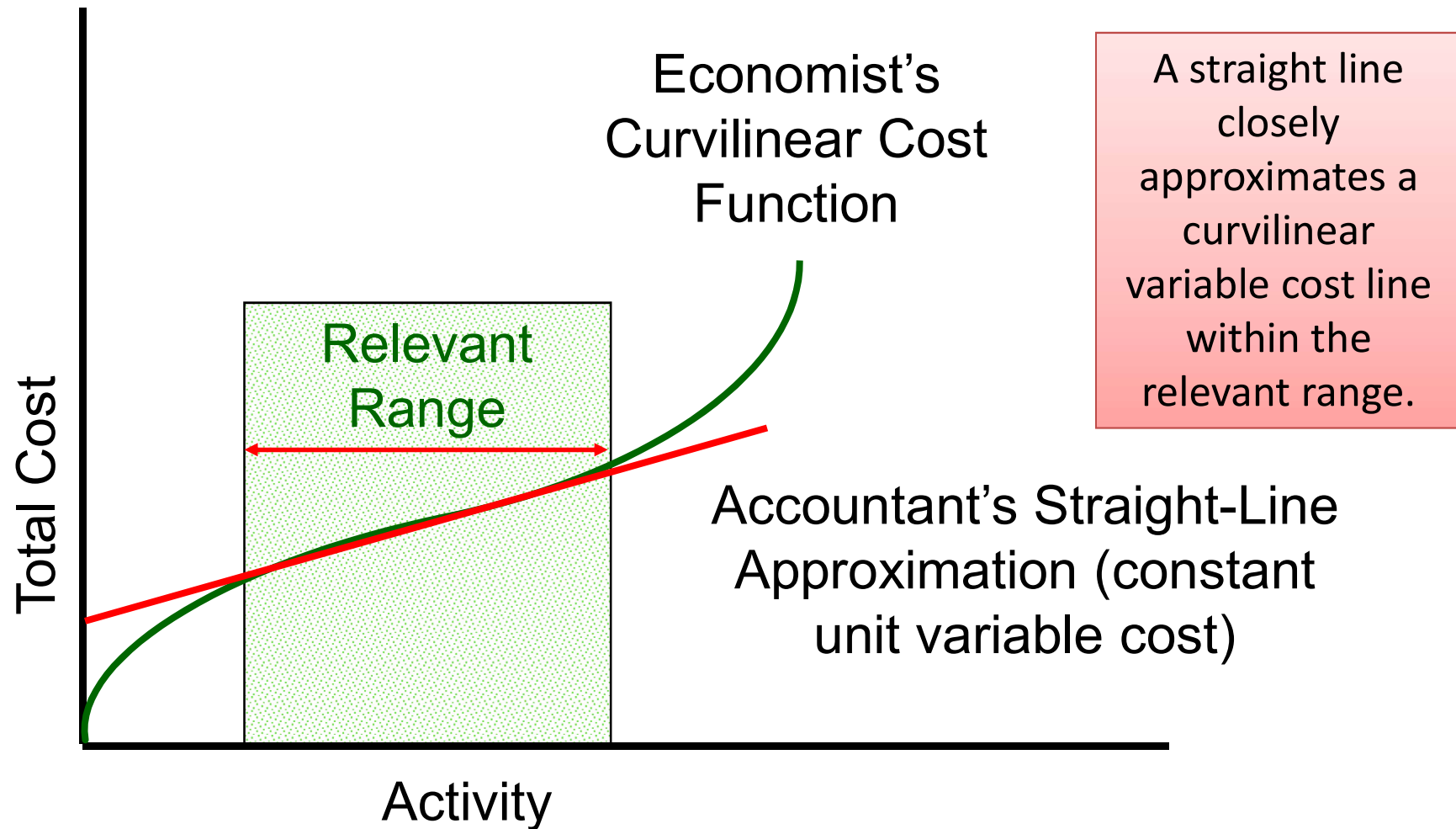
A cost that remains constant, in total, regardless of changes in the level of the activity.

If expressed on a unitary basis, the average fixed cost per unit varies inversely with change in activity.

Types of Fixed Costs



The Linearity Assumption and the Relevant Range

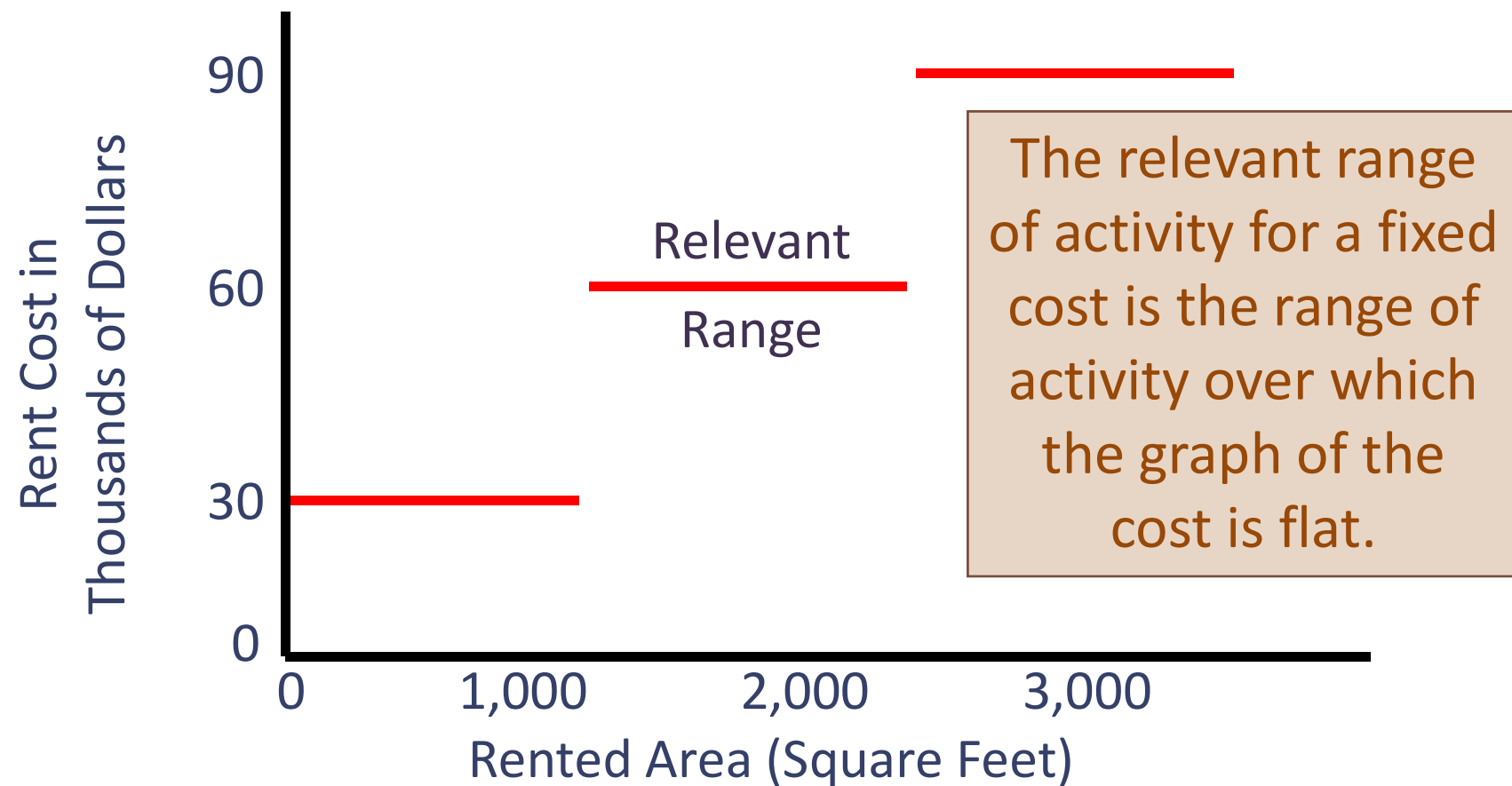


Fixed Costs and the Relevant Range

For example, assume office space is available at a rental rate of \$30,000 per year in increments of 1,000 square feet.

Fixed costs would increase in a step fashion at a rate of \$30,000 for each additional 1,000 square feet.

Relevant Range: Graphic



Comparison of Cost Classifications for Predicting Cost Behavior

Cost	Behavior of the Cost (within the relevant range)	
	In Total	Per Unit
Variable cost	Total variable cost increases and decreases in proportion to changes in the activity level.	Variable cost per unit remains constant.
Fixed cost	Total fixed cost is not affected by changes in the activity level within the relevant range.	Fixed cost per unit decreases as the activity level rises and increases as the activity level falls.

Quick Check 2

Which of the following costs would be variable with respect to the number of ice cream cones sold at a Baskins & Robbins shop? (There may be more than one correct answer.)

- A. The cost of lighting the store.
- B. The wages of the store manager.
- C. The cost of ice cream.
- D. The cost of napkins for customers.

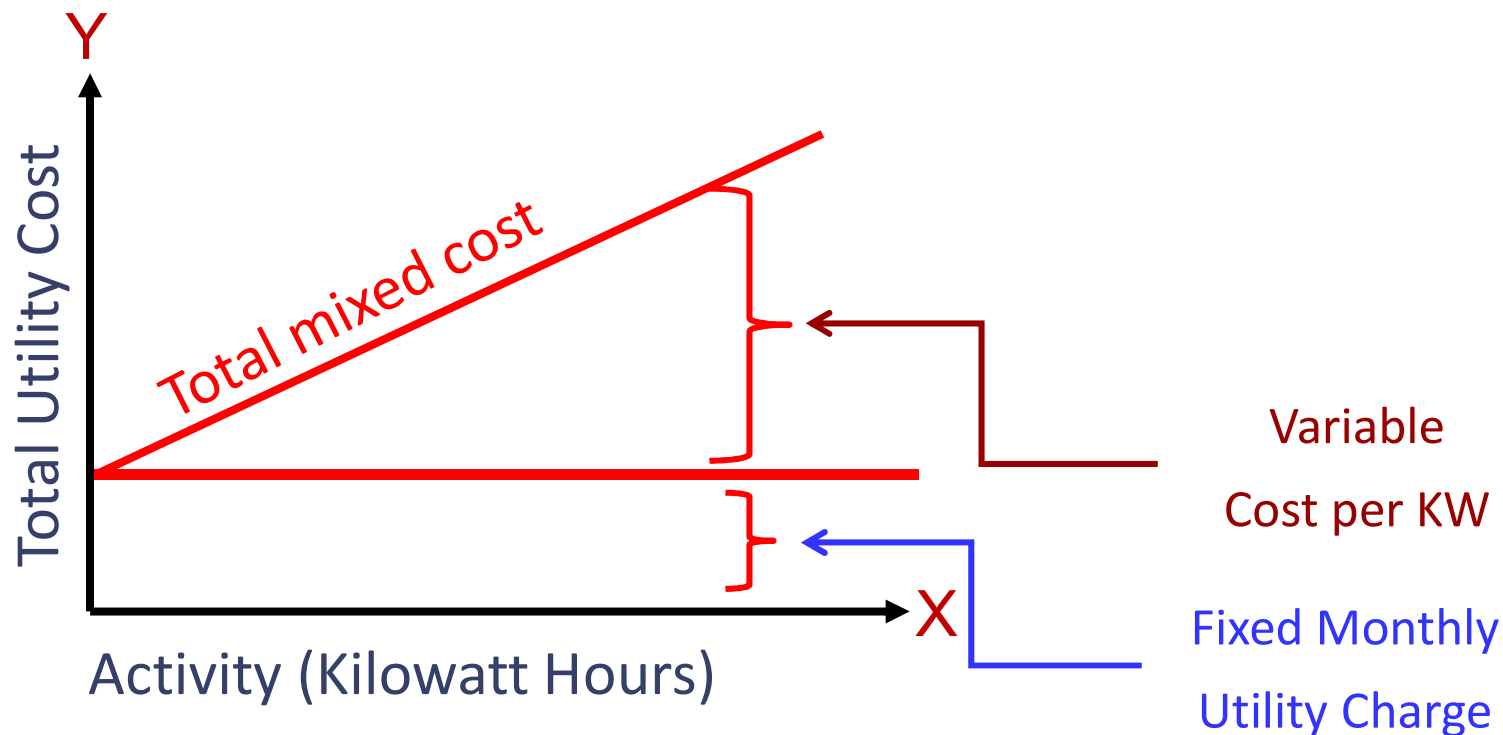
Quick Check 2a

Which of the following costs would be variable with respect to the number of ice cream cones sold at a Baskins & Robbins shop? (There may be more than one correct answer.)

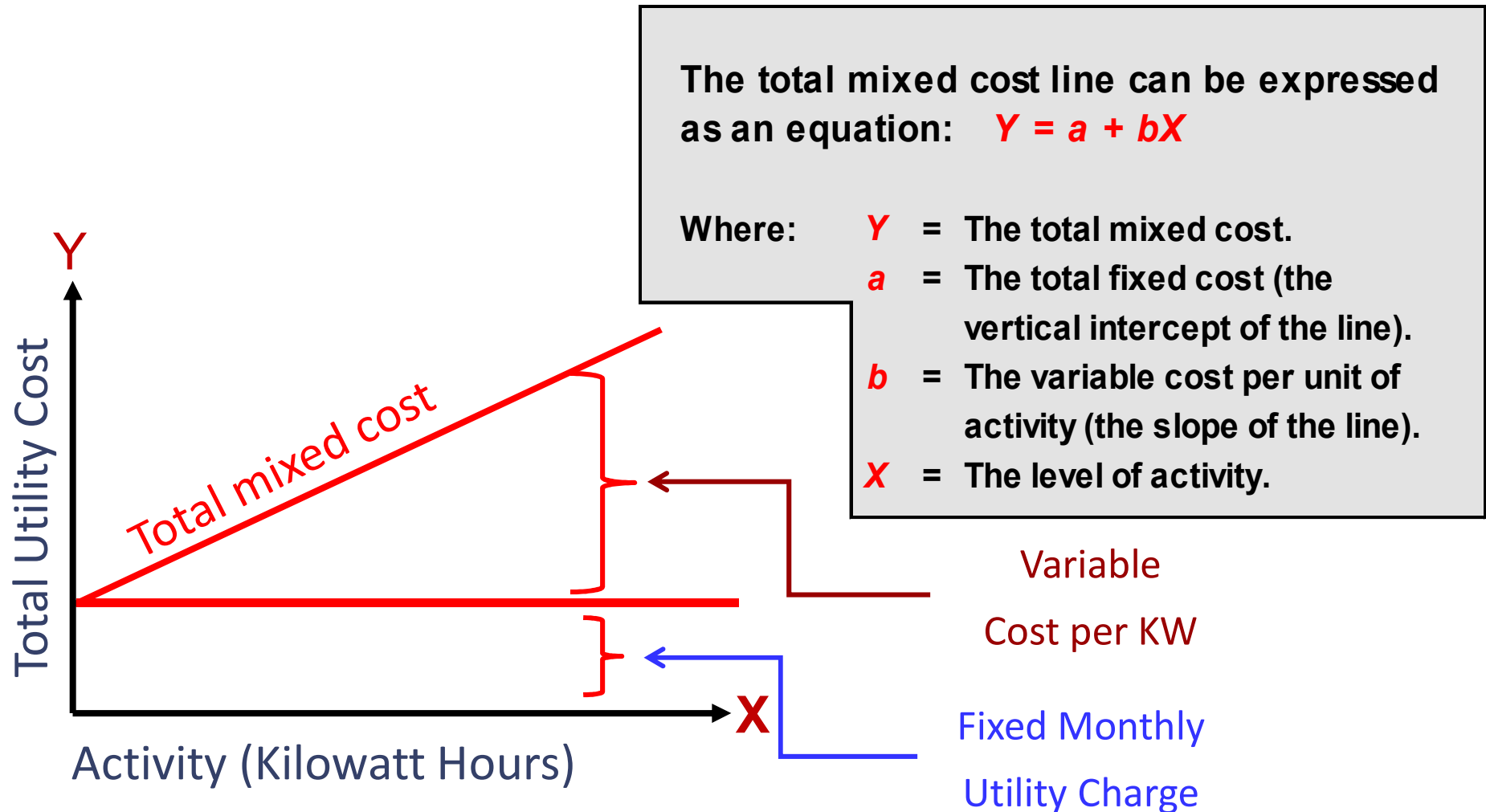
- A. The cost of lighting the store.
- B. The wages of the store manager.
- ☒ C. The cost of ice cream.
- ☒ D. The cost of napkins for customers.

Mixed Costs – Part 1

A mixed cost contains both variable and fixed elements.
Consider the example of utility cost.



Mixed Costs – Part 2



Mixed Costs – An Example

If your fixed monthly utility charge is \$40, your variable cost is \$0.03 per kilowatt hour, and your monthly activity level is 2,000 kilowatt hours, what is the amount of your utility bill?

$$Y = a + bX$$

$$Y = \$40 + (\$0.03 \times 2,000)$$

$$Y = \textbf{\$100}$$

Learning Objective 5

Understand cost classifications used in making decisions: differential costs, sunk costs, and opportunity costs.

Cost Classifications for Decision Making

Decisions involve choosing between alternatives. The goal of making decisions is to identify those costs that are either **relevant** or **irrelevant** to the decision.

To make decisions, it is essential to have a grasp on three concepts: differential costs, sunk costs, and opportunity costs.

Differential Costs

Differential costs (or incremental costs) are the difference in cost between any two alternatives.

A difference in revenue between two alternatives is called differential revenue.

Both are always relevant to decisions.

Differential costs can be either fixed or variable.

Sunk Costs

Sunk costs have already been incurred and cannot be changed now or in the future. These costs should be ignored when making decisions.

Opportunity Cost

The potential benefit that is given up when one alternative is selected over another.

These costs are not usually found in accounting records but must be explicitly considered in every decision.

For students: What is the opportunity cost you incur by attending class?

Quick Check 3

Suppose you are trying to decide whether to drive or take the train to Portland to attend a concert. You have ample cash to do either, but you don't want to waste money needlessly. Is the cost of the train ticket relevant in this decision? In other words, should the cost of the train ticket affect the decision of whether you drive or take the train to Portland?

- A. Yes, the cost of the train ticket is relevant.
- B. No, the cost of the train ticket is not relevant.

Quick Check 3a

Suppose you are trying to decide whether to drive or take the train to Portland to attend a concert. You have ample cash to do either, but you don't want to waste money needlessly. Is the cost of the train ticket relevant in this decision? In other words, should the cost of the train ticket affect the decision of whether you drive or take the train to Portland?

- ☒ A. Yes, the cost of the train ticket is relevant.
- ☐ B. No, the cost of the train ticket is not relevant.

Quick Check 4

Suppose you are trying to decide whether to drive or take the train to Portland to attend a concert. You have ample cash to do either, but you don't want to waste money needlessly. Is the annual cost of licensing your car relevant in this decision?

- A. Yes, the licensing cost is relevant.
- B. No, the licensing cost is not relevant.

Quick Check 4a

Suppose you are trying to decide whether to drive or take the train to Portland to attend a concert. You have ample cash to do either, but you don't want to waste money needlessly. Is the annual cost of licensing your car relevant in this decision?

A. Yes, the licensing cost is relevant.

☒ B. No, the licensing cost is not relevant.

Quick Check 5

Suppose that your car could be sold now for \$5,000. Is this a sunk cost?

- A. Yes, it is a sunk cost.
- B. No, it is not a sunk cost.

Quick Check 5a

Suppose that your car could be sold now for \$5,000. Is this a sunk cost?

A. Yes, it is a sunk cost.

☒ B. No, it is not a sunk cost.

Learning Objective 6

**Prepare income statements
for a merchandising
company using the
traditional and contribution
formats.**

The Traditional and Contribution Formats

Comparison of the Contribution Income Statement with the Traditional Income Statement

Traditional Format		Contribution Format	
Sales	\$ 100,000	Sales	\$ 100,000
Cost of goods sold	70,000	Variable expenses	60,000
Gross margin	\$ 30,000	Contribution margin	\$ 40,000
Selling & admin. expenses	20,000	Fixed expenses	30,000
Net operating income	\$ 10,000	Net operating income	\$ 10,000

Used primarily for
external reporting.

Used primarily by
management.

Uses of the Contribution Format

The contribution income statement format is used as an internal planning and decision-making tool.

We will use this approach for:

1. Cost-volume-profit analysis (Chapter 2).
2. Segmented reporting of profit data (Chapter 4).
3. Budgeting (Chapter 8).
4. Special decisions such as pricing and make-or-buy analysis (Chapter 6).