

***Accounting Principles Volume 2 (Canadian) 8th
edition Weygandt Solutions Manual***

SKU: 9781119502562-SOLUTIONS

CHAPTER 9

Long-Lived Assets

Learning Objectives

1. Calculate the cost of property, plant, and equipment.
2. Apply depreciation methods to property, plant, and equipment.
3. Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.
4. Demonstrate how to account for property, plant, and equipment disposals.
5. Record natural resource transactions and compute depletion.
6. Identify the basic accounting issues for intangible assets and goodwill.
7. Illustrate the reporting and analysis of long-lived assets.

Summary of Questions by Learning Objectives and Bloom's Taxonomy

Item	LO	BT	Item	LO	BT	Item	LO	BT	Item	LO	BT	Item	LO	BT
Questions														
1.	1	K	6.	2	C	11.	3	C	16.	4	K	21.	6	C
2.	1	K	7.	2	K	12.	3	K	17.	4	C	22.	6	C
3.	1	C	8.	2	C	13.	3	C	18.	5	K	23.	7	K
4.	1	C	9.	2,3	K	14.	4	C	19.	5	C	24.	7	C
5.	1	C	10.	3	C	15.	4	C	20.	6	C			
Brief Exercises														
1.	1	AP	5.	2	AP	9.	2	AP	13.	4	AP	17.	7	K
2.	1	AP	6.	2	AP	10.	3	AP	14.	4	AP	18.	7	AP
3.	1	K	7.	2	AP	11.	3	AP	15.	5	AP	19.	7	AN
4.	1	AP	8.	2	AP	12.	4	AP	16.	6	AP			
Exercises														
1.	1	AP	4.	2	AP	7.	3	AP	10.	4	AP	13.	6	AP
2.	1,2	AP	5.	2	AP	8.	3	AP	11.	5	AP	14.	6	AP
3.	1,2	C	6.	3	AP	9.	4	AP	12.	1,2,6	AP	15.	7	AN
Problems														
1.	1	AP	4.	1,3	AP	7.	2,4	AP	10.	6	AP	13.	7	AN
2.	1,2	AP	5.	3	AP	8.	2,4	AP	11.	6,7	AP			
3.	1,2	AP	6.	1,2,3,4	AP	9.	2,4,7	AP	12.	3,5,7	AP			

Legend: The following abbreviations will appear throughout the solutions manual file.

LO	Learning objective	
BT	Bloom's Taxonomy K Knowledge C Comprehension AP Application AN Analysis S Synthesis E Evaluation	
Difficulty:	Level of difficulty S Simple M Moderate C Complex	
Time:	Estimated time to complete in minutes	
AACSB	Association to Advance Collegiate Schools of Business Communication Communication Ethics Ethics Analytic Analytic Tech. Technology Diversity Diversity Reflec. Thinking Reflective Thinking	
CPA CM	CPA Canada Competency Map Ethics Professional and Ethical Behaviour PS and DM Problem-Solving and Decision-Making Comm. Communication Self-Mgt. Self-Management Team & Lead Teamwork and Leadership Reporting Financial Reporting Stat. & Gov. Strategy and Governance Mgt. Accounting Management Accounting Audit Audit and Assurance Finance Finance Tax Taxation	

ASSIGNMENT CLASSIFICATION TABLE

<u>Learning Objectives</u>	<u>Questions</u>	<u>Brief Exercises</u>	<u>Exercises</u>	<u>Problems Set A</u>	<u>Problems Set B</u>
1. Calculate the cost of property, plant, and equipment.	1, 2, 3, 4, 5	1, 2, 3, 4	1, 2, 3, 12	1, 2, 3, 4, 6	1, 2, 3, 4, 6
2. Apply depreciation methods to property, plant, and equipment.	6, 7, 8, 9,	5, 6, 7, 8, 9	2, 3, 4, 5, 12	2, 3, 6, 7, 8, 9	2, 3, 6, 7, 8, 9, 12
3. Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.	9, 10, 11, 12, 13,	10, 11	6, 7, 8	4, 5, 6, 12	4, 5, 6
4. Demonstrate how to account for property, plant, and equipment disposals.	14, 15, 16, 17,	12, 13, 14	9, 10	6, 7, 8, 9	6, 7, 8, 9
5. Record natural resource transactions and calculate depletion.	18, 19, 20	15	11	12	12
6. Identify the basic accounting issues for intangible assets and goodwill.	21, 22	16	12, 13, 14	10, 11	10, 11
7. Illustrate the reporting and analysis of long-lived assets.	23, 24	17, 18, 19	15	9, 11, 12, 13	9, 11, 12, 13

ASSIGNMENT CHARACTERISTICS TABLE

<u>Problem Number</u>	<u>Description</u>	<u>Difficulty Level</u>	<u>Time Allotted (min.)</u>
1A	Record property transactions.	Simple	20-30
2A	Allocate cost and calculate partial period depreciation.	Moderate	20-30
3A	Determine cost; calculate and compare depreciation under different methods.	Moderate	30-40
4A	Account for operating and capital expenditures and asset impairments.	Moderate	20-30
5A	Record impairment and calculate revised depreciation.	Moderate	20-30
6A	Record acquisition, depreciation, impairment, and disposal of land and building.	Moderate	25-35
7A	Calculate and compare depreciation and gain or loss on disposal under three methods of depreciation.	Moderate	30-40
8A	Record acquisition, depreciation, and disposal of equipment.	Moderate	30-40
9A	Record property, plant, and equipment transactions; prepare partial financial statements.	Complex	40-50
10A	Correct errors in recording intangible asset transactions.	Complex	15-20
11A	Record intangible asset transactions; prepare partial balance sheet.	Moderate	30-40
12A	Record natural resource transactions; prepare partial financial statements.	Moderate	25-30
13A	Calculate ratios and comment.	Moderate	15-25
1B	Record property transactions.	Simple	20-30
2B	Allocate cost and calculate partial period depreciation.	Moderate	20-30
3B	Determine cost; calculate and compare depreciation under different methods.	Moderate	30-40
4B	Account for operating and capital expenditures and asset impairments.	Moderate	20-30
5B	Record impairment and calculate revised depreciation.	Moderate	20-30
6B	Record acquisition, depreciation, impairment, and disposal of equipment.	Moderate	25-35

ASSIGNMENT CHARACTERISTICS TABLE (Continued)

<u>Problem Number</u>	<u>Description</u>	<u>Difficulty Level</u>	<u>Time Allotted (min.)</u>
7B	Calculate and compare depreciation and gain or loss on disposal under three methods of depreciation.	Moderate	30-40
8B	Record acquisition, depreciation, and disposal of furniture.	Moderate	30-40
9B	Record property, plant, and equipment transactions; prepare partial financial statements.	Complex	40-50
10B	Correct errors in recording intangible asset transactions.	Complex	15-20
11B	Record intangible asset transactions; prepare partial balance sheet.	Moderate	30-40
12B	Record equipment, note payable, and natural resource transactions; prepare partial financial statements.	Moderate	25-30
13B	Calculate ratios and comment.	Moderate	15-25

BLOOM'S TAXONOMY TABLE

Correlation Chart between Bloom's Taxonomy, Study Objectives and End-of-Chapter Exercises and Problems

Learning Objective	Knowledge	Comprehension	Application		Analysis	Synthesis	Evaluation
1. Calculate the cost of property, plant, and equipment.	Q9.1 Q9.2 BE9.3	Q9.3 Q9.4 Q9.5 E9.3	BE9.1 BE9.2 BE9.4 E9.1 E9.2 E9.12 P9.1A	P9.2A P9.3A P9.4A P9.6A P9.1B P9.2B P9.3B P9.4B P9.6B			
2. Apply depreciation methods to property, plant, and equipment.	Q9.7 Q9.9	Q9.6 Q9.8 Q9.10 Q9.11 E9.3	BE9.5 BE9.6 BE9.7 BE9.8 BE9.9 E9.2 E9.4 E9.5 E9.12 P9.2A	P9.3A P9.6A P9.7A P9.8A P9.9A P9.2B P9.3B P9.6B P9.7B P9.8B P9.9B P9.12B			
3. Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.	Q9.9 Q9.12	Q9.10 Q9.11 Q9.13	BE9.10 BE9.11 E9.6 E9.7 E9.8 P9.4A	P9.5A P9.6A P9.12A P9.4B P9.5B P9.6B			
4. Demonstrate how to account for property, plant, and equipment disposals.	Q9.16	Q9.14 Q9.15 Q9.17	BE9.12 BE9.13 BE9.14 E9.9 E9.10 P9.6A P9.7A	P9.8A P9.9A P9.6B P9.7B P9.8B P9.9B			
5. Record natural resource transactions and calculate depletion.	Q9.18	Q9.19 Q9.20	BE9.15 E9.11	P9.12A P9.12B			
6. Identify the basic accounting issues for intangible assets and goodwill.		Q9.21 Q9.22	BE9.16 E9.12 E9.13 E9.14	P9.10A P9.11A P9.10B P9.11B			
7. Illustrate the reporting and analysis of long-lived assets.	Q9.23 BE9.17	Q9.24	BE9.18 BE9.19 P9.9A P9.9B	P9.11A P9.12A P9.11B P9.12B	E9.15 P9.13A P9.13B		

BLOOM'S TAXONOMY TABLE (Continued)

Learning Objective	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Broadening Your Perspective			BYP9.1 BYP9.2 BYP9.3	BYP9.4	BYP9.5	

ANSWERS TO QUESTIONS

1. Three characteristics of property, plant, and equipment include: they (1) have a physical substance (a definite size and shape), (2) are used in the operations of the business, and (3) are not intended for sale to customers.

LO 1 BT: K Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

2. Examples of land improvements are a road, driveway, sidewalks or parking lot on the property, fencing, and underground sprinkler systems.

LO 1 BT: K Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

3. The invoice cost, the cost of the safety inspection, and the cost for the logo to be painted on the vehicle are capitalized, as they are required costs to put the vehicle into use. The insurance costs benefit the business for the term of the policy and so the costs should be allocated to the period of benefit from the policy, typically by initially recording the payment as prepaid insurance and then reducing the prepayment, charging insurance expense as the policy expires.

LO 1 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

4. The purpose of depreciation is not to accumulate the cash needed to replace an asset. Rather, depreciation is a cost allocation method, which records an expense in those accounting periods where the asset has been used and has contributed to the earning of revenues. This charge also reduces the carrying amount of the asset, but it does not involve any cash.

LO 1 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

5. The purchase cost must be split between the land and building because the building is depreciated and the land is not. In addition, the cost of each item will be needed to determine any gain or loss on disposal if either one is later sold.

LO 1 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

QUESTIONS (Continued)

6. Residual value is the estimated amount that a company would obtain from disposing of a long-lived asset at the end of its useful life. Residual value is not depreciated, since the amount is expected to be recovered at the end of the asset's useful life. Residual value is used in the formula for calculating periodic depreciation using the straight line and unit-of-production methods. Residual value is used in an indirect way in the diminishing balance method. Rather than using residual value to reduce the depreciable amount, as is done using the other two methods, the amount of the depreciation recorded is limited to the amount that will cause the carrying amount to equal the residual value of the asset.

LO 1 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

7. The three factors that affect the calculation of depreciation include cost, useful life, and residual value. The cost of a depreciable asset must include all necessary costs to get the asset ready for use. The useful life is the period of time an asset is expected to be available for use. This length may be measured as a function of time or number of units of production. The residual value is the estimated amount that a company would obtain from disposing of the asset at the end of its useful life.

LO 2 BT: K Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

8. The amount of annual depreciation is different over the useful life of an asset depending on which of the three depreciation methods are being used. The straight-line method creates a constant amount of depreciation over the useful life. The diminishing-balance method is devised to charge a higher amount of depreciation in the earlier part of the useful life of the asset. Lastly, the unit-of-production method is less predictable in that it is based on the amount of use that is being made of the asset.

LO 2 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

9. A company should choose the depreciation method it believes will best reflect the pattern over which the asset's future economic benefits are expected to be consumed. The depreciation method must be revised if the expected pattern of consumption of the future economic benefits has changed.

LO 2,3 BT: K Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

QUESTIONS (Continued)

10. Operating expenditures are ordinary repairs made to maintain the operating efficiency and expected productive life of the asset. Because they are recurring expenditures and normally benefit only the current accounting period, they are expensed when incurred. Capital expenditures are additions and improvements made to increase efficiency, productivity, or expected useful life of the asset. Because they benefit future periods, capital expenditures are debited to the asset account affected. Once capitalized, these expenditures are depreciated over their benefiting period.

LO 3 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

11. Revision of depreciation generally occurs when there is a change to any of the three factors that affect the calculation of depreciation: the asset's cost, useful life, or residual value. Depreciation needs to be revised if there are capital expenditures, impairments in the asset's recoverable amount, changes in the depreciation method, or changes in the estimated remaining useful life or residual value. The revisions are based on new information that will affect only current and future periods, so there is no revision of depreciation previously recorded.

LO 3 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

12. Factors that may contribute to an impairment loss include obsolescence of a piece of equipment, loss of a market for a product manufactured, bankruptcy of the supplier of replacement parts for equipment, or environmental concerns causing extra costs of disposal at the end of the useful life.

LO 3 BT: K Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

13. Extending the total service life and consequently the estimated remaining useful life of a depreciable asset will reduce the amount of depreciation recorded in each of the remaining five years of use. The carrying amount of the asset will become the new basis to which the business will apply the formula of the depreciation method. The residual value may also be revised.

LO 3 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

QUESTIONS (Continued)

14. Depreciation must be updated from the last time depreciation entries were recorded to the date of the sale because the depreciation expense must properly reflect the total period over which the asset's economic benefits are used. Updating depreciation also aids in determining the correct amount of the gain or loss on disposal.

LO 4 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

15. The asset and related accumulated depreciation should continue to be reported on the balance sheet, without further depreciation or adjustment, until the asset is retired. Reporting the asset and related accumulated depreciation on the balance sheet informs the reader of the financial statements that the asset is still being used by the company. However, once an asset is fully depreciated, no additional depreciation should be taken on this asset, even if it is still being used. In no situation can the accumulated depreciation exceed the cost of the asset.

LO 4 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

16. In a sale of property, plant, or equipment, the carrying amount of the asset is compared to the proceeds from the sale. If the proceeds of the sale exceed the carrying amount of the asset, a gain on disposal occurs. If the proceeds of the sale are less than the carrying amount of the asset sold, a loss on disposal occurs.

In an exchange, a new asset is received in an exchange for the old asset given up. The gain or loss is calculated by comparing the fair value of the asset given up to its carrying amount. The trade-in allowance on the asset given up is not relevant because it rarely reflects the fair value of the asset that is given up. Instead of using the trade-in allowance, the fair value of the asset given up is used to calculate the gain or loss on the asset being given up. A loss results if the carrying amount of the asset being given up is more than its fair value. A gain results if the carrying amount is less than its fair value.

LO 4 BT: K Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

17. The carrying amount of an item of property, plant, or equipment is a sub-total amount representing the net amount of the cost less the accumulated depreciation. The amount is not a general ledger account and so is not used in journal entries used to record dispositions. Instead, the asset and accumulated depreciation accounts are used in the journal entry.

LO 4 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

QUESTIONS (Continued)

18. Natural resources have two characteristics that make them different from other long-lived assets: (1) they are physically extracted in operations such as mining, cutting, or pumping; and (2) only an act of nature can replace them. Similar to property, plant, and equipment, natural resources are tangible long-lived assets that are expected to last beyond one year and are therefore classified on the balance sheet as non-current. When natural resources are extracted, depletion is recorded, causing an increase in another asset, inventory, which is subsequently sold.

LO 5 BT: K Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

19. The units-of-production method is a common and ideal method of recording the depletion of natural resources. There is a finite quantity of units of natural resource to be extracted. As extraction occurs, the conversion from one asset (natural resource) to another (inventory) can be measured in units and cost of the units can be fairly applied. Consequently, a more precise charge for depletion can be arrived at that corresponds to the asset created (inventory) when the natural resource is reduced.

LO 5 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

20. I disagree. The useful life of some intangible assets might be limited to the legal life of those assets and in that case, I would agree. I disagree with the limitation of the period of amortization to the legal life of intangibles. Some intangible assets have useful lives that are much shorter than their respective legal lives. So, to properly match expenses to revenues, the length of useful life should be used in the calculation of amortization. In some cases, the legal life could be without time limits. In that case it would not be possible to execute a calculation. Finally, in the case of goodwill, GAAP dictates that no depreciation can be recorded under any circumstances. Only impairment losses reduce the carrying amount of goodwill.

LO 5 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

QUESTIONS (Continued)

21. The accounting for tangible and intangible assets is much the same. Tangible and intangible assets are reported at cost, which includes all expenditures necessary to prepare the asset for its intended use. Both tangible and intangible assets with finite lives are amortized over their useful life. In the case of long-lived tangible assets, the useful life or the physical life of the asset will be used as a limit of the length of time the assets will be depreciated. In the case of intangible life, there is no physical limitation in the usefulness of the asset and the length of time the asset will be amortized is the shorter of its useful life or its legal life, usually on a straight-line basis. Due to their lack of substance, intangible assets are more likely to have indefinite useful lives and not need to be amortized, but only tested for impairment. This characteristic is the main difference between the accounting of tangible and intangible assets.

LO 6 BT: C Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

22. Goodwill is the value of many favourable attributes that are intertwined in a business enterprise. Goodwill can be identified only with the business as a whole and, unlike other assets, cannot be sold separately. Goodwill is only recorded on the purchase of a business if the purchaser pays a price that is greater than the fair value of the net assets of the business.

LO 6 BT: C Difficulty: C Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

23. Property, plant, and equipment and natural resources are often combined and reported in the balance sheet as “property, plant, and equipment” or “capital assets.” Intangible assets are listed separately after property, plant, and equipment. Goodwill must be disclosed separately. For assets that are depreciated or amortized, the balances of the accumulated depreciation and/or amortization must be disclosed in the balance sheet or in the notes to the financial statements.

Depreciation and amortization expense for the period must also be disclosed either on the income statement, elsewhere in the financial statements, or in the notes to the financial statements. When impairment losses have occurred, they should be shown on a separate line on the income statement, with the details disclosed in a note.

The notes to the financial statements should disclose the depreciation or amortization methods and rates that are used. The carrying amount of each major class of long-lived assets should also be disclosed. Companies should also disclose their impairment policy in the notes to the financial statements.

LO 7 BT: K Difficulty: C Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

QUESTIONS (Continued)

24. I disagree. Higher turnover of assets does not necessarily result in increased profits. A higher asset turnover just means that more revenue or sales are being generated for each dollar of assets. On the other hand, a higher return on assets means a proportionately higher profit has been generated for each dollar of assets.

LO 7 BT: C Difficulty: C Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

SOLUTIONS TO BRIEF EXERCISES

BRIEF EXERCISE 9.1

- (a) The cost of the land is \$95,000 (\$85,000 + \$1,500 + \$5,000 + \$3,500).
- (b) The cost of the land improvements is \$5,000 (parking lot).

LO 1 BT: AP Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.2

The cost of the equipment is \$42,000 (invoice price \$40,375 + transportation \$625 + installation and testing \$1,000). The payment of \$1,750 for the insurance should be recorded as prepaid insurance which will be expensed as it is consumed.

LO 1 BT: AP Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.3

- (a) O
- (b) C
- (c) C
- (d) C
- (e) O¹
- (f) C
- (g) O
- (h) C
- (i) C
- (j) O

¹The assumption is that the supplies are to be used in near future. Supplies are not long-lived assets.

LO 1 BT: K Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.4

Jan. 2	Land	
	$[\$850,000 \times (\$352,000 \div \$880,000)]$	 340,000
	Building	
	$[\$850,000 \times (\$396,000 \div \$880,000)]$	 382,500
	Equipment	
	$[\$850,000 \times (\$132,000 \div \$880,000)]$	 127,500
	Cash	170,000
	Mortgage Notes Payable	
	$(\$850,000 - \$170,000)$	680,000
	To record purchase of property.	

LO 1 BT: AP Difficulty: S Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.5

Depreciable amount is \$36,000 (\$42,000 – \$6,000). With a 4-year useful life, annual depreciation is \$9,000 (\$36,000 ÷ 4). Under the straight-line method, depreciation is the same each year. Thus, depreciation expense is \$9,000 for each year of the equipment's life.

LO 2 BT: AP Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.6

The diminishing-balance rate is 50% ($200\% \div 4$) and this rate is applied to the carrying amount at the beginning of the year. Depreciation expense for each year is as follows:

<u>Year</u>	<u>Carrying Amount</u>		<u>Depr. Rate</u>	<u>=</u>	<u>Depr. Expense</u>	<u>End of Year</u>	
	<u>Beginning of Year</u>	<u>×</u>				<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2021	\$42,000		50%		\$21,000	\$21,000	\$21,000
2022	21,000		50%		10,500	31,500	10,500
2023	10,500		50%		4,500 ¹	36,000	6,000

¹ Limited to the amount that reduces the carrying amount to the residual value of \$6,000

LO 2 BT: AP Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.7

- a. Depreciable amount per unit:
 $(\$38,950 - \$4,300) \div 550,000 \text{ km.} = \$0.063/\text{km.}$
- b. Annual depreciation expense:
 2020: $90,000 \times \$0.063 = \$5,670$
 2021: $135,000 \times \$0.063 = \$8,505$

LO 2 BT: AP Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.8

Depreciation expense for each year:

<u>Year</u>	<u>Depreciable Amount¹</u>	<u>×</u>	<u>Depr. Rate</u>	<u>=</u>	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2021	\$32,000		25% $\times 9/12$		\$ 6,000	\$ 6,000	\$32,000
2022	32,000		25%		8,000	14,000	24,000

¹Depreciable amount = $\$38,000 - \$6,000 = \$32,000$

LO 2 BT: AP Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.9

The double diminishing-balance rate is 50% ($25\% \times 2$) and this rate is applied to the carrying amount at the beginning of the year. Depreciation expense for each year is as follows:

Double Diminishing-balance

<u>Year</u>	<u>Carrying Amount</u> <u>Beginning</u> <u>of Year</u>	<u>×</u>	<u>Depr.</u> <u>Rate</u>	<u>=</u>	<u>Depr.</u> <u>Expense</u>	<u>End of Year</u>	
						<u>Accum.</u> <u>Depr.</u>	<u>Carrying</u> <u>Amount</u>
2021	\$38,000		$50\% \times 1/2$		\$ 9,500	\$ 9,500	\$28,500
2022	28,500		50%		14,250	23,750	14,250
2023	14,250		50%		7,125	30,875	7,125
2024	7,125		50%		1,125 ¹	32,000	6,000

¹ Limited to the amount that brings the carrying amount to the residual value of \$6,000

LO 2 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.10

a. Annual depreciation: $(\$250,000 - \$10,000) \div 6 = \$40,000$

Equipment cost	\$250,000
Less accumulated depreciation	
$(\$40,000 \times 3)$ for 2019 to 2021	<u>120,000</u>
Carrying amount Dec. 31, 2021	<u>\$130,000</u>

b. Impairment Loss¹ 30,000
 Accumulated Depreciation—Equipment 30,000
 To record impairment loss.

¹ Carrying amount from a.....	\$130,000
Less: Recoverable amount.....	<u>100,000</u>
Impairment loss.....	<u>\$ 30,000</u>

LO 3 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.11

Carrying amount, Jan. 1, 2021 (\$32,000 – \$9,000).....	\$23,000
Less: Residual value.....	<u>(2,000)</u>
Remaining depreciable amount	21,000
Remaining useful life	÷ 4 years
Revised annual depreciation expense 2021	<u>\$ 5,250</u>

LO 3 BT: AP Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.12

Accumulated Depreciation—	
Equipment.....	25,700
Equipment	25,700
To record retirement of equipment.	

LO 4 BT: AP Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.13

a. Mar. 31	Depreciation Expense	
	[((\$86,400 – \$2,200) ÷ 5 × 3/12)].....	4,210
	Accumulated Depreciation	
	—Equipment	4,210
	To record depreciation expense.	

b. Mar. 31	Cash	35,000
	Accumulated Depreciation—	
	Equipment ¹	54,730
	Gain on Disposal²	3,330
	Equipment	86,400
	To record disposal of equipment.	

¹ [(\$86,400 – \$2,200) ÷ 60 months × 39 months] = \$54,730

\$16,840 x 3 years (2018-2020)	\$50,520
Depreciation for 3 months in 2021	4,210
Accumulated Depreciation to March 31	<u>\$54,730</u>

²Cost of equipment.....	\$86,400
Less: accumulated depreciation	<u>54,730</u>
Carrying amount at date of disposal.....	31,670
Proceeds from sale	<u>35,000</u>
Gain on disposal	<u>\$ 3,330</u>

c. Mar. 31	Cash	29,000
	Accumulated Depreciation—	
	Equipment.....	54,730
	Loss on Disposal³	2,670
	Equipment	86,400
	To record disposal of equipment.	

³Cost of equipment.....	\$86,400
Less: accumulated depreciation	<u>54,730</u>
Carrying amount at date of disposal.....	31,670
Proceeds from sale	<u>29,000</u>
Loss on disposal	<u>\$ 2,670</u>

LO 4 BT: AP Difficulty: C Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.14

Jan. 7	Equipment (new)¹	29,000	
	Accumulated Depreciation		
	—Equipment	30,000	
	Loss on Disposal²	7,000	
	Equipment (old)		61,000
	Cash.....		5,000
	To record exchange of equipment		

¹**Cost of new = consideration paid in cash plus fair value of old asset: (\$5,000 + \$24,000 = \$29,000)**

²**Loss on disposal = Carrying amount – fair value:
[(\$61,000 – \$30,000) – \$24,000 = \$7,000]**

LO 4 BT: AP Difficulty: C Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.15

Depletion base
= \$6,500,000 – \$500,000
= \$6,000,000

Depletion per unit
= \$6,000,000 ÷ 25,000,000 tonnes
= \$0.24 per tonne

Depletion expense for ore extracted in Year 1:
\$0.24 per tonne × 5,000,000 tonnes = \$1,200,000

Aug. 31 Inventory	1,200,000	
Accumulated Depletion—Resource		1,200,000
To record annual depletion.		

LO 5 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.16

- a. 2021
 Jan. 2 Patents 150,000
 Cash..... 150,000
 To record cash purchase of patent.
- b. **Dec. 31** Amortization Expense
 (\$150,000 ÷ 8)..... 18,750
 Accumulated Amortization—
 Patents 18,750
 To record amortization expense.

LO 6 BT: AP Difficulty: S Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.17

- | | |
|-----------------------|--------------------|
| a. PPE | g. PPE |
| b. NA (expense) | h. NA (investment) |
| c. I | i. PPE |
| d. NR | j. I |
| e. NA (current asset) | k. NA (expense) |
| f. PPE | l. I |

LO 7 BT: K Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.18

H. DENT COMPANY
Balance Sheet (Partial)
December 31, 2021

Property, plant, and equipment

Land		\$ 400,000
Building	\$1,100,000	
Less: Accumulated depreciation	<u>600,000</u>	500,000
Resource	500,000	
Less: Accumulated depletion	<u>108,000</u>	<u>392,000</u>
Total property, plant, and equipment		<u>1,292,000</u>

Goodwill **410,000**

LO 7 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

BRIEF EXERCISE 9.19

(\$ in US millions)

Return on assets	$\frac{\$315}{[(\$17,942 + \$16,963) \div 2]}$ $= 1.80\%$
Asset turnover	$\frac{\$13,766}{[(\$17,942 + \$16,963) \div 2]}$ $= 0.79 \text{ times}$

LO 7 BT: AN Difficulty: S Time: 15 min. AACSB: Analytic CPA: cpa-t001 cpa-t005
 CM: Reporting and Finance

SOLUTIONS TO EXERCISES

EXERCISE 9.1

- a. The acquisition cost of a property, plant, and equipment includes all expenditures necessary to acquire the asset and make it ready for its intended use. This includes not only the invoice cost of acquisition, but any freight, installation, testing, and similar costs to get the asset ready for use. For example, the cost of factory equipment includes the purchase price, freight costs paid by the purchaser, insurance costs during transit, and installation costs. Costs such as these benefit the life of the factory equipment and not just the current period. Consequently, they should be capitalized and depreciated over the equipment's useful life.
- b.
1. Land
 2. Land
 3. Land
 4. Land ($\$4,800 - \$900 = \$3,900$)
 5. Vehicles
 6. Vehicles
 7. Licence Expense
 8. Land Improvements

LO 1 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.2**a.**

	Appraised Value	% of Total	Cost Allocated
Land	\$ 476,000	35%	\$ 448,000
Building	748,000	55%	704,000
Land Improvements	136,000	10%	128,000
	<u>\$1,360,000</u>		<u>\$1,280,000</u>

- b.**
- | | | |
|--|----------------|------------------|
| Land | 448,000 | |
| Building..... | 704,000 | |
| Land Improvements | 128,000 | |
| Cash..... | | 255,000 |
| Mortgage Payable | | 1,025,000 |
| To record purchase of property. | | |

- c.** Depreciable amount for the building is \$654,000 (\$704,000 – \$50,000). With a 60-year useful life, annual depreciation expense is \$10,900 ($\$654,000 \div 60$).

Depreciable amount for the land improvements is \$128,000. With a 15-year useful life, annual depreciation expense is \$8,533 ($\$128,000 \div 15$).

LO 1,2 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.3

1. **False. The inverse is true. Depreciation is a process of cost allocation, not asset valuation.**
2. **True.**
3. **False. The fair value of a plant asset may exceed the carrying amount of that asset. The best example is land because it is not depreciated.**
4. **False. Depreciation does not apply to land because its revenue-producing ability generally remains intact over time.**
5. **False. Buildings do not have indefinite physical life and must therefore be depreciated.**
6. **True, although there could be exceptions due to the nature of the long-lived asset.**
7. **False. The process of depreciating a long-lived asset does not involve cash, but a charge as an expense on the income statement. No cash is being accumulated to replace the asset.**
8. **True.**
9. **False. Depreciation expense is reported on the income statement, but the accumulated depreciation is reported on the balance sheet.**
10. **False. The fair value of a depreciable asset is not a factor used in the calculation of depreciation.**

LO 1,2 BT: C Difficulty: S Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.4

a. Straight-line

<u>Year</u>	<u>Depreciable Cost</u> ¹	×	<u>Depr. Rate</u> ²	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$330,000		20% × 1/2		\$33,000	\$33,000	\$312,000
2021	330,000		20%		66,000	99,000	246,000

¹\$345,000 – \$15,000 = \$330,000

²Straight-line rate = 100% ÷ 5 years = 20%

b. Double diminishing-balance

<u>Year</u>	<u>Carrying Amount Beginning of Year</u>	×	<u>Depr. Rate</u> ³	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$345,000		40% × 1/2		\$69,000	\$69,000	\$276,000
2021	276,000		40%		110,400	179,400	165,600

³Double diminishing-balance rate = 200% ÷ 5 years = 40%

c. Units-of-Production

<u>Year</u>	<u>Units-of-Production</u>	×	<u>Depr. Cost/Unit</u> ⁴	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	71,000		\$0.55		\$39,050	\$39,050	\$305,950
2021	118,600		0.55		65,230	104,280	240,720

⁴Depreciable amount per unit is \$0.55 per unit:
 [(\$345,000 – \$15,000) ÷ 600,000 units = \$0.55]

EXERCISE 9.4 (Continued)

- d. In this particular case, the units-of-production can be used as management is able to reliably estimate the amount of total production that will be obtained by using the equipment. This method allows for the best matching of depreciation costs with the related benefits obtained from the asset's use. Another factor affecting the choice of depreciation methods is consistency with methods used in the past for similar type assets. Since this is a rather expensive piece of equipment, Blue Ribbon's policy of recording a half-year's depreciation in the year of acquisition could conceivably bias the amount charged for depreciation in 2020. Coincidentally, the date of purchase happens to be within one month of the mid-point of the fiscal year. The choice of methods would consequently not differ tremendously between the units-of-production and the straight-line methods. Future purchases of depreciable assets could nonetheless unfairly charge depreciation in the year of purchase. By choosing the units-of-production, the bias is removed.

LO 2 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.5**a.****(1) Straight-line**

<u>Year</u>	<u>Depreciable Amount¹</u>	×	<u>Depr. Rate²</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$115,200		25% × 8/12		\$19,200	\$19,200	\$110,000
2021	115,200		25%		28,800	48,000	81,200
2022	115,200		25%		28,800	76,800	52,400
2023	115,200		25%		28,800	105,600	23,600
2024	115,200		25% × 4/12		9,600	115,200	14,000

¹ \$129,200 – \$14,000 = \$115,200² Straight-line rate = 100% ÷ 4 years = 25%**(2) Double diminishing-balance**

<u>Year</u>	<u>Carrying Amount Beginning of Year</u>	×	<u>Depr. Rate³</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2000	\$129,200		50% × 8/12		\$43,067	\$43,067	\$86,133
2021	86,133		50%		43,067	86,134	43,066
2022	43,066		50%		21,533	107,667	21,533
2023	21,533		50%		7,533 ⁴	115,200	14,000

³ Double diminishing rate = 200% ÷ 4 years = 50%⁴ Limited to the amount that brings the carrying amount to the residual value of \$14,000.

EXERCISE 9.5 (Continued)**a. (Continued)****(3) Units-of-Production**

<u>Year</u>	<u>Units of Production</u>	<u>×</u>	<u>Deprec. Amt/Unit⁵</u>	<u>=</u>	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	1,900		\$9.60		\$18,240	\$18,240	\$110,960
2021	2,800		9.60		26,880	45,120	84,080
2022	3,700		9.60		35,520	80,640	48,560
2023	2,700		9.60		25,920	106,560	22,640
2024	1,100		9.60		8,640 ⁶	115,200	14,000

⁵ Depreciation amount per unit is \$9.60/hour
 [(\$129,200 – \$14,000) ÷ 12,000 hours = \$9.60]

⁶ Limited to the amount that brings the carrying amount to the residual value of \$14,000 (actual production of 12,200 exceeded estimated total production of 12,000).

- b. Over the life of the asset, depreciation expense (in total) will be the same for all three methods, so the total profit will also be the same.
- c. Cash flow is the same under all three methods. Depreciation is an allocation of the cost of a long-lived asset and not a cash expenditure.

LO 2 BT: AP Difficulty: M Time: 45 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.6

a. July 1 Equipment..... 500,000
 2019 Cash..... 500,000
 To record cash purchase of equipment.

Dec. 31 Depreciation Expense¹..... 25,000
 2019 Accumulated Depreciation—
 Equipment 25,000
 To record depreciation expense.
 ¹(\$500,000 ÷ 10 × 6/12)

Dec. 31 Depreciation Expense²..... 50,000
 2020 Accumulated Depreciation—
 Equipment 50,000
 To record depreciation expense.
 ²(\$500,000 ÷ 10)

b. Carrying amount of the equipment—Dec. 31, 2020
 [\$500,000 – (\$50,000 × 1.5 years)] \$425,000
 Recoverable amount 325,000
 Impairment loss..... \$100,000

Dec. 31 Impairment Loss 100,000
 2020 Accumulated Depreciation—
 Equipment 100,000
 To record impairment loss.

c. January 1, 2021 Carrying amount is \$325,000
 Depreciation expense for 2021:
 \$325,000 ÷ 8.5 years = \$38,235.

December 31, 2021 Carrying amount is \$286,765
 (\$325,000 – \$38,235).

LO 3 BT: AP Difficulty: M Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.7

a. Annual depreciation — current estimate

Building: $(\$800,000 - \$40,000) \div 20 \text{ yrs.}$

= \$38,000 per year

Equipment: $(\$125,000 - \$5,000) \div 5 \text{ yrs.}$

= \$24,000 per year

b. Carrying amount — Building Jan. 1, 2021: \$230,000

$[\$800,000 - (\$38,000 \times 15)]$

Carrying amount — Equipment Jan. 1, 2021: \$77,000

$[\$125,000 - (\$24,000 \times 2)]$

c. Annual depreciation — revised estimate — 2021

Building: $[(\$230,000 - \$60,500) \div (30 - 15 \text{ yrs.})]$

= \$11,300 per year

Equipment: $[(\$77,000 - \$4,000) \div (4 - 2 \text{ yrs.})]$

= \$36,500

Carrying amount — Building Dec. 31, 2021: \$218,700

$(\$230,000 - \$11,300)$

Carrying amount — Equipment Dec. 31, 2021: \$40,500

$(\$77,000 - \$36,500)$

LO 3 BT: AP Difficulty: C Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.8

a. **Annual depreciation — first two years of equipment's life**
 $(\$90,000 - \$9,000) \div 6 \text{ yrs.} = \$13,500 \text{ per year}$

b. **Carrying amount Equipment Sept. 30, 2021: \$63,000**
 $[\$90,000 - (\$13,500 \times 2)]$

c. 2021
 Oct. 1 Equipment..... 15,000
 Cash..... 15,000
 To record upgrade to equipment.

d. 2022
 Sept. 30 Depreciation Expense¹..... 36,500
 Accumulated Depreciation
 —Equipment 36,500
 To record depreciation expense.

¹ Carrying amount Sept. 30, 2021 from b.....	\$63,000
Add: Upgrade	<u>15,000</u>
	78,000
Less: Revised residual value	<u>5,000</u>
Remaining depreciable amount	\$73,000
Remaining useful life (4 – 2)	$\div 2 \text{ years}$
Revised annual depreciation expense.....	<u>\$36,500</u>

LO 3 BT: AP Difficulty: M Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.9**a.**

Apr. 1	Depreciation Expense¹.....	1,125	
	Accumulated Depreciation		
	—Equipment.....		1,125
	¹(\$45,000 ÷ 10 years × 3/12)		
	To record depreciation expense.		
July 30	Depreciation Expense².....	2,450	
	Accumulated Depreciation		
	—Equipment.....		2,450
	²(\$12,600 ÷ 3 years × 7/12)		
	To record depreciation expense.		
Nov. 1	Depreciation Expense³.....	3,125	
	Accumulated Depreciation—Vehicles		3,125
	³(\$35,000 – \$5,000) ÷ 8 years × 10/12)		
	To record depreciation expense.		

b.

Apr. 1	Accumulated Depreciation		
	—Equipment⁴.....	41,625	
	Loss on Disposal.....	3,375	
	Equipment		45,000
	⁴[(\$45,000 ÷ 10 years) × 9] + \$1,125		
	To record disposal of equipment.		
July 30	Cash	1,100	
	Accumulated Depreciation		
	—Equipment⁵.....	10,850	
	Loss on Disposal	650	
	Equipment		12,600
	⁵[(\$12,600 ÷ 3 years) × 2] + \$2,450		
	To record disposal of equipment.		

EXERCISE 9.9 (Continued)

Nov. 1	Vehicles (New) (\$7,000 + \$36,000)	43,000	
	Accumulated Depreciation		
	—Vehicles⁶	22,500	
	Loss on Disposal⁷	5,500	
	Vehicles (Old)		35,000
	Cash		36,000
	To record disposal of equipment.		

$$^6(\$35,000 - \$5,000) \div 8 \times 6$$

$$^7(\$35,000 - \$22,500) - \$7,000 \text{ or } \$12,500^8 - \$7,000$$

⁶Accumulated depreciation on old truck:

2015 (\$3,750 x 2/12)	\$ 625
2016-2020 (\$3,750 x 5 years)	18,750
2021 (from part a)	<u>3,125</u>
Total accumulated depreciation	<u>\$22,500</u>

⁸Carrying value of old truck on November 1, 2021 \$12,500
(\$35,000 - \$22,500)

LO 4 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.10**a. 2024**

Jan. 2	Cash	31,000	
	Accumulated Depreciation		
	—Equipment ¹	36,000	
	Gain on Disposal		2,000
	Equipment		65,000
	¹ (\$65,000 – \$5,000) ÷ 5 X 3		
	To record disposal of equipment.		

b. 2024

May 1	Cash	31,000	
	Accumulated Depreciation		
	—Equipment ²	40,000	
	Gain on Disposal		6,000
	Equipment		65,000
	² (\$65,000 – \$5,000) ÷ 5 = \$12,000		
	\$12,000 X (3 years + 4 months) = \$40,000		
	To record disposal of equipment.		

c. 2024

Jan. 2	Cash	11,000	
	Accumulated Depreciation		
	—Equipment ³	36,000	
	Loss on Disposal	18,000	
	Equipment		65,000
	³ (\$65,000 – \$5,000) ÷ 5 X 3		
	To record disposal of equipment.		

d. 2024

Oct. 1	Cash	11,000	
	Accumulated Depreciation		
	—Equipment ⁴	45,000	
	Loss on Disposal	9,000	
	Equipment		65,000
	⁴ (\$65,000 – \$5,000) ÷ 5 = \$12,000		
	\$12,000 X (3 years + 9 months) = \$45,000		
	To record disposal of equipment.		

LO 4 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.11

- a. The units-of-production method is recommended for depleting natural resources because it best reflects the pattern over which the assets' future economic benefits are expected to be consumed. It requires that an estimate can be made of the total number of units that are available to be extracted from the resource.

- b. Dec. 31 Inventory ($\$1.50 \times 100,000$) 150,000
 Accumulated Depletion—Resource 150,000
 To record depletion.

Depreciable amount $\$1,300,000 - \$100,000 = \$1,200,000$

Depreciable amount per unit:

$\$1,200,000 \div 800,000 \text{ tonnes} = \1.50 per tonne

- c.

PHILLIPS EXPLORATION
Income Statement (Partial)
Year Ended December 31, 2021

Cost of goods sold: (will include this amount plus other costs)	
($\$1.50 \times 100,000 \text{ tonnes}$)	\$150,000

PHILLIPS EXPLORATION
Balance Sheet (Partial)
December 31, 2021

Assets

Property, plant, and equipment

Resource	\$1,300,000	
Less: Accumulated depletion	150,000	\$1,150,000

LO 5 BT: AP Difficulty: M Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.12

1. The original entry to add the cost of removing the old building, the legal fees, and clearing and grading the land to the Land account is correct. The student's accounting treatment is incorrect. The costs involved must be added to the cost of land as they were necessary costs to acquire the land and get it ready for its intended use.
2. Although consistency is necessary in applying accounting policies, in this case it should not have been the basis for recording depreciation on the trademarks. Trademarks can have usefulness to the business indefinitely. This is the probable reason that depreciation had not been recorded for trademarks in the past. As long as trademarks continue to assist in producing revenue and their carrying amounts have not been impaired, they should not be depreciated. Rather, they should be tested regularly for impairment. If a permanent decline in value has occurred, the trademarks must be written down and an impairment loss recorded on the income statement. Therefore, the depreciation entry should be reversed and no decline in value recorded unless an impairment occurs.
3. This student's reasoning is faulty and an incorrect application of the principle of consistency in accounting. Adjusting property, plant, and equipment for increases to their fair value occurs when the business uses the revaluation model or fair value model under the International Financial Accounting Standards (IFRS). This is very unlikely the case for Chin Company. As well, current fair values are subjective and not reliable; they are not used to increase the recorded value of an asset after acquisition. The appropriate accounting treatment is to leave the building on the books at its zero carrying amount.

LO 1,2,6 BT: AP Difficulty: M Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.13**a.****2020**

Jan.	9	Patents	45,000	
		Cash.....		45,000
		To record cash purchase of patent.		
May	15	Goodwill	450,000	
		Cash.....		450,000
		To record goodwill as part of purchase of another company.		
Dec.	31	Amortization Expense.....	9,000	
		Accumulated Amortization		
		—Patents (\$45,000 ÷ 5)		9,000
		To record amortization expense.		
	31	Impairment Loss.....	50,000	
		Goodwill (\$450,000 – \$400,000) ..		50,000
		To record impairment loss on goodwill.		

2021

Jan.	2	Patents	30,000	
		Cash.....		30,000
		To record successful defence of patent.		
Mar.	31	Research Expense	175,000	
		Cash.....		175,000
		To record research expense.		
Apr.	1	Copyrights	66,000	
		Cash.....		66,000
		To record cash purchase of copyright.		
July	1	Trademark.....	275,000	
		Cash.....		275,000
		To record cash purchase of trademark.		

EXERCISE 9.13 (Continued)**a. (Continued)**

Dec. 31	Amortization Expense.....	21,450	
	Accumulated Amortization—Patents		
	[((\$45,000 – \$9,000 + \$30,000) ÷ 4]		16,500
	Accumulated Amortization—		
	Copyrights [(\$66,000 ÷ 10) × 9/12]		4,950
	To record amortization expense.		

b.**Assets****Intangible assets**

Patents	\$75,000	
Less: Accumulated amortization.....	<u>25,500</u>	\$49,500
Copyrights.....	66,000	
Less: Accumulated amortization.....	<u>4,950</u>	61,050
Trademark		<u>275,000</u>
Total intangible assets		<u>385,550</u>
Goodwill		<u>400,000</u>

LO 6 BT: AP Difficulty: M Time: 25 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.14**a.**

<u>Patent</u>	<u>Cost</u>	<u>Amort.</u>	<u>Carrying Amount</u>
Purchase price Jan. 1, 2018	\$400,000		
Amortization 2018 ¹		\$50,000	
Amortization 2019		50,000	
Amortization 2020		<u>50,000</u>	
Balance Dec. 31, 2020			<u>\$250,000</u>
Amortization 2021 ²		<u>\$83,333</u>	
Balance Dec. 31, 2021			<u>\$166,667</u>

¹ (\$400,000 ÷ 8 years)

² Carrying amount ÷ (6 – 3 years) = \$250,000 ÷ 3

<u>Trademark</u>	<u>Cost</u>	<u>Impairment</u>	<u>Carrying Amount</u>
Purchase price during 2014	\$250,000		
Legal defence during 2020	<u>50,000</u>		
Balance Dec. 31, 2020	\$300,000		<u>\$300,000</u>
Balance Dec. 31, 2021		\$25,000	<u>\$275,000</u>

b.**Income statement – December 31, 2021****Operating expenses:**

Amortization expense—Patents	\$83,333
Impairment loss	25,000

LO 6 BT: AP Difficulty: M Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

EXERCISE 9.15

a. (in millions)

	December 31, 2017	December 31, 2016
Asset turnover	$\frac{\$32,176}{[(\$89,494 + \$88,702) \div 2]}$ $= 0.36 \text{ times}$	$\frac{\$26,968}{[(\$88,702 + \$77,527) \div 2]}$ $= 0.32 \text{ times}$
Return on assets	$\frac{\$4,458}{[(\$89,494 + \$88,702) \div 2]}$ $= 5.0\%$	$\frac{\$445}{[(\$88,702 + \$77,527) \div 2]}$ $= 0.5\%$

- b. Suncor's asset turnover improved as revenues increased and total assets changed only slightly from 2016 to 2017. In contrast, profits improved significantly with the increase in revenues. Return on assets has improved tenfold from 0.5% to 5.0%.

LO 7 BT: AN Difficulty: S Time: 15 min. AACSB: Analytic CPA: cpa-t001 cpa-t005
CM: Reporting and Finance

SOLUTIONS TO PROBLEMS

PROBLEM 9.1A

a.	Jan.	12	Land	420,000	
			Cash.....		95,000
			Notes Payable		325,000
			To record purchase of land in exchange for cash and a note payable.		
		16	Land	8,500	
			Cash.....		8,500
			Paid legal fees on purchase of land.		
		31	Land	25,000	
			Cash.....		25,000
			Paid to demolish building on land.		
Feb.	13		Cash	10,000	
		Land.....		10,000	
			Received cash from material from demolished building on land.		
		28	Land	9,000	
			Cash.....		9,000
			Paid to grade and fill land.		
Mar.	14		Building.....	38,000	
		Cash.....		38,000	
			Paid architect fees for building.		
		31	Building.....	15,000	
			Cash.....		15,000
			Paid for building permit for building.		
Apr.	22		Building.....	17,000	
		Cash.....		17,000	
			Paid excavation costs for building.		

PROBLEM 9.1A (Continued)**a. (Continued)**

Sept. 26	Building.....	750,000	
	Cash.....		150,000
	Mortgage Payable		600,000
	Paid for construction of building.		
Sept. 30	Prepaid Insurance	4,500	
	Cash.....		4,500
	Paid for insurance in advance.		
Oct. 20	Land Improvements	45,000	
	Cash.....		45,000
	Paid for paving of parking lots, driveways and sidewalks.		
Nov. 15	Land Improvements	12,000	
	Cash.....		12,000
	Paid for fence on property.		

b.

Land					
Date	Explanation	Ref.	Debit	Credit	Balance
<u>2021</u>					
Jan. 12			420,000		420,000
16			8,500		428,500
31			25,000		453,500
Feb. 13				10,000	443,500
28			9,000		452,500

Building					
Date	Explanation	Ref.	Debit	Credit	Balance
<u>2021</u>					
Mar. 14			38,000		38,000
31			15,000		53,000
Apr. 22			17,000		70,000
Sept. 26			750,000		820,000

PROBLEM 9.1A (Continued)**b. (Continued)**

Land Improvements					
Date	Explanation	Ref.	Debit	Credit	Balance
<u>2021</u>					
Oct. 20			45,000		45,000
Nov. 15			12,000		57,000

The costs that will appear on Kadlec's December 31, 2021, balance sheet will be:

Land	\$452,500
Building	820,000
Land Improvements	57,000

Taking It Further:

Companies should start to record depreciation when the asset is ready for use. In the case of Kadlec, the building was ready for use on September 26, 2021 and land improvements were completed on November 15, 2021 and so depreciation should be calculated from those dates.

Kadlec should depreciate only the building and land improvements. Land has an indefinite useful life and therefore is not depreciated.

LO 1 BT: AP Difficulty: S Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.2A

a.

	Appraised Value	% of Total	Cost Allocated
Land	\$275,000	40%	\$260,000
Building	343,750	50%	325,000
Equipment	<u>68,750</u>	10%	<u>65,000</u>
	<u><u>\$687,500</u></u>		<u><u>\$650,000</u></u>

b.

Building: Straight-line

1. To the nearest whole month

<u>Year</u>	<u>Depreciable Amount¹</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$300,000		1/60 × 10/12		\$4,167	\$4,167	\$320,833
2021	300,000		1/60		5,000	9,167	315,833

$$^1\$325,000 - \$25,000 = \$300,000$$

2. Half a year in the year of acquisition

<u>Year</u>	<u>Depreciable Amount</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$300,000		1/60 × 6/12		\$2,500	\$2,500	\$322,500
2021	300,000		1/60		5,000	7,500	317,500

PROBLEM 9.2A (Continued)**b. (Continued)****Equipment: Double diminishing-balance****1. To the nearest whole month**

Carrying Amount					End of Year		
	Beginning		Depr.	Depr.	Accum.	Carrying	
<u>Year</u>	<u>of Year</u>	×	<u>Rate</u> ²	=	<u>Expense</u>	<u>Depr.</u>	<u>Amount</u>
2020	\$65,000		25% × 10/12		\$13,542	\$13,542	\$51,458
2021	51,458		25%		12,865	26,407	38,593

² 200% ÷ 8 = 25%

2. Half a year in the year of acquisition

Carrying Amount					End of Year		
	Beginning		Depr.	Depr.	Accum.	Carrying	
<u>Year</u>	<u>of Year</u>	×	<u>Rate</u>	=	<u>Expense</u>	<u>Depr.</u>	<u>Amount</u>
2020	\$65,000		25% × 1/2		\$8,125	\$8,125	\$56,875
2021	56,875		25%		14,219	22,344	42,656

- c. Both options are acceptable. If it were not the first year of business, ChalkBoard should consider, for purpose of consistency, the policy used in the past. Since this is the first year of business, ChalkBoard should consider what other categories or types of assets it will be purchasing in the current and future years that will be depreciated using this policy. If for example, the remaining categories of assets will be depreciated using the units-of-production method, the choice will not matter. The impact of the choice will not be significant in the long run, particularly if the assets are bought and sold frequently. Also, the impact is insignificant for assets with very long useful lives, as is demonstrated in part b. for the building. No matter the choice taken by ChalkBoard, the policy must be followed consistently.

PROBLEM 9.2A (Continued)**Taking It Further:**

ChalkBoard should not consider depreciating to the exact day of acquisition as this level of precision is not relevant over the long-run, particularly for assets with long useful lives, such as for the building. Applying a policy of depreciating to the day will provide an amount for the depreciation expense that is insignificantly different from the amount arrived at using to the nearest month policy.

LO 1,2 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.3A

a.	Invoice price	\$210,000
	Delivery cost	4,400
	Installation and testing	<u>5,600</u>
	Cost of the equipment	<u><u>\$220,000</u></u>

The \$1,975 insurance policy is an annual operating expenditure and not included in the cost of the asset.

b. 1. STRAIGHT-LINE DEPRECIATION

<u>Year</u>	<u>Depreciable Amount</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$205,000 ¹		25% ²		\$ 51,250	\$ 51,250	\$168,750
2021	205,000		25%		51,250	102,500	117,500
2022	205,000		25%		51,250	153,750	66,250
2023	205,000		25%		51,250	205,000	15,000

¹ \$220,000 – \$15,000 = \$205,000

² 100% ÷ 4 = 25%

PROBLEM 9.3A (Continued)**b. (Continued)****2. DOUBLE DIMINISHING-BALANCE DEPRECIATION**

<u>Year</u>	<u>Carrying Amount</u> <u>Beginning of Year</u>		<u>Depr.</u> <u>Rate</u>	<u>=</u>	<u>Depr.</u> <u>Expense</u>	<u>End of Year</u>	
		<u>×</u>				<u>Accum.</u> <u>Depr.</u>	<u>Carrying</u> <u>Amount</u>
2020	\$220,000		50% ³		\$110,000	\$110,000	\$110,000
2021	110,000		50%		55,000	165,000	55,000
2022	55,000		50%		27,500	192,500	27,500
2023	27,500		50%		12,500 ⁴	205,000	15,000

³ 200% ÷ 4 = 50%

⁴ Limited to the amount that brings the carrying amount to the residual value of \$15,000.

3. UNITS-OF-PRODUCTION

<u>Year</u>	<u>Units of</u> <u>Production</u>		<u>Depr.</u> <u>Amt/Unit</u> ⁵	<u>=</u>	<u>Depr.</u> <u>Expense</u>	<u>End of Year</u>	
		<u>×</u>				<u>Accum.</u> <u>Depr.</u>	<u>Carrying</u> <u>Amount</u>
2020	16,750		\$2.50 ⁵		\$ 41,875	\$ 41,875	\$178,125
2021	27,600		2.50		69,000	110,875	109,125
2022	22,200		2.50		55,500	166,375	53,625
2023	16,350		2.50		38,625 ⁶	205,000	15,000

⁵ Depreciable amount per unit is \$2.50 per unit
 [(\$220,000 – \$15,000) ÷ 82,000 = \$2.50]

⁶ Equal to the amount that brings the carrying amount to the residual value of \$15,000 (actual production of 82,900 exceeded estimated total production of 82,000).

PROBLEM 9.3A (Continued)

- c. The straight-line method of calculating depreciation provides the lowest amount of depreciation expense for 2021, which results in the highest amount of profit. Over the life of the asset, all three methods result in the same total depreciation expense (equal to the depreciable amount) and therefore the same amount of profit.

Taking It Further:

The cost of recycling the equipment at the end of its useful life is an asset retirement cost and the amount must be estimated and added to the cost the equipment — part a. These costs would consequently be added to the depreciable amount in the calculation of depreciation under all of the methods and would proportionately increase the amount of depreciation charge — part b.

LO 1,2 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.4A

a.

<u>Trans- action</u>	<u>Land</u>	<u>Building</u>	<u>Equip- ment</u>	<u>Accum. Depr.</u>	<u>Total PP&E</u>	<u>Profit</u>
Jan. 12	NE	NE	NE	NE	NE	-\$2,200
Feb. 6	NE	NE	NE	NE	NE	-\$5,400
Apr. 24	NE	+\$75,000	NE	NE	+\$75,000	NE
May 17	NE	NE	NE	NE	NE	-\$3,100
July 19	NE	NE	NE	NE	NE	-\$5,900
Aug. 21	NE	NE	+\$26,000	NE	+\$26,000	NE
Sept. 20	NE	NE	NE	NE	NE	-\$2,700
Oct. 25	NE	NE	+\$20,000	NE	+\$20,000	NE
Dec. 31	NE	NE	NE	NE	NE	NE
Dec. 31	NE	NE	NE	+\$37,500	-\$37,500	-\$37,500

b.

Jan. 12	Repairs Expense	2,200	
	Cash.....		2,200
	Paid for repairs expense.		
Feb. 6	Repairs Expense	5,400	
	Cash.....		5,400
	Paid for repairs expense.		
Apr. 24	Building.....	75,000	
	Cash.....		75,000
	Paid for air conditioning system.		

Note: Possibly add as a separate component of the building depending on the type of system, and whether it has the same useful life as the rest of the building.

May. 17	Training Expense	3,100	
	Cash.....		3,100
	Paid for training expense.		

PROBLEM 9.4A (Continued)**b. (Continued)**

July 19	Repairs Expense	5,900	
	Cash.....		5,900
	Paid for repairs expense.		
Aug. 21	Vehicles	26,000	
	Cash.....		26,000
	Paid for fuel conversion of trucks.		
Sept. 20	Repairs Expense	2,700	
	Cash.....		2,700
	Paid for repairs expense.		
Oct. 25	Equipment.....	20,000	
	Cash.....		20,000
	Paid for additions to equipment.		
Dec. 31	Impairment Loss	37,500	
	Accumulated Depreciation—		
	Equipment		37,500
	[(\$150,000 – \$62,500) – \$50,000]		
	To record impairment loss on equipment.		

Note: ASPE does not allow the reversal of the impairment loss for the land.

Taking It Further:

Given that the engine needs to be replaced frequently, consideration should be given to depreciating this component of the equipment using a four-year useful life and the remainder of the equipment using the twelve-year useful life. The major difficulty with this is determining how much of the cost of the equipment to allocate to the engine. One possibility is to use the value of a replacement motor to establish the cost of the original motor at the date of the purchase of the equipment.

LO 1,3 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.5A

a.

<u>Year</u>	<u>Depreciable Amount</u>	<u>×</u>	<u>Depr. Rate</u>	<u>=</u>	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2017	\$700,000 ¹		10% ²		\$70,000	\$70,000	\$680,000
2018	700,000		10%		70,000	140,000	610,000
2019	700,000		10%		70,000	210,000	540,000
2020	700,000		10%		70,000	280,000	470,000
2021	700,000		10%		70,000	350,000	400,000

¹ Depreciable amount = \$750,000 – \$50,000 = \$700,000

² 100% ÷ 10 years = 10%

b. Dec. 31 Impairment Loss¹ 80,000
 2021 Accumulated Depreciation—
 Equipment 80,000
 ¹(\$400,000 – \$320,000)
 To record impairment loss on equipment.

c. Slope's income statement will include depreciation expense in the amount of \$70,000 and the impairment loss of \$80,000. On Slope's balance sheet, the equipment will be reported at its cost of \$750,000 and accumulated depreciation of \$430,000 (\$350,000 + \$80,000) so that the carrying amount will be \$320,000 (\$750,000 - \$430,000), equal to the recoverable amount.

d.

<u>Year</u>	<u>Depreciable Amount</u> ²	<u>×</u>	<u>Depr. Rate</u>	<u>=</u>	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
Balance forward						\$430,000 ¹	\$320,000
2022	\$310,000		33.33% ³		\$103,333	533,333	216,667
2023	310,000		33.33%		103,333	636,666	113,334
2024	310,000		33.33%		103,334	740,000	10,000

¹Accumulated Depreciation = \$350,000 end of year before impairment loss + \$80,000 impairment loss

² Carrying amount – revised res. value = \$320,000 – \$10,000

³ 100% ÷ 3 years remaining (8 – 5 years) = 33.33%

PROBLEM 9.5A (Continued)**Taking It Further:**

One of the major differences between IFRS and ASPE concerns the measurement and reporting of depreciable assets. Under IFRS, it is possible to report these types of assets at their fair value, using the revaluation model, while under ASPE, no revaluation beyond a capital asset's historical cost is possible. Consistent with this distinction is the treatment of recoveries of previously recorded impairments. The basis for reporting depreciable assets at their fair value under IFRS is that the value used can be reliably measured. As well, under IFRS the frequency of the scrutiny of the assets to determine any impairment is greater and the measures taken more rigorous. Private companies reporting under ASPE typically do not have the same level of resources needed (as a public company reporting under IFRS) to determine if an impairment exists or if it has been reversed. Under ASPE, impairments are recorded less frequently and thus it is reasonable that ASPE does not allow the recording of reversals of impairment losses.

LO 3 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.6A
a. 2019

Apr. 1	Land 150,000 Building..... 235,000 Cash..... Notes Payable To purchase property for cash and a note payable.	 115,000 270,000
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Dec. 31	Depreciation Expense¹..... 6,000 Accumulated Depreciation—Building ¹(\$235,000 - \$35,000) × 4% × 9/12) To record depreciation expense.	 6,000
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31	Interest Expense² 10,125 Cash..... ²(\$270,000 × 5% × 9/12) To record payment of interest.	 10,125
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2020

Feb. 17	Repairs Expense 225 Cash..... To record repairs expense.	 225
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Dec. 31	Depreciation Expense³..... 8,000 Accumulated Depreciation—Building ³(\$235,000 - \$35,000) × 4%) To record depreciation expense.	 8,000
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31	Interest Expense⁴ 13,500 Cash..... ⁴(\$270,000 × 5%) To record payment of interest.	 13,500
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PROBLEM 9.6A (Continued)**a. (Continued)**

Dec. 31	Impairment Loss⁵	30,000	
	Land		30,000
	⁵(\$150,000 – \$120,000)		
	To record impairment loss of land.		

**Building — no entry as carrying amount = \$221,000;
(\$235,000 – \$6,000 – \$8,000 = \$221,000) which does not
exceed the recoverable amount of \$240,000.**

There is no specific guidance given in the text concerning the recording of impairment losses for land. Since there is no contra account Accumulated Depreciation, the asset Land is reduced directly to reduce the carrying amount.

2021

Jan. 31	Depreciation Expense⁶	667	
	Accumulated Depreciation—Building		667
	⁶(\$200,000 × 4% × 1/12)		
	To record depreciation expense.		

31	Cash	320,000	
	Accumulated Depreciation—		
	Building⁷	14,667	
	Loss on Disposal⁸	20,333	
	Land		120,000
	Building		235,000
	⁷(\$6,000 + \$8,000 + \$667)		
	To record disposal.		
	⁸Land (Carrying amount)		\$120,000
	Building	\$235,000	
	Less: Accumulated dep'n	<u>14,667</u>	<u>220,333</u>
	Carrying amount		340,333
	Proceeds		<u>320,000</u>
	Loss on disposal		<u>\$ 20,333</u>

PROBLEM 9.6A (Continued)**a. (Continued)**

Feb. 1	Interest Expense⁹	1,125	
	Notes Payable.....	270,000	
	Cash.....		271,125
	⁹(\$270,000 × 5% × 1/12)		
	To record payment of note and interest.		

- b. The land may have been impaired due to contamination found on it or surrounding properties. It may also have been because plans for a proposed new development on adjacent land that would have increased the value of NW Tool Supply's property at the date of purchase, have been permanently shelved.**

- c. Oct. 31 Depreciation Expense¹⁰ 6,667**
Accumulated Depreciation—Building 6,667
¹⁰(\$200,000 × 4% × 10/12)
To record depreciation expense.

Oct. 31	Cash	400,000	
	Accumulated Depreciation		
	—Building¹¹.....	20,667	
	Land.....		120,000
	Building		235,000
	Gain on Disposal¹².....		65,667
	¹¹(\$6,000 + \$8,000 + \$6,667)		
	To record disposal.		

¹²Land (Carrying amount)		\$120,000
Building.....	\$235,000	
Less: Accumulated dep'n	<u>20,667</u>	<u>214,333</u>
Carrying amount		334,333
Proceeds.....		<u>400,000</u>
Gain on disposal		<u>\$ 65,667</u>

PROBLEM 9.6A (Continued)**Taking It Further:**

For purposes of calculating and recording impairments, the recoverable amount of a property is based on the comparison of the carrying amount of the asset against the higher of the fair value of the asset less the cost to sell it, or its value in use.

In this case, the property is made up of land and a building which are somewhat inseparable. Consequently, the value in use to NW Tool Supply would be the amount management expects to recover in operations by using the assets together. As for establishing the fair value of the combined assets, property of similar location and type that have been recently sold can be used to make comparisons of what would be obtained on sale. Management should be diligent about looking for possible causes for impairment.

When considering impairment of the land on its own, uninsured damages or conditions uncovered during the year may require management to recalculate the value in use or the resale fair value of the land.

Under ASPE the review of property, plant, and equipment for possible impairment need not be performed each year, but must be performed on a regular basis, particularly when changes in circumstance or conditions occur. If the company is using IFRS, annual impairment testing is required.

LO 1,2,3,4 BT: AP Difficulty: M Time: 35 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.7A
a. 1. STRAIGHT-LINE DEPRECIATION

<u>Year</u>	<u>Depreciable Amount</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2019	\$97,000 ¹		33.333% ²		\$32,333	\$32,333	\$75,167
2020	97,000		33.333%		32,333	64,666	42,834
2021	97,000		33.333%		32,334	97,000	10,500

¹\$107,500 – \$10,500 = \$97,000

² 100% ÷ 3 years = 33.333%

2. DIMINISHING-BALANCE DEPRECIATION

<u>Year</u>	<u>Carrying Amount Beginning of Year</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2019	\$107,500		40%		\$43,000	\$43,000	\$64,500
2020	64,500		40%		25,800	68,800	38,700
2021	38,700		40%		15,480	84,280	23,220

PROBLEM 9.7A (Continued)**a. (Continued)****3. UNITS-OF-PRODUCTION**

<u>Year</u>	<u>Units of Production</u>	×	<u>Depr. Amt/Unit³</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2019	10,000		\$1.617 ³		\$ 16,170	\$ 16,170	\$91,330
2020	20,000		1.617		32,340	48,510	58,990
2021	29,000		1.617		46,893	95,403	12,097

³ Depreciable amount per unit is \$1.617 per unit
 $[(\$107,500 - \$10,500) \div 60,000 = \$1.617]$

b.	(1)	(2)	(3)
	<u>Straight- Line</u>	<u>Diminishing- Balance</u>	<u>Unit –of- Production</u>
Cost	\$107,500	\$107,500	\$107,500
Accumulated depreciation..	<u>97,000</u>	<u>84,280</u>	<u>95,403</u>
Carrying amount	10,500	23,220	12,097
Cash proceeds	<u>15,000</u>	<u>15,000</u>	<u>15,000</u>
Gain (loss) on disposal	<u>\$ 4,500</u>	<u>\$ (8,220)</u>	<u>\$ 2,903</u>

c.	(1)	(2)	(3)
	<u>Straight- Line</u>	<u>Diminishing- Balance</u>	<u>Unit –of- Production</u>
Depreciation expense	\$97,000	\$84,280	\$95,403
Add loss (less gain) on disposal	<u>(4,500)</u>	<u>8,220</u>	<u>(2,903)</u>
Net expense	<u>\$92,500</u>	<u>\$92,500</u>	<u>\$92,500</u>

The net expense is the same under all three methods. The different depreciation methods result in different accumulated depreciation at the date of sale, which in turn causes a different gain or loss on disposal. Consequently, the total depreciation expense recognized over the life of the asset, plus the loss on disposal (or less the gain on disposal), results in the same net expense of \$92,500 over the life of the asset.

PROBLEM 9.7A (Continued)**Taking It Further:**

I disagree. Experiencing a gain or loss on the disposal of a depreciable asset is not the result of an error or mistake. Rather, a gain or loss is an expected outcome due to the limitations of the cost allocation that has occurred for the asset up to the date of its disposal. Since estimates are involved in arriving at the factors used in calculating depreciation, such as the estimated useful life and the estimated residual value, it is natural that some differences between the carrying amount and proceeds of disposition will occur when the asset is ultimately disposed of. Depreciation is a cost allocation process and is not intended to ensure the carrying amount of the asset reflects fair value.

LO 2,4 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.8A

- a. 2019
Mar. 1 Equipment..... 95,000
 Accounts Payable..... 95,000
 To record purchase of equipment on account.

- b. 2019
Aug. 31 Depreciation Expense¹..... 9,500
 Accumulated Depreciation
 —Equipment 9,500
 ¹(\$95,000 × 20% × 6/12)
 To record depreciation expense.

- 2020
Aug. 31 Depreciation Expense²..... 17,100
 Accumulated Depreciation
 —Equipment 17,100
 ²[(95,000 – 9,500) × 20%]
 To record depreciation expense.

- 2021
Aug. 31 Depreciation Expense³..... 13,680
 Accumulated Depreciation
 —Equipment 13,680
 ³[(95,000 – 9,500 – 17,100) × 20%]
 To record depreciation expense.

- c. 2022
Feb. 1 Depreciation Expense⁴..... 4,560
 Accumulated Depreciation
 —Equipment 4,560
 ⁴[(95,000 – 9,500 – 17,100 – 13,680) × 20% × 5/12]
 To record depreciation expense.

Accumulated Depreciation at February 1, 2022:
 $\$9,500 + \$17,100 + \$13,680 + \$4,560 = \$44,840$

Carrying Amount at February 1, 2022:
Cost – Accumulated Depreciation
 $\$50,160 = \$95,000 - \$44,840$

PROBLEM 9.8A (Continued)**c. (Continued)**

1. Feb. 1 Accumulated Depreciation
 —Equipment 44,840
 Loss on Disposal⁵ 50,160
 Equipment 95,000
 To record disposal.
 ⁵Proceeds – Carrying Amount = Gain (loss)
 \$0 – [\$95,000 – \$44,840] = \$(50,160)

2. Feb. 1 Cash 55,000
 Accumulated Depreciation
 —Equipment 44,840
 Gain on Disposal⁶ 4,840
 Equipment 95,000
 ⁶\$55,000 – [\$95,000 – \$44,840]
 To record disposal.

3. Feb. 1 Cash 45,000
 Accumulated Depreciation
 —Equipment 44,840
 Loss on Disposal⁷ 5,160
 Equipment 95,000
 ⁷[\$45,000 – (\$95,000 – \$44,840)]
 To record disposal.

4. Feb. 1 Equipment (new)
 (\$47,000 + \$45,000) 92,000
 Accumulated Depreciation
 —Equipment 44,840
 Loss on Disposal⁸ 3,160
 Cash (\$97,000 – \$52,000) 45,000
 Equipment (old) 95,000
 ⁸[\$47,000 – (\$95,000 – \$44,840)]
 To record disposal.

PROBLEM 9.8A (Continued)**Taking It Further:**

The following are the arguments in favour of recording gains and losses on disposal of property, plant, and equipment as:

1. **Part of profit from operations:**

Gains and losses are basically just adjustments to depreciation expense and should be recorded in the same section of the income statement.

Classifying gains and losses as operations removes the potential for management bias in the selection of depreciation methods or in the estimates concerning useful lives and residual values of the assets. Bias might be at play concerning management's unwillingness to show losses in operations because management bonuses may be based on the amount of profit from operations.

2. **Non-operating items:**

The same management bias described above would be applied for gains recognized by the business.

A common view is that the disposal of property, plant, and equipment is not an everyday occurrence and gains or losses are not predictable.

It can also be argued that selling property, plant, and equipment is not part of normal operations and thus gains or losses should not be reported as part of profit from operations.

LO 2,4 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.9A

a. April 1 Land2,200,000
 Cash..... 550,000
 Notes Payable 1,650,000
 To record purchase of land for cash and
 a note payable.

May 1 Depreciation Expense¹..... 46,667
 Accumulated Depreciation—Equip. 46,667
 ¹(\$1,400,000 ÷ 10 × 4/12)
 To record depreciation expense.

1 Cash 150,000
 Accumulated Depreciation
 —Equipment..... 1,166,667
 Loss on Disposal² 83,333
 Equipment 1,400,000
 To record disposal of equipment.

²Cost \$1,400,000
 Accumulated depreciation—equip.
 [(\$1,400,000 ÷ 10) × 8 + \$46,667] 1,166,667
 Carrying amount 233,333
 Cash proceeds 150,000
 Loss on disposal \$ (83,333)

June 1 Cash 450,000
 Notes Receivable..... 1,350,000
 Land..... 700,000
 Gain on Disposal 1,100,000
 To record disposal of land.

July 1 Equipment..... 1,100,000
 Cash..... 1,100,000
 To record purchase of equipment.

PROBLEM 9.9A (Continued)**a. (Continued)**

Dec. 31	Depreciation Expense³.....	50,000	
	Accumulated Depreciation		
	—Equipment		50,000
	³(\$500,000 ÷ 10)		
	To record depreciation expense.		

Dec. 31	Accumulated Depreciation		
	—Equipment.	350,000	
	Loss on disposal⁴.....	150,000	
	Equipment		500,000
	To record disposal.		

⁴Cost	\$500,000
Accumulated depreciation—equipment	
($\\$500,000 \div 10 \times 7$)	350,000
Carrying amount	150,000
Cash proceeds	0
Gain (loss) on disposal	<u><u>\$(150,000)</u></u>

b. Dec. 31	Depreciation Expense⁵.....	974,000	
	Accumulated Depreciation		
	—Building.....		974,000
	⁵(\$48,700,000 ÷ 50)		
	To record depreciation expense.		

31	Depreciation Expense⁶.....	7,365,000	
	Accumulated Depreciation		
	—Equipment		7,365,000
	To record depreciation expense.		

⁶\$73,100,000 ÷ 10	\$7,310,000
\$1,100,000 ÷ 10 × 6/12	55,000
	<u><u>\$7,365,000</u></u>

$$\$75,000,000 - \$1,400,000 - \$500,000 = \$73,100,000$$

PROBLEM 9.9A (Continued)**a. (Continued)**

Dec. 31	Interest Expense⁷	74,250	
	Interest Payable		74,250
	⁷(\$1,650,000 × 6% × 9/12)		
	To accrue interest expense.		
31	Interest Receivable.....	39,375	
	Interest Revenue⁸		39,375
	⁸(\$1,350,000 × 5% × 7/12)		
	To accrue interest revenue.		

c.

HAMSMITH CORPORATION
Balance Sheet (Partial)
December 31, 2021

Property, plant, and equipment¹

Land.....		\$11,500,000
Buildings.....	\$48,700,000	
Less: Accumulated depreciation..	<u>32,074,000</u>	16,626,000
Equipment.....	74,200,000	
Less: Accumulated depreciation..	<u>32,945,000</u>	<u>41,255,000</u>
Total property, plant, and equipment		<u>\$69,381,000</u>

¹ See T accounts that follow for balances.

PROBLEM 9.9A (Continued)**c. (Continued)****Land**

Jan. 1, 2021	10,000,000	June 1, 2021	700,000
April 1, 2021	2,200,000		
Dec.31, 2021 Bal. 11,500,000			

Building

Jan. 1, 2021	48,700,000		
Dec. 31, 2021 Bal. 48,700,000			

Equipment

Jan. 1, 2021	75,000,000	May 1, 2021	1,400,000
July 1, 2021	1,100,000	Dec. 31, 2021	500,000
Dec.31, 2021 Bal. 74,200,000			

Accumulated Depreciation—Building

	Jan. 1, 2021	31,100,000
	Dec. 31, 2021	974,000
	Dec. 31, 2017 Bal. 32,074,000	

Accumulated Depreciation—Equipment

May 1, 2021	1,166,667	Jan. 1, 2021	27,000,000
Dec. 31, 2021	350,000	May 1, 2021	46,667
		Dec. 31, 2021	50,000
		Dec. 31, 2021	7,365,000
		Dec. 31, 2021 Bal. 32,945,000	

PROBLEM 9.9A (Continued)**Taking It Further:**

Although the use of the revaluation model is permitted for public companies following International Financial Reporting Standards (IFRS), its adoption is voluntary, and somewhat rare. The revaluation model results in more relevant information on the balance sheet, because the long-lived assets are revalued to fair value on a regular basis. An investor may be better able to assess the current economic position of the company with this information. However, the revaluation model increases the risk of error and bias in the financial statements because the revaluation model uses a fair value amount that is not necessarily supported by a transaction with an independent buyer.

LO 2,4,7 BT: AP Difficulty: C Time: 50 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.10A

1.	Research Expense (\$160,000 × 55%) Patents..... To correct recording error.	88,000 88,000
	Accumulated Amortization—Patents..... Amortization Expense¹ ¹ \$88,000 ÷ 15 years = \$5,867 To correct recording error.	5,867 5,867
2.	Goodwill Amortization Expense² ² (\$400,000 ÷ 40 years) × 6/12 To correct recording error.	5,000 5,000
3.	Impairment Loss (\$80,000 – \$70,000)..... Licence To correct recording error.	10,000 10,000

Taking It Further:

Most intangible assets that are developed internally cannot be recognized as intangible assets on the balance sheet because the expenditures on internally developed intangibles cannot be distinguished from the cost of other research and development performed by the business. The costs cannot be separately measured and must be expensed as incurred.

LO 6 BT: AP Difficulty: C Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.11A

a.	Jan.	2	Patent #1	23,200	
			Cash.....		23,200
			To record successful defence of patent.		
	June	30	Research Expense	180,000	
			Cash.....		180,000
			Payment of research expense.		
		30	Patent #2	60,000	
			Cash.....		60,000
			Payment of costs for patent #2.		
	Sept.	1	Advertising Expense	12,000	
			Cash.....		12,000
			Paid advertising expense.		
	Oct.	1	Copyright #2	18,000	
			Cash.....		18,000
			Purchase copyright #2.		
b.	Dec.	31	Amortization Expense.....	12,400	
			Accumulated Amortization—		
			Patent #1 ¹		10,900
			Accumulated Amortization—		
			Patent #2 ²		1,500
¹ [(\$80,000 × 1/10) + (\$23,200 × 1/8)] At Jan. 1, 2021 Patent # 1 has been amortized 2 years (\$16,000 ÷ \$80,000 = 2/10) — remaining period to amortize is 8 years.					
² [\$60,000 × 1/20 × 6/12 = \$1,500] To record amortization expense.					

PROBLEM 9.11A (Continued)**b. (Continued)**

Dec. 31	Amortization Expense.....	5,550	
	Accumulated Amortization—		
	Copyright #1³		4,800
	Accumulated Amortization—		
	Copyright #2⁴		750
	³ (\$48,000 × 1/10)		
	⁴ (\$18,000 × 1/6 × 3/12)		
	To record amortization expense.		

c.

IP COMPANY
(Partial) Balance Sheet
December 31, 2021

Assets			
Intangible assets			
Patents⁵	\$163,200		
Less: Accumulated amortization⁶.....	<u>28,400</u>	\$134,800	
Copyrights⁷	66,000		
Less: Accumulated amortization⁸.....	<u>34,350</u>	<u>31,650</u>	
Total intangible assets		<u>166,450</u>	
Goodwill		<u>220,000</u>	

⁵ Cost: Patent #1 (\$80,000 + \$23,200) + Patent #2 (\$60,000) = \$163,200

⁶ Accumulated Amortization: Patent #1 (\$16,000 + \$10,900) + Patent #2 (\$1,500) = \$28,400

⁷ Cost: Copyright #1 (\$48,000) + Copyright #2 (\$18,000) = \$66,000

⁸ Accumulated Amortization: Copyright #1 (\$28,800 + \$4,800) + Copyright #2 (\$750) = \$34,350

PROBLEM 9.11A (Continued)**Taking It Further:**

Although intangible assets do not have physical substance, they have characteristics common to other assets in that they contribute to the revenue-producing ability of the business that owns them. They are owned and controlled by the business and therefore fit the definition of assets.

LO 6,7 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.12A

a. 2020

Mar. 31 Resource¹ 2,860,000
Cash..... 2,860,000
¹(\$2,600,000 + \$260,000)
To record purchase and modernization
of mine.

Dec. 31 Inventory² 570,000
Accumulated Depletion—
Resource 570,000
To record depletion.
²(\$2,860,000 – \$200,000) ÷ 560,000 t = \$4.75/t
\$4.75/t × 120,000 t = \$570,000

Dec. 31 Cost of Goods Sold 570,000
Inventory 570,000
To record cost of goods sold.

2021

Dec. 31 Inventory³ 380,000
Accumulated Depletion—
Resource 380,000
To record depletion.
³(\$2,860,000 – \$570,000 – \$200,000) ÷ 550,000 t
= \$3.80/t \$3.80/t × 100,000 t = \$380,000

Dec. 31 Cost of Goods Sold 380,000
Inventory 380,000
To record cost of goods sold.

b.

RIVERS MINING COMPANY
Income Statement (partial)
Year Ended December 31, 2021

Cost of goods sold.....	\$380,000
--------------------------------	------------------

PROBLEM 9.12A (Continued)**b. (Continued)**

RIVERS MINING COMPANY
(Partial) Balance Sheet
December 31, 2021

Property, plant, and equipment

Resource	\$2,860,000	
Less: Accumulated depletion ⁴	<u>950,000</u>	\$1,910,000

$$^4 \$570,000 + \$380,000 = \$950,000$$

Taking It Further:

Due to its nature, it is expected that the estimate of the total amount of ore to be extracted from a mine would need to be adjusted as extraction occurs and better estimates can be made. Management should not be influenced by the need for changes in estimates when choosing the units-of-production method for recording depletion of the resource. It is the method that best allocates the cost of the mine to the units of ore that are recorded in inventory.

LO 3,5,7 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.13A

a. (in thousands)

	Andruski Company	Brar Company
Asset turnover 2021	$\frac{\$552.0}{[(\$702.5 + \$662.8) \div 2]}$ = 0.81 to 1	$\frac{\$1,762.9}{[(\$1,523.5 + \$1,410.7) \div 2]}$ = 1.20 to 1
Asset turnover 2020	$\frac{\$515.9}{[(\$662.8 + \$602.5) \div 2]}$ = 0.82 to 1	$\frac{\$1,588.2}{[(\$1,410.7 + \$1,318.4) \div 2]}$ = 1.16 to 1
Return on assets 2021	$\frac{\$21.4}{[(\$702.5 + \$662.8) \div 2]}$ = 3.13%	$\frac{\$96.5}{[(\$1,523.5 + \$1,410.7) \div 2]}$ = 6.58%
Return on assets 2020	$\frac{\$20.6}{[(\$662.8 + \$602.5) \div 2]}$ = 3.26%	$\frac{\$85.4}{[(\$1,410.7 + \$1,318.4) \div 2]}$ = 6.26%

- b. Brar Company is far more efficient in using its assets to generate sales—its assets turnover of 1.20 times is higher than 0.81 times for Andruski Company and is increasing, while Andruski's is decreasing. Brar is also more efficient in using assets to produce profit—with a return on assets of 6.58% compared to 3.13% for Andruski Company. Brar's ratio is increasing while Andruski's is decreasing.

PROBLEM 9.13A (Continued)**Taking It Further:**

Although the ability to compare two companies in the same industry using ratios is affected by the depreciation methods adopted by the companies being compared, absolute conclusions cannot be drawn from these differences. Brar uses the straight-line method of depreciation and Andruski uses the diminishing-balance method, which results in higher charges of depreciation in the early years and lower amounts in the later years for Andruski. Since assets are acquired throughout the life of a company, it is not possible to determine the impact of the different methods without more information.

LO 7 BT: AN Difficulty: M Time: 25 min. AACSB: Analytic CPA: cpa-t001 cpa-t005
CM: Reporting and Finance

PROBLEM 9.1B

a.	Feb. 7	Land	575,000	
		Cash.....		115,000
		Notes Payable		460,000
		To record purchase of land in exchange for cash and a note payable.		
	9	Land	7,500	
		Cash.....		7,500
		Paid legal fees on purchase of land.		
	15	Land	19,000	
		Cash.....		19,000
		Paid to demolish building on land.		
	17	Cash	8,500	
		Land.....		8,500
		Received cash from material from demolished building on land.		
	25	Land	10,500	
		Cash.....		10,500
		Paid to grade and fill land.		
	Mar. 2	Building.....	28,000	
		Cash.....		28,000
		Paid architect fees for building.		
	15	Building.....	18,000	
		Cash.....		18,000
		Paid excavation costs for building.		
	Aug. 31	Building.....	850,000	
		Cash.....		170,000
		Notes Payable		680,000
		Paid for construction of building.		

PROBLEM 9.1B (Continued)**a. (Continued)**

Sept. 3	Land Improvements	40,000	
	Cash.....		40,000
	Paid for sidewalks and parking lot.		
10	Prepaid Insurance	3,750	
	Cash.....		3,750
	Paid for insurance in advance.		
Oct. 31	Land Improvements	37,750	
	Cash.....		37,750
	Paid for landscaping.		

PROBLEM 9.1B (Continued)**b.**

Land					
Date	Explanation	Ref.	Debit	Credit	Balance
2021					
Feb. 7			575,000		575,000
9			7,500		582,500
15			19,000		601,500
17				8,500	593,000
25			10,500		603,500

Building					
Date	Explanation	Ref.	Debit	Credit	Balance
2021					
Mar. 2			28,000		28,000
15			18,000		46,000
Aug. 31			850,000		896,000

Land Improvements					
Date	Explanation	Ref.	Debit	Credit	Balance
2021					
Sept. 3			40,000		40,000
Oct. 31			37,750		77,750

The costs that will appear on Weisman's December 31, 2021, balance sheet will be:

Land	\$603,500
Building	896,000
Land Improvements	77,750

PROBLEM 9.1B (Continued)**Taking It Further:**

Companies should start to record depreciation when the asset is ready for use. In the case of Weisman, the building was ready for use on August 31, 2021 and land improvements were completed on October 31, 2021 and so depreciation should be calculated from those dates.

Weisman should depreciate only the building and land improvements. Land has an indefinite useful life and therefore is not depreciated.

LO 1 BT: AP Difficulty: S Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.2B

a.

	Appraised Value	% of Total	Cost Allocated
Land	\$262,500	35%	\$245,000
Building	337,500	45%	315,000
Equipment	<u>150,000</u>	20%	<u>140,000</u>
	<u><u>\$750,000</u></u>		<u><u>\$700,000</u></u>

b.

Building: Straight-line

1. To the nearest month

<u>Year</u>	<u>Depreciable Amount¹</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$300,000		1/60 × 2/12		\$833	\$833	\$314,167
2021	300,000		1/60		5,000	5,833	309,167

$$^1 \$315,000 - \$15,000 = \$300,000$$

(2) Half a year in the year of acquisition

<u>Year</u>	<u>Depreciable Amount</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$300,000		1/60 × 6/12		\$2,500	\$2,500	\$312,500
2021	300,000		1/60		5,000	7,500	307,500

PROBLEM 9.2B (Continued)**b. (Continued)****Equipment: Double diminishing-balance****1. To the nearest month**

Carrying Amount					End of Year		
	Beginning		Depr.	Depr.	Accum.	Carrying	
<u>Year</u>	<u>of Year</u>	×	<u>Rate</u> ²	=	<u>Expense</u>	<u>Depr.</u>	<u>Amount</u>
2020	\$140,000		25% × 2/12		\$5,833	\$5,833	\$134,167
2021	134,167		25%		33,542	39,375	100,625

$$^2 200\% \div 8 = 25\%$$

2) Half a year in the year of acquisition

Carrying Amount					End of Year		
	Beginning		Depr.	Depr.	Accum.	Carrying	
<u>Year</u>	<u>of Year</u>	×	<u>Rate</u>	=	<u>Expense</u>	<u>Depr.</u>	<u>Amount</u>
2020	\$140,000		25% × 6/12		\$17,500	\$17,500	\$122,500
2021	122,500		25%		30,625	48,125	91,875

- c. Both options are acceptable. If it were not the first year of business, Solinger should consider, for purpose of consistency, the policy used in the past. Since this is the first year of business, Solinger should consider what other categories or types assets it will be purchasing in the future that will be depreciated using this policy. If for example, the remaining categories of assets will be depreciated using the units-of-production method, the choice will not matter. The impact of the choice will not be significant in the long run, particularly if the assets are bought and sold frequently. Also, the impact is insignificant for assets with very long useful lives, as is demonstrated in part b. for the building. No matter the choice taken by Solinger, the policy must be followed consistently.

PROBLEM 9.2B (Continued)**Taking It Further:**

If Solinger had decided to use the units-of-production method instead of the diminishing-balance method for depreciating its equipment, the decision between the adoption of a policy for depreciating to the nearest month or half a year in the year of acquisition would not matter. When using the units-of-production method, the calculation of depreciation is not calculated as a function of the time the asset is used but is based on the amount of use that is being made of the asset, which in turn is based on some units of output or production. There is no proration for time used in the units-of-production method.

LO 1,2 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.3B
a. Cost:

Cash price	\$442,000
Delivery costs	4,000
Installation and testing	<u>6,000</u>
Total cost	<u><u>\$452,000</u></u>

The one-year insurance policy is not included as it is an operating expenditure, benefiting only the current period.

b. 1. STRAIGHT-LINE DEPRECIATION

<u>Year</u>	<u>Depreciable Amount</u>	×	<u>Depr. Rate²</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$432,000 ¹		25%		\$ 108,000	\$ 108,000	\$344,000
2021	432,000		25%		108,000	216,000	236,000
2022	432,000		25%		108,000	324,000	128,000
2023	432,000		25%		108,000	432,000	20,000

¹ \$452,000 – \$20,000 = \$432,000

² 100% ÷ 4 years = 25%

PROBLEM 9.3B (Continued)**b. (Continued)****2. DOUBLE DIMINISHING-BALANCE DEPRECIATION**

<u>Year</u>	<u>Carrying Amount</u> <u>Beginning</u> <u>of Year</u>	×	<u>Depr.</u> <u>Rate</u> ³	=	<u>Depr.</u> <u>Expense</u>	<u>End of Year</u>	
						<u>Accum.</u> <u>Depr.</u>	<u>Carrying</u> <u>Amount</u>
2020	\$452,000		50%		\$226,000	\$226,000	\$226,000
2021	226,000		50%		113,000	339,000	113,000
2022	113,000		50%		56,500	395,500	56,500
2023	56,500		50%		36,500 ⁴	432,000	20,000

³ 200% ÷ 4 = 50%

⁴ Use the amount that brings carrying amount to the residual value of \$20,000.

3. UNITS-OF-PRODUCTION DEPRECIATION

<u>Year</u>	<u>Units of</u> <u>Production</u>	×	<u>Depr.</u> <u>Amt./Unit</u> ⁵	=	<u>Depr.</u> <u>Expense</u>	<u>End of Year</u>	
						<u>Accum.</u> <u>Depr.</u>	<u>Carrying</u> <u>Amount</u>
2020	22,600		\$2.88		\$65,088	\$ 65,088	\$386,912
2021	45,600		2.88		131,328	196,416	255,584
2022	49,700		2.88		143,136	339,552	112,448
2023	32,200		2.88		92,448 ⁶	432,000	20,000

⁵ Depreciation amount per unit:

(\$452,000 – \$20,000) ÷ 150,000 units = \$2.88

⁶ Use the amount that makes carrying amount equal to residual value (actual production exceeded estimated total production).

PROBLEM 9.3B (Continued)

- c. **The straight-line method provides the lowest amount of depreciation expense for 2021, thus resulting in the highest profit that year. Over the life of the asset, all three methods result in the same total depreciation expense (equal to the depreciable amount).**

Taking It Further:

The cost of recycling the equipment at the end of its useful life is an asset retirement cost which must be added to the cost of the equipment — part a. These costs would consequently be added to the depreciable amount in the calculation of depreciation under all the methods and would proportionately increase the amount of depreciation expense — part b.

LO 1,2 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.4B

a.

<u>Trans- action</u>	<u>Land</u>	<u>Building</u>	<u>Equip- ment</u>	<u>Accum. Depr.</u>	<u>Total PP&E</u>	<u>Profit</u>
Jan. 22	NE	NE	NE	NE	NE	-\$4,600
Apr. 10	NE	NE	+\$95,000	NE	+\$95,000	NE
May 6	NE	NE	NE	NE	NE	-\$30,500
July 20	NE	NE	NE	NE	NE	-\$10,000
Aug. 7	NE	NE	+\$35,000	NE	+\$35,000	NE
Aug. 15	NE	NE	NE	NE	NE	-\$1,900
Oct. 25	NE	NE	+\$18,200 ¹	NE	+18,200	NE
Nov. 6	NE	+\$120,000	NE	NE	+\$120,000	NE
Dec. 31	NE	NE	NE	+\$85,000 ²	-\$85,000	-\$85,000
Dec. 31	+\$75,000 ³	NE	NE	NE	+\$75,000	+\$75,000

¹\$18,200 = \$16,700 + \$1,500²\$85,000 = [(\$250,000 - \$75,000) - \$90,000]³\$75,000 = \$575,000 - \$500,000

b.

Jan. 22	Repairs Expense	4,600	
	Accounts Payable		4,600
	Repairs performed on account.		
Apr. 10	Equipment	95,000	
	Accounts Payable		95,000
	Purchased equipment on account.		
May 6	Repairs Expense	30,500	
	Accounts Payable		30,500
	Repairs performed on account.		
July 20	Repairs Expense	10,000	
	Accounts Payable		10,000
	Repairs performed on account.		

PROBLEM 9.4B (Continued)**b. (Continued)**

Aug. 7	Equipment.....	35,000	
	 Accounts Payable.....		35,000
	Overhaul of equipment performed on account.		
	15 Training Expense	1,900	
	 Accounts Payable.....		1,900
	Training performed on account.		
Oct. 25	Equipment.....	16,700	
	 Accounts Payable.....		16,700
	Purchased equipment on account.		
	25 Equipment.....	1,500	
	 Accounts Payable.....		1,500
	Purchased testing and installation on account.		
Nov. 6	Building.....	120,000	
	 Accounts Payable.....		120,000
	Purchased building addition on account.		
1. Dec. 31	Impairment Loss	85,000	
	 Accumulated Depreciation—		
	 Equipment.....		85,000
	Record impairment loss on equipment.		
2. Dec. 31	Land	75,000	
	 Impairment Loss		75,000
	To reverse previous impairment loss.		

PROBLEM 9.4B (Continued)**b. (Continued)**

Under IFRS, the reversal of the impairment loss is limited to the amount required to increase the asset's carrying amount to what it would have been if the impairment loss had not been recorded. In this case the original cost of the land was \$575,000 and the amount of the impairment recorded to date is \$75,000 (\$575,000 – \$500,000). Since the current recoverable amount of \$600,000 is greater than the original cost of the land, before impairment was recorded, the recovery entry is limited to \$75,000.

Taking It Further:

Given that the engine must be replaced frequently, consideration should be given to depreciating this component of the equipment using a five-year useful life and the remainder of the equipment the 15-year useful life. If the original equipment does not have an amount specified for the engine as a component, it would be reasonable to use the value of a replacement motor to establish the cost of the original motor at the date of the purchase of the equipment.

LO 1,3 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.5B

a.

<u>Year</u>	<u>Depreciable Amount</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2017	\$575,000 ¹		10% ²		\$57,500	\$ 57,500	\$542,500
2018	575,000		10%		57,500	115,000	485,000
2019	575,000		10%		57,500	172,500	427,500
2020	575,000		10%		57,500	230,000	370,000
2021	575,000		10%		57,500	287,500	312,500

$$^1 \text{ Depreciable amount} = \$600,000 - \$25,000 = \$575,000$$
$$^2 1 \div 10 \text{ years} = 10\%$$

b.	Dec. 31	Impairment Loss ³	52,500	
	2021	Accumulated Depreciation—		
		Equipment		52,500
		³ (\$312,500 – \$260,000)		

To record impairment loss on equipment.

c. Short Track's income statement will report depreciation expense in the amount of \$57,500 and the impairment loss of \$52,500. On Short Track's balance sheet, the equipment will be reported at its cost of \$600,000 and the accumulated depreciation of \$340,000 (\$287,500 + \$52,500) so that the book value will be \$260,000, equal to the recoverable amount.

d.

d.					<u>End of Year</u>		
<u>Year</u>	<u>Depreciable Amount</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>Accum. Depr.</u>	<u>Carrying Amount</u>
	Balance forward					\$340,000 ⁴	\$260,000
2022	\$250,000 ⁵		50% ⁶		\$125,000	465,000	135,000
2023	250,000		50%		125,000	590,000	10,000

⁴ Accumulated Depreciation = \$287,500 end of year before impairment loss + \$52,500 impairment loss

⁵ Depreciable amount = Recoverable amount at date of impairment less revised residual value of \$10,000

⁶ 1 ÷ 2 years (7 – 5 years) remaining = 50%

PROBLEM 9.5B (Continued)**Taking It Further:**

It is important to record impairment losses when they occur to ensure that the amount of benefit to be derived from long-lived assets is not overstated on the balance sheet. When assets lose their utility, they must be reduced to the recoverable amount expected to be obtained through their use. Postponing a loss until the asset is sold or disposed of would result in mismatching costs and their related revenues and result in an overstatement of assets.

LO 3 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.6B

a. 2019

Jul. 1 **Equipment..... 395,000**
 Cash..... 100,000
 Notes Payable 295,000
 To purchase equipment for cash and a
 note payable.

Dec. 31 **Depreciation Expense ¹..... 19,750**
 Accumulated Depreciation—
 Equipment 19,750
 ¹**[(\\$395,000 x (200% ÷ 20)) x 6/12]**
 To record depreciation expense.

31 **Interest Expense² 7,375**
 Cash..... 7,375
 ²**(\\$295,000 x 5% x 6/12 = \\$7,375)**
 To record payment of interest.

2020

May 21 **Repair Expense 2,000**
 Cash..... 2,000
 Paid for repair expense.

Dec. 31 **Depreciation Expense³ 37,525**
 Accumulated Depreciation—
 Equipment 37,525
 ³**[(\\$395,000 – \\$19,750) x 10%]**
 To record depreciation expense.

31 **Interest Expense⁴ 14,750**
 Cash..... 14,750
 ⁴**(\\$295,000 x 5%).....**
 To record payment of interest.

PROBLEM 9.6B (Continued)**a. (Continued)**

Dec. 31 Impairment Loss⁵ 62,725
 Accumulated Depreciation—
 Equipment 62,725
⁵[\$275,000 – (\$395,000 – \$19,750 – \$37,525)]
 To record impairment loss.

Carrying value of equipment: \$337,725 (\$395,000 – \$19,750 – \$37,525)

Impairment loss: \$62,725 (\$337,725 – \$275,000)

2021

Mar. 31 Depreciation Expense⁶ 6,875
 Accumulated Depreciation—
 Equipment 6,875
⁶(\$275,000 × 10% × 3/12)
 To record depreciation expense.

31 Cash 240,000
 Accumulated Depreciation—
 Equipment⁷ 126,875
 Loss on Disposal⁸ 28,125
 Equipment 395,000
⁷(\$19,750 + \$37,525 + \$62,725 + \$6,875)
 To record disposal.

⁸ Equipment	\$395,000
Less: Accumulated depreciation	<u>126,875</u>
Carrying amount	268,125
Proceeds	<u>240,000</u>
Loss on disposal	<u>\$ 28,125</u>

Apr. 1 Interest Expense⁹ 3,688
 Notes Payable 295,000
 Cash 298,688
⁹(\$295,000 × 5% × 3/12)
 To record payment of note and interest.

PROBLEM 9.6B (Continued)**b.**

The products made using the robot may have become less popular, so revenue will be declining in the future. Or there could be new technology that will make the robot obsolete and of lower value to the company. Alternatively, there could have been physical damage to the robot that might be the cause of the impairment in value.

c. **Sept. 30 Depreciation Expense¹⁰ 20,625**
 Accumulated Depreciation—
 Equipment 20,625
 ¹⁰(\$275,000 x 10%) x 9/12
 To record depreciation expense.

30 Cash 260,000
 Accumulated Depreciation—
 Equipment¹¹ 140,625
 Gain on Disposal¹² 5,625
 Equipment 395,000
 ¹¹(\$19,750 + \$37,525 + \$62,725 + \$20,625)
 To record disposal.

¹² Equipment	\$395,000
Less: Accumulated depreciation	<u>140,625</u>
Carrying amount	254,375
Proceeds	<u>260,000</u>
Gain on disposal	<u>\$ 5,625</u>

PROBLEM 9.6B (Continued)**Taking It Further:**

The recoverable amount of an asset is the higher of the fair value of the asset less the cost to sell it or its value in use calculated using discounted cash flows.

In this case, the industrial robot will be used in production. Consequently, the value in use to SE Parts Supply would be the amount management expects to recover in operations by using the asset. As for establishing the fair value of the asset, equipment of similar type that has been recently sold can be used to make estimates of what would be obtained on sale. Under ASPE, impairment tests of property, plant, and equipment need not be done every year, particularly if the likelihood of impairment is remote. Management should be diligent about looking for possible causes for impairment when changes in circumstances or conditions occur. If the company is using IFRS, annual impairment tests are required regardless of circumstances.

LO 1,2,3,4 BT: AP Difficulty: M Time: 35 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.7B

a.

1. STRAIGHT-LINE DEPRECIATION

<u>Year</u>	<u>Depreciable Amount</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$107,000 ¹		33.333% ²		\$35,666	\$35,666	\$89,334
2021	107,000		33.333%		35,666	71,332	53,668
2022	107,000		33.333%		35,668 ³	107,000	18,000

¹ \$125,000 – \$18,000 = \$107,000

² 1 ÷ 3 years = 33.333%

³ Required additional \$2 for rounding

2. DIMINISHING-BALANCE DEPRECIATION

<u>Year</u>	<u>Carrying Amount Beginning of Year</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	\$125,000		45%		\$56,250	\$56,250	\$68,750
2021	68,750		45%		30,938	87,188	37,812
2022	37,812		45%		17,015	104,203	20,797

PROBLEM 9.7B (Continued)**a. (Continued)****3. UNITS-OF-PRODUCTION**

<u>Year</u>	<u>Units of Production</u>	×	<u>Depr. Amt/Unit⁴</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2020	6,000		\$8.917		\$ 53,502	\$ 53,502	\$71,498
2021	2,000		8.917		17,834	71,336	53,664
2022	3,800		8.917		33,885	105,221	19,779

⁴ Depreciable amount per unit is \$8.917 per unit
 $[(\$125,000 - \$18,000) \div 12,000 = \$8.917]$

b.	(1)	(2)	(3)
	<u>Straight- Line</u>	<u>Diminishing- Balance</u>	<u>Unit –of- Production</u>
Cost	\$125,000	\$125,000	\$125,000
Accumulated depreciation..	<u>107,000</u>	<u>104,203</u>	<u>105,221</u>
Carrying amount	18,000	20,797	19,779
Cash proceeds	<u>21,000</u>	<u>21,000</u>	<u>21,000</u>
Gain on disposal	<u>\$ 3,000</u>	<u>\$ 203</u>	<u>\$ 1,221</u>

c.	(1)	(2)	(3)
	<u>Straight- Line</u>	<u>Diminishing- Balance</u>	<u>Unit –of- Production</u>
Depreciation expense	\$107,000	\$104,203	\$105,221
Deduct gain on disposal	<u>3,000</u>	<u>203</u>	<u>1,221</u>
Net expense	<u>\$104,000</u>	<u>\$104,000</u>	<u>\$104,000</u>

The net expense is the same under all three methods. The different depreciation methods result in different accumulated depreciation at the date of sale, which in turn causes a different gain on disposal. Consequently, the total depreciation expense recognized over the life of the asset, less the gain on disposal, results in the same net expense of \$104,000 over the life of the asset.

PROBLEM 9.7B (Continued)**Taking It Further:**

I disagree. Experiencing a gain or loss on the disposal of a depreciable asset is not the result of an error or mistake. Rather, a gain or loss is an expected outcome due to the limitations of the cost allocation that has occurred for the asset up to the date of its disposal. Since estimates are involved in arriving at the factors used in calculating depreciation, such as the estimated useful life and the estimated residual value, it is natural that some differences between the carrying amount and any proceeds of disposition will occur when the asset is disposed of. Depreciation is a cost allocation process and is not intended to ensure the carrying amount of the asset reflects fair value.

LO 2,4 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.8B

- a. 2019
Feb. 4 Furniture 70,000
 Accounts Payable 70,000
 To record purchase of furniture on account.

- b. 2019
Sept. 30 Depreciation Expense¹ 9,333
 Accumulated Depreciation
 —Furniture 9,333
 ¹ $(\$70,000 \times 20\% \times 8/12)$
 To record depreciation expense.

- 2020
Sept. 30 Depreciation Expense² 12,133
 Accumulated Depreciation
 —Furniture 12,133
 ² $(\$70,000 - \$9,333) \times 20\%$
 To record depreciation expense.

- 2021
Sept. 30 Depreciation Expense³ 9,707
 Accumulated Depreciation
 —Furniture 9,707
 ³ $(\$70,000 - \$9,333 - \$12,133) \times 20\%$
 To record depreciation expense.

- c. 2022
Jan. 26 Depreciation Expense⁴ 2,588
 Accumulated Depreciation
 —Furniture 2,588
 ⁴ $(\$70,000 - \$9,333 - \$12,133 - \$9,707) \times 20\% \times 4/12]$
 To record depreciation expense.

Accumulated Depreciation at January 26, 2022:
 $\$9,333 + \$12,133 + \$9,707 + \$2,588 = \$33,761$

Carrying Amount at January 26, 2022:
Cost – Accumulated Depreciation
 $\$70,000 - \$33,761 = \$36,239$

PROBLEM 9.8B (Continued)**c. (Continued)**

(1)	Jan. 26	Accumulated Depreciation—		
		Furniture	33,761	
		Loss on Disposal ⁵	36,239	
		Furniture		70,000
		⁵ [\$0 – (\$70,000 – \$33,761)]		
		To record disposal.		
(2)	Jan. 26	Cash	30,000	
		Accumulated Depreciation—		
		Furniture	33,761	
		Loss on Disposal ⁶	6,239	
		Furniture		70,000
		⁶ [\$30,000 – (\$70,000 – \$33,761)]		
		To record disposal.		
(3)	Jan. 26	Cash	40,000	
		Accumulated Depreciation—		
		Furniture	33,761	
		Gain on Disposal ⁷		3,761
		Furniture		70,000
		⁷ [\$40,000 – (\$70,000 – \$33,761)]		
		To record disposal.		
(4)	Jan. 26	Furniture		
		(\$55,000 + \$30,000)	85,000	
		Accumulated Depreciation—		
		Furniture	33,761	
		Loss on Disposal ⁸	6,239	
		Cash (\$100,000 – \$45,000)....		55,000
		Furniture		70,000
		⁸ [\$30,000 – (\$70,000 – \$33,761)]		
		To record disposal.		

PROBLEM 9.8B (Continued)**Taking It Further:**

The following are the arguments in favour of recording gains and losses on disposal of property, plant, and equipment as:

1. **Part of profit from operations:**

Gains and losses are basically just adjustments to depreciation expense and should be recorded in the same section of the income statement.

Classifying gains and losses as operations removes the potential for management bias in the selection of depreciation methods or in the estimates concerning useful lives and residual values of the assets. Bias might be at play concerning management's unwillingness to show losses in operations because management bonuses may be based on the amount of profit from operations.

2. **Non-operating items:**

The same management bias described above would be applied for gains recognized by the business.

A common view is that the disposal of property, plant, and equipment is not an everyday occurrence and gains or losses are not predictable.

It can also be argued that selling property, plant, and equipment is not part of normal operations and thus gains or losses should not be reported as part of profit from operations.

LO 2,4 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.9B

a. April 1 Land1,900,000
 Cash..... 475,000
 Notes Payable 1,425,000
 To record purchase of land for cash and
 a note payable.

May 1 Depreciation Expense¹..... 25,000
 Accumulated Depreciation
 —Equipment 25,000
 ¹(\$750,000 ÷ 10 × 4/12)
 To record depreciation expense.

1 Cash 350,000
 Accumulated Depreciation—
 Equipment..... 550,000
 Gain on Disposal² 150,000
 Equipment 750,000
 To record disposal of equipment.

²Cost \$750,000
 Accumulated depreciation—equipment
 [(\$750,000 ÷ 10) × 7 + \$25,000)] 550,000
 Carrying amount 200,000
 Cash proceeds 350,000
 Gain on disposal \$150,000

June 1 Cash 380,000
 Notes Receivable..... 820,000
 Land..... 300,000
 Gain on Disposal 900,000
 To record disposal of land.

July 1 Equipment.....1,000,000
 Accounts Payable 1,000,000
 Purchase of equipment on account.

PROBLEM 9.9B (Continued)**a. (Continued)**

Dec. 31 Depreciation Expense³ 47,000
 Accumulated Depreciation
 —Equipment 47,000
 ³(\$470,000 ÷ 10)
 To record depreciation expense.

Dec. 31 Accumulated Depreciation—
 Equipment⁴ 329,000
 Loss on disposal 141,000
 Equipment 470,000
 To record disposal of equipment.
⁴Accumulated depreciation on equipment:
 \$329,000 [(\$470,000 ÷ 10) x 7 years]

b. Dec. 31 Depreciation Expense⁵ 570,000
 Accumulated Depreciation—
 Building 570,000
 ⁵(\$28,500,000 ÷ 50)
 To record depreciation expense.

31 Depreciation Expense⁶ 4,728,000
 Accumulated Depreciation—
 Equipment 4,728,000
 To record depreciation expense.

⁶ \$46,780,000 ÷ 10	\$4,678,000
\$1,000,000 ÷ 10 × 6/12	50,000
	<u>\$4,728,000</u>

\$48,000,000 – \$750,000 – \$470,000 = \$46,780,000

31 Interest Expense⁷ 64,125
 Interest Payable 64,125
 ⁷(\$1,425,000 × 6% × 9/12)
 To accrue interest expense.

PROBLEM 9.9B (Continued)**b. (Continued)**

Dec. 31	Interest Receivable.....	28,700	
	Interest Revenue⁸		28,700
	⁸(\$820,000 × 6% × 7/12)		
	To accrue interest revenue.		

c.

JAINA COMPANY
Balance Sheet (Partial)
December 31, 2021

Property, plant, and equipment⁹

Land		\$ 5,600,000
Building.....	\$28,500,000	
Less: Accumulated depreciation .	<u>12,670,000</u>	15,830,000
Equipment	47,780,000	
Less: Accumulated depreciation .	<u>18,874,000</u>	<u>28,906,000</u>
Total property, plant, and equipment		<u><u>\$50,336,000</u></u>

⁹See T accounts that follow for balances**Land**

Jan. 1, 2021	4,000,000	June 1, 2021	300,000
April 1, 2021	1,900,000		
Dec. 31, 2021 Bal.	5,600,000		

Building

Jan. 1, 2021	28,500,000		
Dec. 31, 2021 Bal.	28,500,000		

Equipment

Jan. 1, 2021	48,000,000	May 1, 2021	750,000
July 1, 2021	1,000,000	Dec. 31, 2021	470,000
Dec. 31, 2021 Bal.	47,780,000		

PROBLEM 9.9B (Continued)**c. (Continued)****Accumulated Depreciation—Building**

	Jan. 1, 2021	12,100,000
	Dec. 31, 2021	570,000
	Dec. 31, 2021 Bal.	12,670,000

Accumulated Depreciation—Equipment

May 1, 2021	550,000	Jan. 1, 2021	15,000,000
Dec. 31, 2021	329,000	May 1, 2021	25,000
		Dec. 31, 2021	47,000
		Dec. 31, 2021	4,728,000
		Dec. 31, 2021 Bal.	18,921,000

Taking It Further:

Although the use of the revaluation model is permitted for those companies adopting the International Financial Reporting Standards (IFRS), its adoption is voluntary, and somewhat rare. Once adopted, the business will need to be consistent with the application of the model in the future. Additional evidence will be required each year to support the values that are being used in the revaluation. This could become expensive and the costs may exceed the benefits of implementing the revaluation model. Comparability with other companies might also be affected.

Because the revaluation model is not acceptable under ASPE and most companies are private, this would be the primary reason why most companies use the cost model.

LO 2,4,7 BT: AP Difficulty: C Time: 50 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.10B

- | | | | |
|----|---|--------|--------|
| 1. | Research Expense | 70,000 | |
| | Patents..... | | 70,000 |
| | To correct recording error. | | |
| | | | |
| 2. | Patents | 21,000 | |
| | Professional Fees Expense | | 21,000 |
| | To correct recording error. | | |
| | | | |
| 3. | Amortization Expense..... | 7,450 | |
| | Accumulated Amortization—Patents ... | | 7,450 |
| | {[((\$45,000 + \$21,000) ÷ 5 years) – \$5,750]} | | |
| | To correct recording error. | | |

Taking It Further:

Most intangible assets that are developed internally cannot be recognized as intangible assets on the balance sheet because the expenditures on internally developed intangibles cannot be distinguished from the costs of other research and development performed by the business. The costs cannot be separately measured and are therefore expensed as incurred.

LO 6 BT: AP Difficulty: C Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.11B

a.	Jan.	2	Trademark.....	7,000	
			Cash.....		7,000
			To record successful defence of trademark.		
	July	1	Research Expense	275,000	
			Cash.....		275,000
			Payment of research expense.		
		1	Patents	50,000	
			Cash.....		50,000
			Payment of costs for patents.		
	Aug.	1	Prepaid Advertising	45,000	
			Cash.....		45,000
			Paid advertising expense.		
	Oct.	1	Copyright #2	168,000	
			Cash.....		168,000
			Purchase copyright #2.		
	Dec.	31	Amortization Expense ¹	1,250	
			Accumulated Amortization— Patents		1,250
			¹ [($\$50,000 \div 20$) $\times$ 6/12] To record amortization expense.		
	Dec.	31	Amortization Expense ²	19,000	
			Accumulated Amortization— Copyrights.....		19,000
			² [($\$36,000 \times 1/3$) + ($\$168,000 \times 1/6 \times 3/12$)] To record amortization expense.		

PROBLEM 9.11B (Continued)**b.**

GHANI CORPORATION
Balance Sheet (Partial)
December 31, 2021

Assets		
Intangible assets		
Patents	\$ 50,000	
Less: Accumulated amortization	<u>1,250</u>	\$ 48,750
Copyrights ¹	204,000	
Less: Accumulated amortization	<u>43,000</u>	161,000
Trademark ²		<u>59,000</u>
Total intangible assets		<u>268,750</u>
Goodwill		<u>150,000</u>

¹ Copyright: Cost \$36,000 + \$168,000 = \$204,000

Copyright: Amortization \$24,000 + \$19,000 = \$43,000

² Trademark: \$52,000 + \$7,000 = \$59,000

Taking It Further:

Although intangible assets do not have physical substance, they have characteristics common to other assets in that they contribute to the revenue-producing ability of a business that owns them. They are owned and controlled by the business and therefore fit the definition of assets.

LO 6,7 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.12B

a. 2020

June	7	Resource.....	50,000,000	
		Cash.....		10,000,000
		Mortgage Payable		40,000,000
		To record purchase of timber land in exchange for cash and a mortgage.		
	26	Equipment.....	196,000	
		Cash.....		196,000
		To record cash purchase of equipment.		
Dec.	31	Inventory ¹	5,280,000	
		Accumulated Depletion—		
		Resource		5,280,000
		¹ (\$50,000,000 – \$2,000,000) ÷ 1,000,000 t = \$48/t		
		\$48/t × 110,000 t = \$5,280,000		
		To record depletion.		
	31	Cost of Goods Sold.....	5,280,000	
		Inventory		5,280,000
		To record cost of goods sold.		
	31	Depreciation Expense.....	14,000	
		Accumulated Depreciation		
		—Equipment		14,000
		\$196,000 ÷ 7 × 6/12 = \$14,000		
		To record depreciation expense.		
	31	Interest Expense		
		(\$40,000,000 × 7% × 7/12).....	1,633,333	
		Cash.....		1,633,333
		To record payment of interest.		

PROBLEM 9.12B (Continued)**a. (Continued)****2021**

Dec. 31	Inventory		
	(\$48/t × 240,000 t)	11,520,000	
	Accumulated Depletion.—		
	Resource		11,520,000
	To record depletion.		
31	Cost of Goods Sold	11,520,000	
	Inventory		11,520,000
	To record cost of goods sold.		
31	Depreciation Expense	28,000	
	Accumulated Depreciation		
	—Equipment		28,000
	(\$196,000 ÷ 7) = \$28,000		
	To record depreciation expense.		
31	Interest Expense		
	(\$40,000,000 × 7%)	2,800,000	
	Cash		2,800,000
	To record payment of interest.		

b.

CYPRESS TIMBER COMPANY
Income Statement (partial)
Year Ended December 31, 2021

Cost of goods sold	\$11,520,000
Operating expenses:	
Depreciation expense	\$ 28,000
Other expenses:	
Interest expense	\$ 2,800,000

PROBLEM 9.12B (Continued)**b. (Continued)**

CYPRESS TIMBER COMPANY
(Partial) Balance Sheet
December 31, 2021

Property, plant, and equipment

Resource	\$50,000,000	
Less: Accumulated depletion ¹	<u>16,800,000</u>	\$33,200,000
 Equipment	 196,000	
Less: Accumulated depreciation ²	<u>42,000</u>	<u>154,000</u>
Total property, plant, and equipment		<u>\$33,354,000</u>

¹ \$5,280,000 + \$11,520,000 = \$16,800,000

² \$14,000 (2020) + \$28,000 (2021) = \$42,000

Taking It Further:

Due to its nature, it is expected that the estimate of the total amount of units to be extracted from a timber tract would need to be adjusted as extraction occurs and better estimates can be made. Management should not be influenced by the need for changes in estimates when choosing the units-of-production method for recording depreciation of the timber tract. It is the depreciation method that best allocates the cost of the tract to the units of timber that are recorded to inventory.

LO 3,5,7 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

PROBLEM 9.13B**a. (in thousands)**

	Mock Orange Company	Cotoneaster Company
Asset turnover 2021	$\frac{\$9,428.0}{[(\$5,829.1 + \$5,771.4) \div 2]}$ $= 1.63 \text{ to } 1$	$\frac{\$3,839.8}{[(\$2,754.5 + \$2,504.1) \div 2]}$ $= 1.46 \text{ to } 1$
Asset turnover 2020	$\frac{\$8,894.3}{[(\$5,771.4 + \$5,343.9) \div 2]}$ $= 1.60 \text{ to } 1$	$\frac{\$3,656.9}{[(\$2,504.1 + \$2,340.3) \div 2]}$ $= 1.51 \text{ to } 1$
Return on assets 2021	$\frac{\$627.7}{[(\$5,829.1 + \$5,771.4) \div 2]}$ $= 10.82\%$	$\frac{\$143.4}{[(\$2,754.5 + \$2,504.1) \div 2]}$ $= 5.45\%$
Return on assets 2020	$\frac{\$597.8}{[(\$5,771.4 + \$5,343.9) \div 2]}$ $= 10.76\%$	$\frac{\$137.9}{[(\$2,504.1 + \$2,340.3) \div 2]}$ $= 5.69\%$

- b. Mock Orange Company is more efficient in using its assets to generate sales—its asset turnover of 1.63 times is higher than the turnover of 1.46 for Cotoneaster Company and its ratio is increasing while Cotoneaster's is decreasing. Mock Orange is also much more efficient in using assets to produce profit—with a return on assets of 10.82% compared to 5.45% for Cotoneaster Company. Moreover, Mock Orange's ratio is increasing while Cotoneaster's is decreasing.**

PROBLEM 9.13B (Continued)**Taking it Further:**

Although the ability to compare two companies in the same industry using ratios is affected by the depreciation methods adopted by the companies being compared, absolute conclusions cannot be drawn from these differences. In this particular comparison, in the early years of the useful lives of depreciable assets owed by Mock Orange, there will be lower amounts of depreciation recorded compared to Cotoneaster and therefore also higher carrying amounts for the assets. This is the case because Mock Orange uses the straight-line method of depreciation and Cotoneaster uses the diminishing-balance method, which results in higher charges of depreciation in the early years and lower amounts in the later years. The opposite effect would occur in the amount of depreciation recorded in the later years of the useful lives of the assets being depreciated. Since assets are acquired throughout the life of a company, it is not possible to determine the impact of the different methods without more information.

LO 7 BT: AN Difficulty: M Time: 25 min. AACSB: Analytic CPA: cpa-t001 cpa-t005
CM: Reporting and Finance

BYP 9.1 FINANCIAL REPORTING PROBLEM

a. (in thousands) on February 25, 2018

	1. Cost	2. Accumulated Depreciation	3. Net Carrying Amount
Leasehold improvements	\$169,605	\$80,369	\$89,236
Furniture and equipment	38,214	21,816	16,398
Computer hardware	12,625	7,765	4,860
Computer software	6,121	4,292	1,829
Construction-in-process	23,349		23,349
	<u>\$249,914</u>	<u>\$114,242</u>	<u>\$135,672</u>

b. (in thousands) on February 25, 2018

	1. Cost	2. Accumulated Amortization	3. Net Carrying Amount
Indefinite life trade name	\$46,092		\$46,092
Definite life trade name	17,175	\$10,240	6,935
Trademarks	1,709	1,709	0
Computer software	26,725	18,365	8,360
Other intangible assets	3,519	3,519	0
	<u>\$95,220</u>	<u>\$33,833</u>	<u>\$61,387</u>
 Goodwill	 <u>\$151,682</u>		 <u>\$151,682</u>

4. **Impairments:** In fiscal 2017 and 2018, the company performed annual impairment tests of goodwill and indefinite life trade name (intangible) and determined that there was no impairment in these assets; therefore, there is no amount recorded for impairment of goodwill or the trade name.

BYP 9.1 (Continued)

- c. As part of the disclosure provided in note 6 to the financial statements, disposals occurred during the year ended February 25, 2018 for the following assets in the cost amounts, that follow: (in thousands)

Furniture and equipment	\$ 337
Computer hardware	1,784
Computer software	<u>2,847</u>
Total	<u>\$4,968</u>

- d. The amount of depreciation and amortization expense for the fiscal year ending February 25, 2018 was \$20,932,000 for depreciation and \$1,912,000 for amortization (total is \$22,844,000). The individual amounts are reported in notes 6 and 7, and the total in the statement of cash flows.

- e. 1. Aritzia uses the cost model.
2. Aritzia uses the straight-line method of depreciation for property and equipment.
3. The estimated useful lives for property and equipment are:

Computer hardware and software	3-10 years
Furniture and equipment	3-10 years
Leasehold improvements	shorter of lease term and estimated useful life

4. Aritzia discloses depreciation and amortization on the statement of cash flows (\$22,844,000). As disclosed in note 25, Aritzia included \$17,807,000 depreciation expense in cost of goods sold for the year ended February 25, 2018.

BYP 9.2 INTERPRETING FINANCIAL STATEMENTS

- a. **WestJet could use the units-of-production method of depreciation for engine, airframe and landing gear overhaul. For safety reasons, the overhaul costs are done at fixed points following the use of the specific overhauled equipment. These fixed points are likely based on the number of hours this equipment is used in flight. If the use of the assets varied over time, or were seasonal, the units-of-production method would provide a better measure of the charge for depreciation against the revenue produced. It is likely that the amount of use of these assets does not vary a great deal over time, which justifies WestJet's choice of the straight-line method. If the amount of use varies greatly over time, WestJet should use the units-of-production method.**
- b. **Major overhaul expenditures involve equipment that must be overhauled as a function of amount of use, typically hours in flight. These overhauls must be performed for safety reasons. The expected life between overhauls is very predictable, and likely dictated by safety associations or regulators. Since the timing of the benefit is easily measured, the best match of the major overhaul costs to the revenues is achieved by capitalizing the costs and then depreciating the capitalized overhauls over the benefiting periods. This is an appropriate technique as it is the best and fairest way to deal with major overhaul costs. Other fleet maintenance is minor and less predictable and WestJet's policy of expensing these costs immediately is appropriate.**

BYP 9.2 (Continued)

- c. Leasehold improvements frequently have physical lives that are longer than the terms of the lease. But since the control and enjoyment of leasehold improvements is limited to the term of a lease, it is appropriate to use the term of the lease for purposes of calculating depreciation. Consequently, the maximum length of benefit to the lessee is the term of lease, which is appropriate in the calculation of depreciation. If, on the other hand, the leasehold improvements have a physical life shorter than the term of the lease, the shorter period should be used for purposes of calculating depreciation.**
- d. WestJet uses component depreciation for engine, airframe and landing gear overhaul. Engines in particular are constantly being overhauled, and so spares are needed to ensure that the airplane can be used during the period needed to perform the overhaul. Since the period of benefit of these major overhauls is considerably shorter than the useful life of the aircraft, this technique is a good example of where component depreciation is very appropriate.**

BYP 9.3 COLLABORATIVE LEARNING ACTIVITY

All the material supplementing the collaborative learning activity, including a suggested solution, can be found in the Collaborative Learning section of the Instructor Resources site accompanying this textbook.

BYP 9.4 COMMUNICATION ACTIVITY**Memorandum**

To: Jason Long, Owner
From: Ken Bond, Controller
Re: Exchange of Long-Lived Assets

I am writing to you about the proposed exchange of one of our semi-trucks for a garage we could use as a branch of our repair operations.

The truck we intend to exchange has a carrying value on our books of \$100,000 but its fair value in its current condition is \$75,000. The garage we would get in exchange has a fair value of \$90,000. Consequently, we would need to pay cash of \$15,000 (\$90,000 less \$75,000), the difference in the fair values of the two assets exchanged.

1. Because the fair value of the semi-truck is not the same as the carrying amount on our books, a gain or loss must be recorded at the date of the exchange. The exchange transaction is a disposal combined with a purchase. In our case, the fair value is lower than the carrying amount and a loss of \$25,000 (\$100,000 carrying amount less \$75,000 fair value) would have to be recorded. This loss will reduce profit for the period. The garage we obtain would be recorded at its fair value of \$90,000. Because these are different types of assets with different useful lives, the garage will be depreciated at a different rate than the semi-truck. We will be consistent in our methods of depreciation with other assets in the same group. It is likely the depreciation on the garage will be lower than the depreciation we were recording on the semi-truck. As well, the garage would not need to be repaired as often as the semi-truck.

BYP 9.4 (Continued)**2. The exchange of assets would be recorded as follows:**

Building	90,000	
Accumulated Depreciation—		
Vehicles.....	65,000	
Loss on Disposal.....	25,000	
Vehicles		165,000
Cash		15,000
To record exchange of assets.		

As I mentioned earlier, we will be consistent and use the same depreciation method for the garage as is already used for buildings. Once we have estimated the useful life of the garage, we will be able to calculate and record depreciation as soon as the garage is available for use.

BYP 9.5 “ALL ABOUT YOU” ACTIVITY

- a. Generally, copyright means the sole right to produce or reproduce a work or a substantial part of it in any form. It also includes the right to perform a work, or in the case of a lecture, to deliver it, and the right to publish an unpublished work.

Copyright applies to all original literary, artistic, dramatic, or musical works. These include books, other writings, music, sculptures, paintings, maps, photographs, films, plays, television and radio programs, and computer programs. Copyright also applies to other subject matter including recordings (such as records, cassettes, DVDs, videos and tapes), performer's performances, and communication signals.

- b. A person acquires a copyright automatically when he or she creates an original work or other subject matter, provided the conditions set out in the *Copyright Act* have been met. Since you automatically obtain copyright, the law automatically protects you. You do not have to register your copyright to be protected.
- c. The *Copyright Act* provides that a certificate of registration is evidence that the copyright exists and that the person registered is the owner of the copyright. Being on the Register of Copyrights may also assist those wishing to seek permission to use the work.
- d. Registration of a copyright is done by completing an application and sending it to the Copyright Office, along with the appropriate fee.

BYP 9.5 (Continued)

- e. The fee for filing online is \$50 and is so small that it is not material. Consequently, most businesses decide to expense the fee immediately. It is possible that with several copyrights, a meaningful amount can be recorded as an asset as the fees have been incurred to protect the right to the works and will bring benefit to the business in the future.**
- f. Copyright infringement refers to unlawful use of copyright material. Plagiarism—passing off someone else's work as your own—is a form of infringement.**
- g. A copyright generally lasts for the life of the author, plus 50 years following the calendar year the author dies.**

BYP 9.6 Santé Smoothie Saga

a.	Purchase price	\$28,400
	Painting	3,000
	Shelving	<u>1,600</u>
	Cost of van.....	<u><u>\$33,000</u></u>

b. 1. STRAIGHT-LINE METHOD

<u>Year</u>	<u>Depreciable Amount</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2022	\$28,000 ¹		20% × 5/12		\$ 2,333	\$ 2,333	\$30,667
2023	28,000		20%		5,600	7,933	25,067
2024	28,000		20%		5,600	13,533	19,467
2025	28,000		20%		5,600	19,133	13,867
2026	28,000		20%		5,600	24,733	8,267
2027	28,000		20% × 7/12		<u>3,267</u>	28,000	5,000
Total					<u><u>\$28,000</u></u>		

¹ (\$33,000 – \$5,000 = \$28,000)

2. DIMINISHING-BALANCE AT DOUBLE THE STRAIGHT-LINE RATE METHOD

<u>Year</u>	<u>Carrying Amount (Beg. of Year</u>	×	<u>Depr. Rate</u>	=	<u>Depr. Expense</u>	<u>End of Year</u>	
						<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2022	\$33,000		40% ² × 5/12		\$ 5,500	\$ 5,500	\$27,500
2023	27,500		40%		11,000	16,500	16,500
2024	16,500		40%		6,600	23,100	9,900
2025	9,900		40%		3,960	27,060	5,940
2026	5,940		40%		<u>940³</u>	28,000	5,000
					<u><u>\$28,000</u></u>		

² 40% = 20% × 2 [double the straight-line rate]

³ amount required for carrying amount to equal residual value

BYP 9.6 (Continued)**b. (Continued)****3. UNITS-OF-PRODUCTION METHOD**

<u>Year</u>	<u>Units of Production</u>	<u>Depreciable Cost/Unit</u>	<u>Depr. Expense</u>	<u>End of Year</u>	
				<u>Accum. Depr.</u>	<u>Carrying Amount</u>
2022	30,000	\$0.14 ⁴	\$ 4,200	\$ 4,200	\$28,800
2023	37,500	0.14	5,250	9,450	23,550
2024	40,000	0.14	5,600	15,050	17,950
2025	47,500	0.14	6,650	21,700	11,300
2026	35,000	0.14	4,900	26,600	6,400
2027	10,000	0.14	1,400	28,000	5,000
			<u>\$28,000</u>		

⁴ $(\$33,000 - \$5,000) \div 200,000 \text{ km} = \0.14 per km

- c. The units-of-production method of depreciation will result in the greatest amount of profit reported for the year ended May 31, 2023 because it has the lowest depreciation expense for the year. There will be no difference in the total profit over the life of the asset.
- d. As indicated in the three different schedules prepared in part b., the carrying amount on the balance sheet at May 31, 2023 would be the highest if the straight-line method were used. By the end of the useful life, the carrying amount will be the same under all depreciation methods.
- e. I recommend the units-of-production method of depreciation because this method will provide Natalie with the best pattern to match the economic benefits of the van. It will provide the fairest charge for each year.

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