

CHAPTER 9

LONG-LIVED ASSETS

CHAPTER STUDY OBJECTIVES

1. **Calculate the cost of property, plant, and equipment.** The cost of property, plant, and equipment includes all costs that are necessary to acquire the asset and make it ready for its intended use. All costs that benefit future periods (that is, capital expenditures) are included in the cost of the asset. When applicable, cost also includes asset retirement costs. When multiple assets are purchased in one transaction, or when an asset has significant components, the cost is allocated to each individual asset or component using their relative fair values.

2. **Apply depreciation methods to property, plant, and equipment.** After acquisition, assets are accounted for using the cost model or the revaluation model. Depreciation is recorded and assets are carried at cost less accumulated depreciation. Depreciation is the allocation of the cost of a long-lived asset to expense over its useful life (its service life) in a rational and systematic way. Depreciation is not a process of valuation and it does not result in an accumulation of cash. There are three commonly used depreciation methods:

<u>Method</u>	<u>Effect on Annual Depreciation</u>	<u>Calculation</u>
Straight-line	Constant amount	$(\text{Cost} - \text{residual value}) \div \text{estimated useful life (in years)}$
Diminishing-balance	Diminishing amount	Carrying amount at beginning of year $\times$ diminishing-balance rate
Units-of-production	Varying amount	$(\text{Cost} - \text{residual value}) \div \text{total estimated units-of-production} \times \text{actual activity during the year}$

Each method results in the same amount of depreciation over the asset's useful life. Depreciation expense for income tax purposes is called capital cost allowance (CCA).

3. **Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.** A revision to depreciation will be required if there are (a) capital expenditures during the asset's useful life; (b) impairments in the asset's fair value; (c) changes in the asset's fair value when using the revaluation model; and/or (d) changes in the appropriate depreciation method, estimated useful life, or residual value. An impairment loss must be recorded if the recoverable amount is less than the carrying amount. Revisions of periodic depreciation are made in present and future periods, not retroactively. The new annual depreciation is determined by using the depreciable amount (carrying amount less the revised residual value), and the remaining useful life, at the time of the revision.

4. Demonstrate how to account for property, plant, and equipment disposals. The accounting for the disposal of a piece of property, plant, or equipment through retirement or sale is as follows:

- (a) Update any unrecorded depreciation for partial periods since depreciation was last recorded.
- (b) Calculate the carrying amount (cost – accumulated depreciation).
- (c) Calculate any gain (proceeds > carrying amount) or loss (proceeds < carrying amount) on disposal.
- (d) Remove the asset and accumulated depreciation accounts at the date of disposal. Record the proceeds received and the gain or loss, if any.

An exchange of assets is recorded as the purchase of a new asset and the sale of an old asset. The new asset is recorded at the fair value of the asset given up plus any cash paid (or less any cash received). The fair value of the asset given up is compared with its carrying amount to calculate the gain or loss. If the fair value of the new asset or the asset given up cannot be determined, the new long-lived asset is recorded at the carrying amount of the old asset that was given up, plus any cash paid (or less any cash received).

5. Record natural resource transactions and calculate depletion. The units-of-production method of depreciation is generally used for natural resources. The depreciable amount per unit is calculated by dividing the total depreciable amount by the number of units estimated to be in the resource. The depreciable amount per unit is multiplied by the number of units that have been extracted to determine the annual depreciation. The depreciation and any other costs to extract the resource are recorded as inventory until the resource is sold. At that time, the costs are transferred to cost of resource sold on the income statement. Revisions to depreciation will be required for capital expenditures during the asset's useful life, for impairments, and for changes in the total estimated units of the resource.

6. Identify the basic accounting issues for intangible assets and goodwill. The accounting for tangible and intangible assets is much the same. Intangible assets are reported at cost, which includes all expenditures necessary to prepare the asset for its intended use. An intangible asset with a finite life is amortized over the shorter of its useful life and legal life, usually on a straight-line basis. The extent of the annual impairment tests depends on whether IFRS or ASPE is followed and whether the intangible asset had a finite or indefinite life. Intangible assets with indefinite lives and goodwill are not amortized and are tested at least annually for impairment. Impairment losses on goodwill are never reversed under both IFRS and ASPE.

7. Illustrate the reporting and analysis of long-lived assets. It is common for property, plant, and equipment, and natural resources to be combined in financial statements under the heading "property, plant, and equipment." Intangible assets with finite and indefinite lives are sometimes combined under the heading "intangible assets" or are listed separately. Goodwill must be presented separately. Either on the balance sheet or in the notes, the cost of the major classes of long-lived assets is presented. Accumulated depreciation (if the asset is depreciable) and carrying amount must be disclosed either in the balance sheet or in the notes. The depreciation and amortization methods and rates, as well as the annual depreciation expense, must also be indicated. The company's impairment policy and any impairment losses should be described and reported. Under IFRS, companies must include a reconciliation of the carrying amount at

the beginning and end of the period for each class of long-lived assets and state whether the cost or revaluation model is used.

The asset turnover ratio ($\text{net sales} \div \text{average total assets}$) is one measure that is used by companies to show how efficiently they are using their assets to generate sales revenue. A second ratio, return on assets ($\text{profit} \div \text{average total assets}$), calculates how profitable the company is in terms of using its assets to generate profit.

EXERCISES

Exercise 1

Rust Company was organized on January 1. During the first year of operations, the following expenditures and receipts were recorded in random order in the account, Land:

	<u>Debits</u>
1. Cost of real estate purchased as a plant site (land and building).....	\$ 320,000
2. Legal fees paid at the time of the purchase of the real estate.....	6,500
3. Cost of demolishing building to make land suitable for construction of a new building.....	12,000
4. Architect's fees on building plans.....	14,000
5. Excavation costs for new building.....	24,000
6. Cost of filling and grading the land.....	5,000
7. Insurance and taxes during construction of building.....	6,000
8. Cost of repairs to building under construction caused by a small fire.....	14,000
9. Interest paid during the year, of which \$52,000 pertains to the construction period.....	64,000
10. Full payment to building contractor.....	760,000
11. Cost of parking lots and driveways.....	36,000
12. Property taxes paid for the current year on the land.....	<u>4,000</u>
Total Debits.....	<u>\$1,265,500</u>
	<u>Credits</u>
13. Insurance proceeds for fire damage.....	\$10,000
14. Proceeds from residual of demolished building.....	<u>3,500</u>
Total Credits.....	<u>\$13,500</u>

Instructions

Analyze the above transactions using the columns below. Insert the number of each transaction in the item space and insert the amounts in the appropriate columns.

<u>Item</u>	<u>Land</u>	<u>Land Improvements</u>	<u>Building</u>	<u>Other</u>	<u>Account Title</u>
Solution 1 (15 min.)					
1.	\$320,000				
2.	6,500				
3.	12,000				
4.			\$ 14,000		
5.			24,000		

6.	5,000			
7.			6,000	
8.			\$ 14,000	Fire Loss
9.		52,000	12,000	Interest Expense
10.		760,000		
11.		\$36,000		Land Improvements
12.			4,000	Property Tax
Expense				
13.			(10,000)	Fire Loss
14.	<u>(3,500)</u>	<u> </u>	<u> </u>	<u> </u>
Totals	<u>\$340,000</u>	<u>\$36,000</u>	<u>\$856,000</u>	<u>\$20,000</u>

Bloomcode: Analysis

Difficulty: Medium

Learning Objective: Calculate the cost of property, plant, and equipment.

Section Reference: Property, Plant, and Equipment

CPA: Financial Reporting

Exercise 2

Identify the following expenditures as capital expenditures or operating expenditures:

1. Replacement of worn out gears on factory machinery
2. Construction of a new wing on an office building
3. Painting the exterior of a building
4. Oil change on a company truck
5. Replacing a network server's hard drive, this increases data storage capacity by ten times. No extension of useful life expected
6. Overhaul of a truck motor. One year extension in useful life is expected
7. Purchased a wastebasket, with an expected useful life of five years, at a cost of \$10
8. Painting and lettering of a used truck upon acquisition of the truck

Solution 2 (5 min.)

1. operating
2. capital
3. operating
4. operating

5. capital
6. capital
7. operating
8. capital

Bloomcode: Comprehension

Difficulty: Easy

Learning Objective: Calculate the cost of property, plant, and equipment.

Section Reference: Property, Plant, and Equipment

CPA: Financial Reporting

Exercise 3

Below are selected entries for Econi Co.:

1. The \$60 cost of repairing a printer was charged to Computer Equipment.
2. The \$5,000 cost of a major engine overhaul was debited to Repair Expense. The overhaul is expected to increase the operating efficiency of the truck.
3. The \$6,000 closing costs associated with the acquisition of land were debited to Legal Expense.
4. A \$600 charge for transportation costs on new equipment purchased was debited to Delivery Expense.
5. Freight cost incurred bringing a new piece of machinery to the plant site was charged to Machinery.

Instructions

For each entry below make a correcting entry if necessary. If the entry given is correct, then state "No entry required."

Solution 3 (10 min.)

- | | | |
|-------------------------|-------|-------|
| 1. Repair Expense..... | 60 | |
| Computer Equipment..... | | 60 |
| 2. Truck..... | 5,000 | |
| Repair Expense..... | | 5,000 |
| 3. Land..... | 6,000 | |
| Legal Expense..... | | 6,000 |
| 4. Equipment..... | 600 | |
| Delivery Expense..... | | 600 |
| 5. No entry required. | | |

Bloomcode: Analysis

Difficulty: Easy

Learning Objective: Calculate the cost of property, plant, and equipment.

Section Reference: Property, Plant, and Equipment
CPA: Financial Reporting

Exercise 4

Below are transactions for Oriel Company:

1. Purchased land for \$900,000.
2. Paid \$20,000 to demolish building located on land.
3. Paid \$3,000 for building permit.
4. Paid \$2,000 for architect fees.
5. Paid \$3,000 for excavation costs.
6. Paid interest of \$22,000 during construction of new building.
7. Paid \$960,000 to complete the building.
8. Paid \$30,000 to pave the parking lot.
9. Paid \$4,000 for underground sprinkler.
10. Ordered new equipment, paid \$30,000.
11. Paid \$1,500 to install and test new equipment.
12. Paid \$250 to insure equipment for one year.
13. Paid \$2,500 to paint office walls in the new building.
14. Paid \$2,000 to repair equipment.
15. Purchased a truck for \$25,000.
16. Paid \$250 for truck license.
17. Paid \$60 for oil change on new truck.
18. Paid \$15,000 for fences around the new building.
19. Purchased two cash registers for \$1,100 each.
20. Paid \$2,200 for annual yard maintenance.

Instructions

- a) Determine if each item should be capitalized (C) or expensed (E).
- b) Determine the balance in the land account and the building account.

Solution 4

- a)
1. C
 2. C
 3. C
 4. C
 5. C
 6. C
 7. C

- 8. C
- 9. C
- 10. C
- 11. C
- 12. E
- 13. E
- 14. E
- 15. C
- 16. E
- 17. E
- 18. C
- 19. C
- 20. E

b) Land Account = \$900,000 + \$20,000 = \$920,000.

Building Account = \$3,000 + \$2,000 + \$3,000 + \$22,000 + \$960,000 = \$990,000.

Bloomcode: Comprehension

Difficulty: Medium

Learning Objective: Calculate the cost of property, plant, and equipment.

Section Reference: Property, Plant, and Equipment

CPA: Financial Reporting

Exercise 5

Baril Company purchased land for \$115,000 with the intentions of constructing a new operating facility. The land purchase included a dilapidated building that was removed at a cost of \$16,000. The only salvage value from this old building was some materials which were sold for proceeds of \$4,000. Baril had paid surveying costs of \$1,800 and legal fees related to land transfer of \$6,700. The new building was quickly constructed at a total cost of \$422,000. Architectural drawings and permits on the construction of this new facility totaled \$18,000 and \$10,650 respectively. Insurance premiums of \$9,200 are paid annually. The production manager is currently on-site facilitating the production start-up. This manager is an annual salary of \$85,000.

Instructions

- a) Calculate the acquisition cost of the land. Identify each element of cost clearly.

- b) Calculate the acquisition cost of the new building. Identify each element of cost clearly.

Solution 5 (10 min.)

a) Purchase price.....	\$115,000
Demolition costs.....	16,000
Proceeds on demolition.....	(4,000)
Surveying costs.....	1,800
Legal and Land transfer costs.....	6,700
Acquisition cost of land.....	<u>\$135,500</u>
b) Construction costs.....	\$422,000
Architectural drawings.....	18,000
Building permits.....	10,650
Acquisition cost of land.....	<u>\$450,650</u>

Bloomcode: Application

Difficulty: Medium

Learning Objective: Calculate the cost of property, plant, and equipment.

Section Reference: Property, Plant, and Equipment

CPA: Financial Reporting

Exercise 6

Shen Athletics purchased factory equipment with an invoice price of \$92,000. Other costs incurred were freight costs, \$2,500; installation of wiring and foundation, \$2,200; material and labour costs in testing equipment, \$700; oil lubricants and supplies to be used with equipment, \$500; one-year fire insurance policy covering equipment, \$1,400. The equipment is estimated to have an \$8,000 residual value at the end of its 5-year useful service life.

Instructions

- a) Calculate the acquisition cost of the equipment. Identify each element of cost clearly.
 b) If the double diminishing-balance method of depreciation was used, the constant percentage applied to a diminishing carrying amount would be _____.

Solution 6 (10 min.)

a) Invoice cost.....	\$92,000
Freight costs.....	2,500
Installation of wiring and foundation.....	2,200
Material and labour costs in testing.....	700
Acquisition cost.....	<u>\$97,400</u>

- b) If the diminishing-balance method of depreciation was used, the constant percentage applied to a diminishing carrying amount would be 40% ($100\% \div 5 \text{ years} = 20\% \times 2$).

Bloomcode: Application

Difficulty: Easy

Learning Objective: Calculate the cost of property, plant, and equipment.

Section Reference: Property, Plant, and Equipment

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

Exercise 7

Kelso Word Processing Service uses the straight-line method of depreciation. The company's fiscal year end is December 31. The following transactions and events occurred during the first three years.

<u>2016</u>	Jul	1	Purchased a new computer system from the Computer Centre for \$37,000 cash and shipping costs of \$250.
	Nov	3	Incurred ordinary repairs on computer of \$3,280.
	Dec	31	Recorded 2016 depreciation on the basis of an estimated five-year life and residual value of \$1,250.
<u>2017</u>	Dec	31	Recorded 2017 depreciation.
<u>2018</u>	Jan	1	Paid \$9,800 for a major upgrade of the computer. This expenditure is expected to increase the operating efficiency and capacity of the computer.

Instructions

Prepare the necessary entries. (Show calculations.)

Solution 7 (15 min.)

<u>2016</u>	Jul	1	Computer Equipment.....	37,250	
			Cash.....		37,250
	Nov	3	Repairs Expense.....	3,280	
			Cash.....		3,280
	Dec	31	Depreciation Expense.....	3,600	
			Accumulated Depreciation.....		3,600
			[($\$37,250 - \$1,250$) $\div$ 5 $\times$ 1 $\div$ 2]		
<u>2017</u>	Dec	31	Depreciation Expense.....	7,200	
			Accumulated Depreciation [($\$37,250 - \$1,250$) $\div$ 5]		7,200
<u>2018</u>	Jan	1	Computer Equipment.....	9,800	
			Cash.....		9,800

Bloomcode: Application

Difficulty: Medium

Learning Objective: Calculate the cost of property, plant, and equipment.

Section Reference: Property, Plant, and Equipment

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

Exercise 8

On March 31, 2017 Delhon Industries purchased a new property for \$2,500,000 cash. Before completing the purchase, Delhon had obtained valuations to determine the relative value of the different components of the property purchased.

The valuation indicated that the fair value of the land, if purchased separately, would be \$375,000, the building's value is \$1,900,000, the manufacturing equipment \$192,500, and the office and computer equipment \$55,000. In addition to the land, building and equipment, the purchase price includes inventory with a net realizable value of \$27,500.

The anticipated life of the building is 25 years, the manufacturing equipment 10 years, and the office and computer equipment 5 years, with no residual value for any of them. Delhon has a December 31 year end.

Instructions

- Record the purchase on March 31, 2017.
- Record the depreciation expense for 2017 using the straight-line method assuming the company chooses to prorate depreciation based on the number of months the asset has been in use.

Solution 8 (20 min.)

- Allocation of cost based on fair values:

	Fair value	Percentage	Allocation of cost
Land	\$ 375,000	14.7%	\$ 367,500
Building	1,900,000	74.5%	1,862,500
Manufacturing equipment	192,500	7.5%	187,500
Office equipment	55,000	2.2%	55,000
Inventory	27,500	1.1%	27,500
	<u>\$2,550,000</u>	<u>100.0%</u>	<u>\$2,500,000</u>

Entry to record purchase

Land.....	367,500	
Building.....	1,862,500	
Manufacturing Equipment.....	187,500	
Office Equipment.....	55,000	
Merchandise Inventory.....	27,500	
Cash.....		2,500,000

- | | | |
|--|--------|--------|
| Depreciation Expense..... | 78,188 | |
| Accumulated depreciation—Building..... | | 55,875 |
| ($\$1,862,500 \div 25$) $\times 9 \div 12$ | | |
| Accumulated Depreciation—Mfg Equipment..... | | 14,063 |
| ($187,500 \div 10$) $\times 9 \div 12$ | | |
| Accumulated Depreciation—Office equipment..... | | 8,250 |
| ($55,000 \div 5$) $\times 9 \div 12$ | | |

Bloomcode: Application

Difficulty: Hard

Learning Objective: Calculate the cost of property, plant, and equipment.

Section Reference: Property, Plant, and Equipment

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

Exercise 9

On May 5, 2017 White Water Adventures purchased a property for \$400,000 cash. The property included the following long-lived assets:

	<u>Appraised Value</u>
Land.....	\$120,000
Building.....	200,000
Equipment.....	100,000
Paved area.....	20,000
Outdoor Lighting.....	<u>10,000</u>
	<u>\$450,000</u>

Instructions

- a) Give the journal entry to allocate the purchase price between the above assets. Round all amounts to the nearest dollar, if necessary.
- b) Prepare a compound journal entry to record depreciation of the long-lived assets on December 31, 2017, assuming the following additional details:

	<u>Useful Life in Years</u>	<u>Residual Value</u>
Building	30	\$20,000
Equipment	5	10,000
Paved area	4	-0-
Outdoor Lighting	10	-0-

Prorate depreciation based on the number of months the asset has been in use.

Solution 9 (20 min.)

- a)
- | | <u>% of Appraised Value</u> | <u>Allocation of Purchase Price</u> |
|------------------|---|-------------------------------------|
| Land | $\$120,000 \div \$450,000 \times \$400,000$ | = \$106,667 |
| Building | $\$200,000 \div \$450,000 \times \$400,000$ | = 177,778 |
| Equipment | $\$100,000 \div \$450,000 \times \$400,000$ | = 88,889 |
| Paved area | $\$20,000 \div \$450,000 \times \$400,000$ | = 17,778 |
| Outdoor Lighting | $\$10,000 \div \$450,000 \times \$400,000$ | = <u>8,888</u> |
| | | <u>\$400,000</u> |
-
- | | | | |
|-------|-----------------------|---------|---------|
| May 5 | Land..... | 106,667 | |
| | Building..... | 177,778 | |
| | Equipment..... | 88,889 | |
| | Paved Area..... | 17,778 | |
| | Outdoor Lighting..... | 8,888 | |
| | Cash..... | | 400,000 |
-
- b) Depreciation Expense 17,581
- | | |
|---|--------|
| Accumulated Depreciation—Building..... | 3,506 |
| $[(\$177,778 - \$20,000) \div 30] \times 8 \div 12$ | |
| Accumulated Depreciation—Equipment..... | 10,519 |
| $[(\$88,889 - \$10,000) \div 5] \times 8 \div 12$ | |
| Accumulated Depreciation—Paved Area..... | 2,963 |

$[(\$17,778 - \$0) \div 4] \times 8 \div 12$	
Accumulated Depreciation—Outdoor Lighting.....	593
$[(\$8,888 - \$0) \div 10] \times 8 \div 12$	

Bloomcode: Application

Difficulty: Hard

Learning Objective: Calculate the cost of property, plant, and equipment.

Section Reference: Property, Plant, and Equipment

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

Exercise 10

J.P. Climate Control depreciates all assets using the straight-line method. The company's fiscal year end is December 31. The following selected transactions and events occurred during the first three years:

<u>2016</u>	Jan	1	Purchased equipment from the Equipment World for \$214,500 on account. J.P. also incurred freight and installation costs of \$1,500 and \$4,000 respectively.
	Sep	30	Paid for annual insurance of \$4,200 and routine maintenance of \$1,700 for the machine. The insurance policy expires on September 30, 2017.
	Dec	31	Recorded 2016 depreciation on the basis of an estimated 10-year useful life and residual value of \$20,000.
<u>2017</u>	Dec	31	Recorded 2017 depreciation and impairment loss (if any). J.P. conducted an impairment assessment as indicators suggested that an impairment may be possible. It was determined that the recoverable amount of the equipment is currently \$160,000. The estimated residual value remained unchanged.
<u>2018</u>	Dec	31	J.P. sold the equipment to Engaged Auto Company for proceeds of \$140,000.

Instructions

Prepare the necessary entries. (Show calculations.)

Solution 10 (30 min.)

<u>2016</u>	Jan	1	Equipment.....	220,000	
			Accounts Payable.....		220,000
			$(\$214,500 + \$1,500 + \$4,000)$		
	Nov	3	Repairs Expense.....	1,700	
			Prepaid Insurance.....	4,200	
			Cash.....		5,900
	Dec	31	Depreciation Expense.....	20,000	
			Accumulated Depreciation - Equipment.....		20,000
			$[(\$220,000 - \$20,000) \div 10]$		
<u>2017</u>	Dec	31	Depreciation Expense.....	20,000	
			Accumulated Depreciation - Equipment.....		20,000
			$[(\$220,000 - \$20,000) \div 10]$		

	Dec 31	Impairment Loss.....	20,000	
		Accumulated Depreciation - Equipment.....		20,000
		Carrying value = \$220,000 – \$20,000 – \$20,000 = \$180,000		
		Impairment loss = \$180,000 – \$160,000 = \$20,000		
<u>2018</u>	Dec 31	Depreciation Expense.....	17,500	
		Accumulated Depreciation - Equipment.....		17,500
		[((\$160,000 – \$20,000) ÷ (10 - 2 years))]		
	Dec 31	Cash	140,000	
		Accumulated Depreciation - Equipment.....	77,500	
		Loss on Disposal.....	2,500	
		Equipment.....		220,000
		Accumulated depreciation = \$20,000 + \$20,000 + \$20,000 + \$17,500 =		
\$77,500		Carrying value = \$220,000 - \$77,500 = \$142,500		
		Gain (Loss) on disposal = \$140,000 – \$142,500 = \$(2,500)		

Bloomcode: Analysis

Difficulty: Hard

Learning Objective: Calculate the cost of property, plant, and equipment.

Section Reference: Property, Plant, and Equipment

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

Learning Objective: Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.

Section Reference: Reversing Periodic Depreciation

Learning Objective: Demonstrate how to account for property, plant, and equipment disposals.

CPA: Financial Reporting

Exercise 11

Roxy Gymnastics purchased new equipment for \$175,000. It is estimated that the equipment will have a \$15,000 residual value at the end of its 5-year useful service life. The double diminishing-balance method of depreciation will be used.

Instructions

Prepare a depreciation schedule which shows the annual depreciation expense on the equipment for its 5-year life.

Solution 11 (10 min.)

Double diminishing-balance rate = $100\% \div 5 = 20\% \times 2 = 40\%$.

Year	Carrying amount		×	Rate	=	Annual Depreciation Expense	End of Year	
	Beginning	Depreciation					Accumulated	Carrying
amount	of Year						Depreciation	End of Year
1	\$175,000	×	40%			\$70,000	\$ 70,000	\$105,000
2	105,000	×	40%			42,000	112,000	63,000
3	63,000	×	40%			25,200	137,200	37,800

4	37,800	×	40%	15,120	152,320	22,680
5	22,680	×	40%	7,680*	160,000	15,000

*Adjusted to \$7,680 because ending carrying amount should not be less than the expected residual value of \$15,000.

Bloomcode: Application

Difficulty: Easy

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

Exercise 12

Equipment acquired on October 1, 2017 at a cost of \$540,000 has an estimated useful life of 10 years. The residual value is estimated to be \$55,000 at the end of the equipment's useful life. The company has a December 31 year end.

Instructions

Calculate the depreciation expense for December 31, 2017 and 2018 using:

- the straight-line method.
- the double diminishing-balance method.

Solution 12 (10 min.)

a) Straight-line method

$$2017 \quad \frac{\$540,000 - \$55,000}{10 \text{ years}} = \$48,500 \times 3 \div 12 = \underline{\underline{\$12,125}}$$

$$2018 \quad \underline{\underline{\$48,500}}$$

b) Double diminishing-balance method

$$\text{Depreciation rate} = 100\% \div 10 \text{ years} = 10\% \times 2 = 20\%$$

$$2017 \quad \$540,000 \times 20\% \times 3 \div 12 = \underline{\underline{\$27,000}}$$

$$2018 \quad \$513,000 \times 20\% = \underline{\underline{\$102,600}}$$

Bloomcode: Application

Difficulty: Easy

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

Exercise 13

On October 1, 2017 Welch Auto Rentals purchases a new automobile for \$30,000 to add to its fleet of rental cars. The automobiles are rented out on a short-term basis with rental fees calculated based on distance driven by the customer. Welch's policy is to sell and replace a car after the earlier of 3 years, or 75,000 kilometres. The average selling price of the used cars is \$8,000. This particular car was driven 8,000 km in 2017, 39,000 km in 2018 and 21,000 km in

2019.

Instructions

- a) Calculate 2017 and 2018 depreciation expense under each of the following methods:
 - (i) Straight-line
 - (ii) Diminishing-balance using a 40% rate
 - (iii) Units-of-production
- b) Which method will best match the estimated pattern in which the asset's economic benefits are expected to be consumed? Explain.

Solution 13 (10 min.)

a)

2017	2018
(i) $(\$30,000 - \$8,000) \div 3 \times 3 \div 12 = \$1,833$	$(\$30,000 - \$8,000) \div 3 = \$7,333$
(ii) $(\$30,000 \times 40\%) \times 3 \div 12 = \$3,000$	$(\$30,000 - \$3,000) \times 40\% = \$10,800$
(iii) $(\$30,000 - \$8,000) \div 75,000\text{km} \times 8,000\text{km} = \$2,347$	$(\$30,000 - \$8,000) \div 75,000\text{km} \times 39,000\text{km} = \$11,440$

- b) Because revenue is based on units-of-production (kilometres driven), the method that will best match the estimated pattern in which the asset's economic benefits are expected to be consumed is units-of-production.

Bloomcode: Application

Difficulty: Medium

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

Exercise 14

Sangria Boat Lifts purchased equipment on January 1, 2017 for \$96,000. It is estimated that the equipment will have a \$5,000 residual value at the end of its 8-year useful life. It is also estimated that the equipment will produce 100,000 units over its 8-year life.

Instructions

Answer the following independent questions.

- a) Calculate the amount of depreciation expense for the year ended December 31, 2017, using the straight-line method of depreciation.
- b) If 16,000 units of product are produced in 2017 and 36,000 units are produced in 2018, what is the carrying amount of the equipment at December 31, 2018 using the units-of-production depreciation method?
- c) If the company uses the double diminishing-balance method of depreciation, what will be the balance of the Accumulated Depreciation—Equipment account at December 31, 2019?

Solution 14 (15 min.)

- a) Straight-line method: $\frac{\$96,000 - \$5,000}{8} = \$11,375 \text{ per year}$

$$\text{b) Units-of-production method: } \frac{\$96,000 - \$5,000}{100,000 \text{ units}} = \$0.91 \text{ per unit}$$

2017	16,000 units × \$0.91	= \$ 14,560
2018	36,000 units × \$0.91	= <u>32,760</u>
Accumulated depreciation		= <u>\$47,320</u>

Cost of asset.....	\$96,000
Less: Accumulated depreciation..	<u>47,320</u>
Carrying amount.....	<u>\$48,680</u>

c) Double diminishing-balance method:

	<u>Carrying amount</u> <u>Beginning of Year</u>	×	<u>Diminishing-</u> <u>Balance Rate</u>	=	<u>Depreciation</u> <u>Expense</u>	<u>Accumulated</u> <u>Depreciation</u>
2017	\$96,000		25%		\$24,000	\$24,000
2018	72,000		25%		18,000	42,000
2019	54,000		25%		13,500	55,500

Bloomcode: Application

Difficulty: Medium

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

Exercise 15

The Hang-Out, a popular pizza restaurant, has a thriving delivery business. The Hang-Out has a fleet of three delivery automobiles. Prior to making the entry for this year's depreciation expense, the subsidiary ledger for the fleet is as follows:

			Estimated Life	Accumulated Depreciation	Kilometres
Operated					
<u>Car</u>	<u>Cost</u>	<u>Residual Value</u>	<u>in Kilometres</u>	<u>Beg. of the Year</u>	<u>During Year</u>
1	\$18,000	\$3,000	50,000	\$2,100	20,000
2	15,000	2,400	60,000	1,890	22,000
3	20,000	2,500	70,000	2,000	19,000

Instructions

- Determine the depreciation rates per kilometre for each car.
- Determine the depreciation expense for each car for the current year.
- Make one compound journal entry to record the annual depreciation expense for the fleet.

Solution 15 (10 min.)

$$\text{a) Car 1 } \frac{\$18,000 - \$3,000}{50,000 \text{ km.}} = \$0.30 \text{ per km.}$$

$$\$15,000 - \$2,400$$

$$\text{Car 3} \quad \frac{\$20,000 - \$2,500}{70,000 \text{ km.}} = \$0.25 \text{ per km.}$$

- b) Car 1 20,000 km. $\times$ \$0.30 = \$6,000
Car 2 22,000 km. $\times$ \$0.21 = \$4,620
Car 3 19,000 km. $\times$ \$0.25 = \$4,750

Bloomcode: Application

Difficulty: Hard

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

The Bartallas Clinic purchased a new surgical laser for \$75,000. The estimated residual value is \$7,500. The laser has a useful life of four years and the clinic expects to use it 10,000 hours. It was used 1,600 hours in year 1; 2,100 hours in year 2; 3,400 hours in year 3; 2,900 hours in year 4.

a) Calculate the annual depreciation for each of the four years under each of the following methods:

- i) straight-line
 - ii) units-of-production
- b) If you were the administrator of the clinic, which method would you deem as most appropriate? Justify your answer.
- c) Which method would result in the lowest reported profit in the first year? Which method would result in the lowest total reported profit over the four-year period?
- d) Which method would result in the lowest cash flow in Year 1? Over the life of the asset?

a) i) Straight-line method: $\frac{\$75,000 - \$7,500}{4 \text{ years}} = \$16,875 \text{ per year}$

ii) Units-of-production method: $\frac{\$75,000 - \$7,500}{10,000 \text{ hours}} = \$6.75/\text{hour}$

Copyright © 2016 John Wiley & Sons Canada, Ltd. Unauthorized copying, distribution, or transmission of this page is strictly prohibited.

- 2 $2,100 \times \$6.75 = \$14,175$
 3 $3,400 \times \$6.75 = \$22,950$
 4 $2,900 \times \$6.75 = \$19,575$

	<u>Straight-line</u>	<u>Units-of-Production</u>
Year 1	\$ 16,875	\$ 10,800
Year 2	16,875	14,175
Year 3	16,875	22,950
Year 4	16,875	19,575
Total	<u>\$67,500</u>	<u>\$67,500</u>

- b) The units-of-production method can be justified based on the variable usage the laser will receive during its useful life.
- c) The straight-line method provides the highest depreciation expense for the first year, and therefore the lowest first year profit. Over the four-year period, both methods result in the same total depreciation expense (\$67,500) and, therefore, the same total profit.
- d) All three methods will result in the same cash flow in Year 1 and over the life of the asset. Recording depreciation expense does not affect cash flow. There is no Cash account involved in the entry to record depreciation (Dr. Depreciation Expense; Cr. Accumulated Depreciation). It is only an allocation of the capital cost to expense over an asset's useful life.

Bloomcode: Analysis

Difficulty: Medium

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

Exercise 17

Gordon's Garage purchased a specialized machine on April 1, 2017 for a total cost of \$254,000 from Scissor Manufactory. This machine is expected to become outdated and be replaced in 16 years at which time it will have a residual value of \$25,000.

Instructions

- a) What amount would be reported as depreciation expense for this machine on Gordon's income statement for December 31, 2017 and December 31, 2018 under the following depreciation methods? (rounded to two decimals)
- Straight-line method
 - Double diminishing-balance method
- b) What is the machine's carrying value at January 1, 2019 under both depreciation methods discussed in part a)?

Solution 17 (15 min.)

a)

i) Straight-line method

$$\text{Annual Depreciation} = \$254,000 - \$25,000 / 16 \text{ years} = \$14,312.50$$

2017: $\$14,312.50 \times 9/12 \text{ months} = \underline{\$10,734.38}$

2018: $\underline{\$14,312.50}$

ii) Double diminishing-balance method

Double Diminishing Rate = $200\% / 16 = 12.5\%$

Year	Carrying amount Beginning Year	Depreciation Rate	Annual Depreciation	Accumulated Depreciation	Carrying amount
2017	\$254,000.00	$12.5\% \times 9/12$	\$23,812.50	\$23,812.50	\$230,187.50
2018	230,187.50	12.5%	28,773.44	52,585.94	201,414.06

b) Carrying amount, January 1, 2019:

Straight-line = $\$254,000.00 - \$10,734.38 - \$14,312.50 = \underline{\$228,953.12}$

Double diminishing-balance = $\underline{\$201,414.06}$

Bloomcode: Application

Difficulty: Medium

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

CPA: Financial Reporting

Exercise 18

Prairie Airlines purchased a 747 aircraft on January 1, 2016, at a cost of \$30,000,000. The estimated useful life of the aircraft is 20 years, with an estimated residual value of \$4,000,000. On January 1, 2018 the airline revises the total estimated useful life to 15 years with a revised residual value of \$3,000,000.

Instructions

- Calculate the depreciation and carrying amount at December 31, 2017 using the straight-line method and the double diminishing-balance method.
- Assuming the straight-line method is used, calculate the depreciation expense for the year ended December 31, 2018.

Solution 18 (20 min.)

a) Straight-line method

Year	Depreciable Cost	Depreciation Rate	Annual Depreciation	Accumulated Depreciation	Carrying amount
2016	\$26,000,000	5%	\$1,300,000	\$1,300,000	\$28,700,000
2017	26,000,000	5%	1,300,000	2,600,000	27,400,000

Double diminishing-balance method

Year	Carrying amount Beginning Year	Depreciation Rate	Annual Depreciation	Accumulated Depreciation	Carrying amount
2016	\$30,000,000	10%	\$3,000,000	\$3,000,000	\$27,000,000

2017	27,000,000	10%	2,700,000	5,700,000	24,300,000
------	------------	-----	-----------	-----------	------------

b) Carrying amount, January 1, 2018.....	\$27,400,000
Less: Revised residual value.....	<u>3,000,000</u>
Depreciable cost.....	<u>\$24,400,000</u>
Remaining useful life (15 years – 2 years).....	<u>13 yrs.</u>
Revised annual depreciation.....	<u>\$1,876,923</u>

Bloomcode: Application

Difficulty: Hard

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

Learning Objective: Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.

Section Reference: Revising Periodic Depreciation

CPA: Financial Reporting

Exercise 19

Winningham Company sold the following two machines in 2017:

	<u>Machine A</u>	<u>Machine B</u>
Cost	\$92,000	\$43,000
Purchase date	July 1, 2013	Jan. 1, 2014
Useful life	8 years	8 years
Residual value	\$4,000	\$3,000
Depreciation method	Straight-line	Double diminishing-balance
Date sold	July 1, 2017	Aug. 1, 2017
Sales price	\$37,000	\$12,000

Instructions

Journalize all entries required to update depreciation and record the sales of the two assets in 2017. The company has recorded depreciation on the machine to December 31, 2016.

Solution 19 (20 min.)

Jul 1	Depreciation Expense.....	5,500	
	Accumulated Depreciation—Machine A.....		5,500
	(\$92,000 – \$4,000) ÷ 8 × 6 ÷ 12 = \$5,500		
	Cash.....	37,000	
	Accumulated Depreciation—Machine A*.....	44,000	
	Loss on Disposal.....	11,000	
	Machine A.....		92,000
*2013	(\$92,000 – \$4,000) ÷ 8 × 6 ÷ 12	\$ 5,500	
2014	(\$92,000 – \$4,000) ÷ 8	11,000	
2015		11,000	
2016		11,000	

2017	$(\$92,000 - \$4,000) \div 8 \times 6 \div 12$	<u>5,500</u>	
Total accumulated depreciation at date of disposal		<u>\$44,000</u>	
Aug 1	Depreciation Expense.....	2,645	
	Accumulated Depreciation—Machine B.....		2,645
	$(\$43,000 - \$24,860) \times 25\% \times 7 \div 12 = \$2,645$		
	Cash.....	12,000	
	Accumulated Depreciation—Machine B**.....	27,505	
	Loss on Disposal $(\$43,000 - \$39,505)$	3,495	
	Machine B.....		43,000
**2014	$\$43,000 \times 25\%$	\$10,750	
2015	$(\$43,000 - \$10,750) \times 25\%$	8,063	
2016	$(\$43,000 - \$18,813) \times 25\%$	6,047	
2017	$(\$43,000 - \$24,860) \times 25\% \times 7 \div 12$	<u>2,645</u>	
Total accumulated depreciation at date of disposal		<u>\$27,505</u>	

Bloomcode: Application

Difficulty: Hard

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

Learning Objective: Demonstrate how to account for property, plant, and equipment disposals.

CPA: Financial Reporting

Exercise 20

Paper Products Inc. sold two machines in 2017. The following information pertains to the two machines:

Machine	Cost	Purchase Date	Useful Life	Residual Value	Depreciation Method	Date Sold	Sales Price
#1	\$86,000	7/1/13	5 yrs.	\$6,000	Straight-line	7/1/17	\$20,000
#2	\$50,000	7/1/16	5 yrs.	\$5,000	Double diminishing-balance	12/31/17	\$32,000

Instructions

- Calculate the accumulated depreciation on each machine at the date of disposal.
- Prepare the journal entries in 2017 to record 2017 depreciation and the sale of each machine.

Solution 20 (20 min.)

a) Machine #1

Year	Depreciable Cost	×	Depreciation Rate	=	Annual Depreciation	Accumulated Depreciation
2013	\$80,000		20%		\$ 8,000*	\$ 8,000
2014	√		√		16,000	24,000
2015	√		√		16,000	40,000
2016	√		√		16,000	56,000
2017	√		√		8,000*	64,000

*One-half a year.

Machine #2

Year	Carrying amount Beginning of Year	× DDB Rate	Annual Depreciation	Accumulated Depreciation
2016	\$50,000	40%	\$10,000*	\$10,000
2017	40,000	40%	16,000	26,000

*One-half a year.

	Machine 1	Machine 2
b) Depreciation Expense.....	8,000	16,000
Accumulated Depreciation.....	8,000	16,000
Cash.....	20,000	32,000
Loss on Sale of Equipment.....	2,000*	-0-
Accumulated Depreciation.....	64,000	26,000
Equipment.....	86,000	50,000
Gain on Sale of Equipment.....	-0-	8,000**

*NBV: \$86,000 – \$64,000 = \$22,000; Proceeds – NBV: \$20,000 – \$22,000 = -\$2,000 [a loss]

**NBV: \$50,000 – \$26,000 = \$24,000; Proceeds – NBV: \$32,000 – \$24,000 = \$8,000 [a gain]

Bloomcode: Application

Difficulty: Hard

Learning Objective: Apply depreciation methods to property, plant, and equipment.

Section Reference: Depreciation

Learning Objective: Demonstrate how to account for property, plant, and equipment disposals.

CPA: Financial Reporting

Exercise 21

Mendelsohn Company purchased a machine on January 1, 2017 at a cost of \$48,000. The machine is expected to have an estimated residual value of \$3,000 at the end of its 5-year life. The company's new accountant has used the double diminishing-balance method to depreciate the machine at December 31, 2017. However, the company has a policy of using the straight-line method to depreciate equipment. Profit for the year ended December 31, 2017 was \$55,000 as the result of depreciating the machine incorrectly.

Instructions

Using the method of depreciation which the company normally follows, prepare the correcting entry and determine the corrected profit. (Show calculations.)

Solution 21 (10 min.)

Depreciation taken: $(\$48,000 - 0) \times 40\% = \underline{\$19,200}$
 Correct depreciation: $(\$48,000 - \$3,000) \div 5 \text{ yrs.} = \underline{\underline{\$9,000}}$
 Overstatement of depreciation in 2017 = \$10,200

Accumulated Depreciation.....	10,200	
Depreciation Expense.....		10,200

Correct profit:

Profit as reported.....	\$55,000
Add: Overstatement of depreciation expense. .	<u>10,200</u>
Correct profit.....	<u>\$65,200</u>

Bloomcode: Application

Difficulty: Easy

Learning Objective: Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.

Section Reference: Reversing Periodic Depreciation

CPA: Financial Reporting

Exercise 22

Equipment was acquired on January 1, 2015, at a cost of \$90,000. The equipment was originally estimated to have a residual value of \$5,000 and an estimated life of 10 years. Depreciation has been recorded through December 31, 2016, using the straight-line method. On January 1, 2017 the estimated residual value was revised to \$6,000 and the useful life was revised to a total of 8 years.

Instructions

Determine the depreciation expense for 2017.

Solution 22 (5 min.)

Calculate the carrying amount at the time of the revision:

$$\frac{\$90,000 - \$5,000}{10 \text{ years}} = \$8,500 \text{ annual depreciation expense}$$

$$2 \text{ years have been depreciated: } \$8,500 \times 2 = \$17,000$$

$$\text{Carrying amount at the time of the revision: } \$90,000 - \$17,000 = \$73,000$$

Calculate the revised annual depreciation:

$$\frac{\$73,000 - \$6,000}{6 \text{ years remaining}} = \$11,167 \text{ revised annual depreciation}$$

The depreciation expense for 2017 is \$11,167.

Bloomcode: Application

Difficulty: Easy

Learning Objective: Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.

Section Reference: Reversing Periodic Depreciation

CPA: Financial Reporting

Exercise 23

On January 1, 2016, Katsumi Company purchased and installed a telephone system at a cost of

\$20,000. The equipment was expected to last five years with a residual value of \$3,000. On January 1, 2017 more telephone equipment was purchased to tie-in with the current system for \$8,000. The new equipment is expected to have a useful life of four years. Through an error, the new equipment was debited to Telephone Expense. Katsumi Company uses the straight-line method of depreciation.

Instructions

Prepare a schedule showing the effects of the error on Telephone Expense, Depreciation Expense, and profit for each year and in total beginning in 2017 through the useful life of the new equipment.

	<u>Telephone Expense</u>	<u>Depreciation Expense</u>	<u>Profit</u>
	Overstated (Understated)	Overstated (Understated)	Overstated (Understated)
Year			
—			
2017			
2018			
2019			
2020			

Solution 23 (25 min.)

Year	<u>Telephone Expense</u> Overstated (Understated)	<u>Depreciation Expense</u> Overstated (Understated)	<u>Profit</u> Overstated (Understated)
—			
2017	\$8,000	\$(2,000)	\$(6,000)
2018		(2,000)	2,000
2019		(2,000)	2,000
2020	_____	<u>(2,000)</u>	<u>2,000</u>
Total	<u>\$8,000</u>	<u>\$(8,000)</u>	<u>\$ -0-</u>

Bloomcode: Analysis

Difficulty: Medium

Learning Objective: Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.

Section Reference: Revising Periodic Depreciation

CPA: Financial Reporting

Exercise 24

Harrison Rentals purchased an apartment building in 2009. At the time, the building was expected to have a useful life of 25 years with a residual value of \$100,000, during which time it was projected to generate annual rentals of \$30,000 (adjusted for inflation). The building's original cost was \$500,000.

At January 1, 2017 the accumulated depreciation balance on this building was \$128,000, and 2017 depreciation has been calculated as \$16,000. Harrison has a December 31 year end.

During January 2017 Harrison had the following events and transactions related to the building. All transactions are for cash.

1. Painted all the walls in the common areas at a cost of \$8,000.
2. Replaced the electrical wiring in three suites due to safety concerns at a cost of \$4,500.
3. Replaced all of the linoleum flooring in the suites with hardwood, installed in-suite laundry facilities in each unit, and made other improvements at total cost of \$120,000. As a result, the annual rental revenue has been doubled.
4. Completed structural repairs to the building at a cost of \$100,000. As a result of this work the building life is expected to be 10 years longer than the original estimate. The residual value estimate has been revised to \$134,000.

Instructions

- a) Calculate the carrying amount of the building on December 31, 2017. Provide explanations for any increases to building cost.
- b) Record the 2018 depreciation expense using the straight-line basis, assuming that the increased rental rates go into effect January 1, 2018.

Solution 24 (15 min.)

a)

Building cost, balance January 1, 2017.....	\$500,000	
Add: Item 3 (new flooring and laundries are added to the cost because the increase the building's revenue generating capacity).....	120,000	
Item 4 (structural repairs are added to the cost because this extends the useful life of the building).....	<u>100,000</u>	\$720,000
Less: Accumulated depreciation (\$128,000 + 16,000).....		... <u>144,000</u>
Carrying amount, December 31, 2017.....		... <u>\$576,000</u>

b)

Revised depreciable cost (\$576,000 – \$134,000)	\$442,000
Remaining life (from Jan 1, 2018) = (25 – 9 + 10)	26
2018 depreciation expense = \$442,000 ÷ 26	\$17,000

Depreciation Expense.....	17,000	
Accumulated Depreciation—Building.....		17,000

Bloomcode: Application

Difficulty: Hard

Learning Objective: Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.

CPA: Financial Reporting

Exercise 25

At January 1, 2017 Penner Auto Repairs owned the following assets:

Asset	Building	Automotive	Computers	Furniture
Date purchased	Jan 1, 2010	Jan 1, 2016	Jan 1, 2016	Jan 1, 2010
Original cost	\$500,000	\$45,000	\$10,000	\$20,000
Accumulated depreciation				
Depreciation method	Straight-line	Diminishing-balance	Straight-line	Straight-line
Depreciation rate	40 years	45%	3 years	15 years
Estimated residual value	\$200,000	not applicable	\$1,000	\$4,000
Estimated remaining life (as of January 1, 2017)	33 years	not applicable	2 years	8 years

Prior to recording depreciation expense for 2017, Penner undertook a review of the assets' remaining life and value and determined that the following changes are warranted based on currently available information:

Building: No changes

Automotive: No changes

Computers: Obsolete

Furniture: Remaining life will be 10 years with \$5,000 residual value.

Instructions

Calculate 2017 depreciation on each of these assets, taking the new information into account.

Solution 25 (20 min.)Building

Cost.....	\$500,000
Residual value.....	200,000
Depreciable value.....	300,000
Estimated life.....	40 years
2017 depreciation expense ($\$300,000 \div 40$).....	\$ 7,500

Automobile

Cost.....	\$45,000
2019 depreciation ($\$45,000 \times 45\%$).....	20,250
Carrying amount Jan 1, 2017.....	24,750
Depreciation rate.....	45%
2017 depreciation expense ($\$24,750 \times 45\%$).....	\$11,138

Computers

Cost.....	\$10,000
Accumulated depreciation Jan 1, 2017 ($\$10,000 - \$1,000$) $\div 3 \times 1$	3,000
Carrying amount Jan 1, 2017.....	7,000
Revised residual value.....	-0-
Revised depreciable cost.....	7,000
Remaining life.....	0 years
2017 depreciation expense ($\$7,000 \div 1$ year).....	\$ 7,000

Furniture

Cost.....	\$20,000
Accumulated depreciation Jan 1/17 ($\$20,000 - \$4,000$) $\div 15 \times 7$..	7,467
Carrying amount Jan 1/17.....	12,533
Revised residual value.....	5,000
Revised depreciable cost.....	7,533
Remaining life.....	10 years
2017 depreciation expense.....	\$ 753

Bloomcode: Application

Difficulty: Hard

Learning Objective: Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.

CPA: Financial Reporting

Exercise 26

Redwood Company performs an assessment annually for possible impairment losses and has gathered the following information pertaining to selected assets at December 31, 2017:

Asset	Building	Equipment	Computers	Furniture
Original cost	\$400,000	\$245,000	\$100,000	\$20,000
Accumulated depreciation	220,000	16,000	20,000	13,000

Recoverable amount	550,000	225,000	\$70,000	\$8,000
Impairment loss (if any)	?	?	?	?

Instructions

Determine if the assets identified by Redwood are impaired and prepare any necessary adjusting entries to record the impairments.

Solution 26 (10 min.)

Asset	Building	Equipment	Computers	Furniture
Original cost	\$400,000	\$245,000	\$100,000	\$20,000
Accumulated depreciation	220,000	16,000	20,000	13,000
Recoverable amount	550,000	225,000	\$70,000	\$8,000
Impairment loss (if any)	0	4,000	10,000	0

2017	Dec 31	Impairment Loss.....	14,000	
		Accumulated Depreciation—Equipment.....		4,000
		Accumulated Depreciation—Computers.....		10,000
		Carrying value = \$220,000 – \$20,000 – \$20,000 = \$180,000		
		Impairment loss = \$180,000 – \$160,000 = \$20,000		

Bloomcode: Application

Difficulty: Medium

Learning Objective: Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment.

CPA: Financial Reporting

Exercise 27

The following assets were sold by DNC Company during the 2017 fiscal year. The company's year end is December 31.

Asset	Vehicle	Computer	Furniture
Original cost	\$60,000	\$8,000	\$18,000
Accumulated depreciation (January 1, 2017)	\$35,000	\$7,000	\$7,000
Depreciation method	Diminishing-balance	Straight-line	Straight-line
Depreciation rate / years remaining	25%	2 years	8 years
Estimated residual value	not applicable	not applicable	not applicable
Selling price	\$22,500	\$708	\$14,000
Date of sale in 2017	April 1	August 1	October 31

Instructions

Compute the gain or loss on disposal for each asset sold and prepare any necessary journal entries to record the disposals for DNC. (Round your answers to the nearest dollar)

Solution 27 (15 min.)

Apr 1	Depreciation Expense.....	1,563
-------	---------------------------	-------

	Accumulated Depreciation—Vehicle.....	1,563	
	$(\$60,000 - \$35,000) \times 25\% \times 3/12 = \$1,563$		
	Cash.....	22,500	
	Accumulated Depreciation—Vehicle $(\$35,000 + \$1,563)$	36,563	
	Loss on Disposal.....	3,495	
	Vehicle.....		60,000
Aug 1	Depreciation Expense.....	292	
	Accumulated Depreciation—Computer.....		292
	$[(\$8,000 - \$7,000) / 2 \times 7/12] = \292		
	Cash.....	708	
	Accumulated Depreciation—Computer $(\$7,000 + \$292)$	7,292	
	Computer.....		8,000
Oct 31	Depreciation Expense.....	1,146	
	Accumulated Depreciation—Furniture.....		1,146
	$(\$18,000 - \$7,000) / 8 \times 10/12 = \$1,563$		
	Cash.....	14,000	
	Accumulated Depreciation—Furniture $(\$7,000 + \$1,146)$...	8,146	
	Gain on Disposal.....		4,146
	Furniture.....		18,000

Bloomcode: Application

Difficulty: Medium

Learning Objective: Demonstrate how to account for property, plant, and equipment disposals.

Section Reference: Disposal of Property, Plant, and Equipment

CPA: Financial Reporting

Exercise 28

1. Lui Company purchased equipment in 2007 for \$80,000 and estimated an \$8,000 residual value at the end of the equipment's 10-year useful life. At December 31, 2016, there was \$50,400 in the Accumulated Depreciation account for this equipment using the straight-line method of depreciation. On March 31, 2017 the equipment was sold for \$21,000. Prepare the appropriate journal entries to remove the equipment from the books of Lui Company on March 31, 2017.
2. Gagne Company sold a delivery truck for \$11,000. The delivery truck originally cost \$25,000 in 2013 and \$6,000 was spent on a major overhaul in 2016 (charged to Delivery Truck account). Accumulated Depreciation on the delivery truck to the date of disposal was \$20,000. Prepare the appropriate journal entry to record the disposition of the delivery truck.
3. Crenshaw Company sold office equipment that had a carrying amount of \$4,500 for \$6,000. The office equipment originally cost \$15,000 and it is estimated that it would cost \$19,000 to replace the office equipment. Prepare the appropriate journal entry to record the disposition of the office equipment.

Solution 28 (15 min.)

1.	Depreciation Expense.....	1,800	
	Accumulated Depreciation—Equipment.....		1,800
	To record depreciation expense for the first 3 months of 2017. ($\$72,000 \div 10 \times 3 \div 12$) = \$1,800		
	Cash.....	21,000	
	Loss on Disposal.....	6,800	
	Accumulated Depreciation—Equipment ($\$50,400 + \$1,800$).....	52,200	
	Equipment.....		80,000
	To record sale of equipment at a loss		
2.	Cash.....	11,000	
	Accumulated Depreciation—Delivery Truck.....	20,000	
	Delivery Truck ($\$25,000 + \$6,000$).....		31,000
	To record disposition on delivery truck at carrying amount		
3.	Cash.....	6,000	
	Accumulated Depreciation—Office Equipment.....	10,500	
	Office Equipment.....		15,000
	Gain on Disposal.....		1,500
	To record disposal of office equipment at a gain		

Bloomcode: Application

Difficulty: Hard

Learning Objective: Demonstrate how to account for property, plant, and equipment disposals.

Section Reference: Disposal of Property, Plant, and Equipment

CPA: Financial Reporting

Exercise 29

Zedel Delivery Services has a December 31, 2017 year end. On January 1, 2017 Zedel has a delivery van with a cost of \$35,000 and accumulated depreciation of \$12,000. The van was expected to have a residual value of \$5,000 and a useful life of 5 years. Zedel uses straight-line depreciation. Zedel plans to replace its delivery van on April 1, 2017 and is considering two alternatives.

1. Zedel has been offered \$14,000 for the old van. If Zedel accepts this offer, Zedel would then purchase a replacement for \$50,000 cash.
2. Trade the old van for a new one. The dealer will allow a \$22,000 trade-in allowance on the old van, and Zedel will have to pay additional cash of \$28,000.

Instructions

- a) Record the updated depreciation on the old van to April 1, 2017.
- b) Record the disposal of the van under each of the two alternatives.
- c) Which alternative do you recommend and why?

Solution 29 (15 min.)

- a) Depreciation Jan 1 – Apr 1, 2017:
 $(\$35,000 - \$5,000) \div 5 \times 3 \div 12 = \$1,500$

Apr 1	Depreciation Expense.....	1,500
-------	---------------------------	-------

Accumulated Depreciation—Van.....	1,500
-----------------------------------	-------

b)

Option 1:

Cash.....	14,000	
Accumulated Depreciation—Van (\$12,000 + 1,500).....	13,500	
Loss on Sale of Van.....	7,500	
Van (old).....		35,000
Van (new).....	50,000	
Cash.....		50,000

Option 2:

Van (new) (\$22,000 + \$28,000).....	50,000	
Accumulated Depreciation—Van.....	13,500	
Gain on Sale of Van.....		500
Van (old).....		35,000
Cash.....		28,000

- c) Cash required for alternative #1 (\$50,000 – \$14,000) = \$36,000.
Cash required for alternative #2 = \$28,000.

Because the second option requires less cash to acquire the same van, it is the recommended option.

Bloomcode: Application

Difficulty: Medium

Learning Objective: Demonstrate how to account for property, plant, and equipment disposals.

Section Reference: Disposal of Property, Plant, and Equipment

CPA: Financial Reporting

Exercise 30

Presented below are selected transactions for Mohamad Company for 2017:

- Jan 1 Received \$3,000 scrap value on retirement of machinery that was purchased on January 1, 2006. The machine cost \$80,000 on that date, and had an estimated useful life of 10 years with no residual value.
- Apr 30 Sold a printing machine for \$50,000 that was purchased on January 1, 2014. The printer cost \$90,000, and had an estimated useful life of 5 years with no residual value.
- Dec 31 Disposed of a business automobile that was purchased on September 1, 2012. The car cost \$20,000 and was depreciated on an 8-year useful life with a residual value of \$800.

Instructions

Journalize all entries required as a result of the above transactions. Mohamad Company uses the straight-line method of depreciation and has recorded depreciation to December 31, 2016.

Solution 30 (15 min.)

Jan 1 Cash.....	3,000
Accumulated Depreciation—Machinery.....	80,000

	Machinery.....		80,000
	Gain on Disposal.....		3,000
Apr 30	Depreciation Expense.....	6,000	
	Accumulated Depreciation—Machinery.....		6,000
	$\$90,000 \div 5 = \$18,000 \times 4 \div 12 = \$6,000$		
	Cash.....	50,000	
	Accumulated Depreciation—Machinery.....	60,000	
	$(\$18,000 \times 3) + (\$18,000 \times 4 \div 12)$		
	Printing Machine.....		90,000
	Gain on Disposal $(\$50,000 - \$30,000)$		20,000
Dec 31	Depreciation Expense.....	2,400	
	Accumulated Depreciation—Auto.....		2,400
	$(\$20,000 - \$800) \div 8 = \$2,400$		
	Accumulated Depreciation—Auto.....	12,800	
	$(\$2,400 \times 5) + (\$2,400 \times 1 \div 3)$		
	Loss on Disposal.....	7,200	
	Automobile.....		20,000

Bloomcode: Application

Difficulty: Medium

Learning Objective: Demonstrate how to account for property, plant, and equipment disposals.

Section Reference: Disposal of Property, Plant, and Equipment

CPA: Financial Reporting

Exercise 31

On January 1, 2017 Marsh Industries invests \$2,000,000 in land that includes a stand of timber and the rights to cut the timber. The property is expected to yield 50,000 cubic metres of timber. After the amount of lumber permitted by law has been cut, Marsh expects to be able to sell the land for \$400,000 less \$150,000 that must be spent on reforestation. Marsh invests a further \$300,000 in equipment which is expected to last for the same number of units as the property yields, with no residual value.

Instructions

- Using the units-of-production method, calculate depletion/depreciation for 2017 on both the timber investment and for the equipment, assuming that 12,000 cubic metres are sawn in the year.
- Explain why the units-of-production method is considered the most appropriate method for depletion of natural resources.

Solution 31 (10 min.)

- Depletion of timber:
 $(\$2,000,000 - [\$400,000 - \$150,000]) \div 50,000 = \35 per cubic metre; $\$35 \times 12,000 = \$420,000$

Depreciation of equipment:

$$\$300,000 \div 50,000 = \$6 \text{ per cubic metre}; \$6 \times 12,000 = \$72,000$$

- b) The units-of-production method is considered appropriate because the cost of the asset is matched exactly with the asset being physically used up. This will also result in a good matching of expenses with revenues, which are also determined on a “per unit” basis.

Bloomcode: Application

Difficulty: Medium

Learning Objective: Record natural resource transactions and calculate depletion.

Section Reference: Natural Resources

CPA: Financial Reporting

Exercise 32

Johansan Mining Company purchased a mine for \$80 million which is estimated to have 250,000 tonnes of ore and a residual value of \$10 million. In the first year 50,000 tonnes of ore are extracted and sold. In the second year 150,000 tonnes of ore are extracted but only 125,000 tonnes are sold.

Instructions

- a) Prepare the journal entry to record depletion expense for the first year and the second year.
b) What amount and in what account are the tonnes of ore not sold reported?

Solution 32 (10 min.)

- a) Calculation of the depletion expense/tonne of ore:
 $(\$80,000,000 - \$10,000,000) \div 250,000 \text{ tonnes} = \280 per tonne

First Year: 50,000 tonnes $\times$ \$280 = \$14,000,000

Inventory (Depletion Expense).....	14,000,000
Accumulated Depletion.....	14,000,000

- b) Second Year: 150,000 tonnes $\times$ \$280 = \$42,000,000

Inventory (Depletion Expense).....	42,000,000
Accumulated Depletion.....	42,000,000

Note: Depletion is recorded for the full amount extracted.

The ore that is extracted and not sold remains in an Inventory account in the current assets section of the balance sheet. In this case \$7,000,000 (25,000 $\times$ \$280) should be reported as inventory. The amount related to the ore that is extracted and sold [$125,000 \times \$280$] will be transferred to the cost of goods sold account along with all the other costs of extracting the ore.

Bloomcode: Application

Difficulty: Easy

Learning Objective: Record natural resource transactions and calculate depletion.

Section Reference: Natural Resources

CPA: Financial Reporting

Exercise 33

McGuinness Mining Company purchased land containing an estimated 15 million tonnes of ore at a cost of \$5,400,000. The land without the ore is estimated to be worth \$600,000. The company expects to operate the mine for 10 years. Buildings costing \$800,000 are erected on the site and are expected to last for 25 years. Equipment costing \$1,000,000 with an estimated life of 12 years is installed. The buildings and the equipment possess no residual value after the mine is closed. During the first year of operations, the mining company mined and sold 2 million tonnes of ore.

Instructions

- Calculate the depreciation/depletion cost per tonne of the mine.
- Calculate the depreciation/depletion expense for the first year on the mine.
- Calculate the appropriate first year's depreciation expense for the buildings.
- Calculate the appropriate first year's depreciation expense for the equipment.

Solution 33 (20 min.)

- Depletion cost per tonne:

$$(\$5,400,000 - \$600,000) \div 15 \text{ million tonnes of ore} = \$0.32 \text{ per tonne}$$
- $2,000,000 \text{ tonnes} \times \$0.32 = \$640,000$
- The appropriate useful life is the shorter of the life of the mine or the life of the buildings. In this case, 10 years is the appropriate useful life ($\$800,000 \div 10 \text{ years} = \$80,000$).
- Same reasoning as c) $\$1,000,000 \div 10 \text{ years} = \$100,000$

Bloomcode: Application

Difficulty: Hard

Learning Objective: Record natural resource transactions and calculate depletion.

Section Reference: Natural Resources

CPA: Financial Reporting

Exercise 34

Kewais Company invested \$6 million for the rights to explore and extract natural resources from land in Ukraine. The company estimated that a total of 1.5 million tonnes of ore would be extracted from the property. The company extracted 50,000 tonnes of ore Year 1, 110,000 tonnes of ore Year 2, and 205,000 tonnes of ore Year 3.

Instructions

Prepare the necessary journal entries to record depletion expense in Year 1, Year 2 and Year 3.

Solution 34 (5 min.)

Depletion rate = $\$6,000,000 / 1,500,000 \text{ tonnes} = \$4 \text{ per tonne of ore extracted}$

Year 1	Inventory (\$4 x 50,000).....	200,000	
	Accumulated Depletion—Natural Resource Property....		200,000
Year 2	Inventory (\$4 x 110,000).....	440,000	
	Accumulated Depletion—Natural Resource Property....		440,000

Year 3	Inventory (\$4 x 205,000).....	820,000	
	Accumulated Depletion—Natural Resource Property....		820,000

Bloomcode: Application

Difficulty: Easy

Learning Objective: Record natural resource transactions and calculate depletion.

Section Reference: Natural Resources

CPA: Financial Reporting

Exercise 35

Below are several transactions for McLaughlin Inc.:

- Timber rights were purchased on a tract of land for \$600,000. The timber is estimated at 2,800 cubic metres. During the current year, 180 cubic metres of timber were cut and sold.
- A company purchased another company on July 1 and recorded goodwill of \$400,000.
- Costs of \$18,000 were incurred on January 1 to obtain a patent. Shortly thereafter, \$9,000 was spent in legal costs to successfully defend the patent against competitors. The patent has a legal life of 20 years and an estimated 9-year useful life.
- The company acquired a trademark for the cost of \$25,000. The trademark has 20 years until it expires and then it can be renewed for another 20 years for the cost of \$25.

Instructions

For each of the unrelated transactions, determine the amount of the depreciation/depletion expense for the current year and present the adjusting entries required to record each expense at year end.

Solution 35 (10 min.)

- Calculation of depletion/cubic metre:
 $\$600,000 \div 2,800 = \$214.29/\text{cubic metre}$
 $180 \times \$214.29 = \$38,572$.

Inventory.....	38,572	
Accumulated Depletion.....		38,572
- No entry. Goodwill is not amortized.
- Legal costs to successfully defend a patent are capitalized.

Depreciation Expense.....	3,000	
Accumulated Depreciation—Patent.....		3,000

(\$27,000 ÷ 9 years = \$3,000)
- No amortization is necessary. The trademark can be renewed for a small cost thus it may be treated as if it has indefinite life.

Bloomcode: Application

Difficulty: Medium

Learning Objective: Record natural resource transactions and calculate depletion.

Section Reference: Natural Resources

Learning Objective: Identify the basic accounting issues for intangible assets and goodwill.

Section Reference: Intangible Assets and Goodwill

CPA: Financial Reporting

Exercise 36

During the current year, Lui Company incurred several expenditures:

1. Spent \$50,000 in legal costs in a patent defence suit. The patent was unsuccessfully defended.
2. Purchased a trademark from another company. The trademark can be renewed indefinitely. Lui Company expected the trademark to contribute to revenue indefinitely.
3. Lui Company acquires a patent for \$2,000,000. The company selling the patent has spent \$1,000,000 on the research and development of it. The patent has a remaining legal life of 15 years and an estimated 5-year useful life.
4. Lui Company is spending considerable time and money in developing a different patent for another product. So far \$3,000,000 has been spent this year on research. Lui Company is very confident it will obtain this patent in the next few years.

Instructions

Briefly explain whether the expenditures listed above should be recorded as an operating expense or as an intangible asset. If you view the expenditure as an intangible asset, indicate whether the asset should be amortized or not, and if so, the number of years over which it should be amortized. Explain your answer.

Solution 36 (10 min.)

1. Operating Expense. Only successful patent defence costs can be capitalized.
2. Intangible Asset. Trademarks are renewable. Since Lui Company expects to use the trademark indefinitely, no depreciation is recorded.
3. Intangible Asset. The patent cost of \$2,000,000 should be amortized over its expected remaining useful life of 5 years since this is shorter than the remaining legal life of 15 years.
4. Operating Expense. Research costs should be expensed when incurred.

Bloomcode: Analysis

Difficulty: Hard

Learning Objective: Identify the basic accounting issues for intangible assets and goodwill.

Section Reference: Intangible Assets and Goodwill

CPA: Financial Reporting

Exercise 37

1. A company purchased a patent on January 1, 2017 for \$2,500,000. The patent's legal life is 20 years but the company estimates that the patent's useful life will only be 5 years from the date of acquisition. On June 30, 2017 the company paid legal costs of \$162,000 in successfully defending the patent in an infringement suit. Prepare the journal entry to amortize the patent at year end on December 31, 2017.
2. Walker Company purchased a franchise from the Tasty Food Company for \$400,000 on January 1, 2017. The franchise is for an indefinite time period and gives Walker Company the exclusive rights to sell Tasty Wings in a particular territory. Prepare the journal entry to record the acquisition of the franchise and any necessary adjusting entry at year end on December 31, 2017.

3. Chernomyrdin Company incurred research costs of \$200,000 and successful development costs of \$500,000 in 2017 in developing a new product that the company was able to patent. The company expects the product to be useful for 10 years. Prepare the necessary journal entries during 2017 to record these events and any adjustments at year end on December 31, 2017.

Solution 37 (15 min.)

1. December 31, 2017
- | | | |
|---|------------------|---------|
| Amortization Expense..... | 518,000 | |
| Accumulated Amortization-Patent..... | | 518,000 |
| To record patent depreciation | | |
| \$2,500,000 ÷ 5 years..... | \$500,000 | |
| \$162,000 ÷ 54 months = \$3,000 × 6 months..... | <u>18,000</u> | |
| | <u>\$518,000</u> | |
2. January 1, 2017
- | | | |
|---|---------|---------|
| Franchise..... | 400,000 | |
| Cash..... | | 400,000 |
| To record acquisition of Tasty Food franchise | | |
- December 31, 2017
- Indefinite life, no amortization necessary; no entry.
3. 2017
- | | | |
|---|---------|---------|
| Research Expense..... | 200,000 | |
| Cash..... | | 200,000 |
| To record research expense for the current year | | |
| Patent..... | 500,000 | |
| Cash..... | | 500,000 |
| To capitalize development costs | | |
- December 31, 2017
- | | | |
|---|--------|--------|
| Amortization Expense (\$500,000 ÷ 10 years)..... | 50,000 | |
| Accumulated Amortization—Patent..... | | 50,000 |
| To record amortization of successful development costs relating to the patent | | |

Bloomcode: Application

Difficulty: Medium

Learning Objective: Identify the basic accounting issues for intangible assets and goodwill.

Section Reference: Intangible Assets and Goodwill

CPA: Financial Reporting

Exercise 38

Identify whether the following intangible assets are considered finite life (F) or indefinite life (I).

____ Franchise

____ Patents

___ Goodwill

___ Development Costs

___ Trademarks

___ Licence

___ Copyrights

Solution 38 (5 min.)

___I___ Franchise

___F___ Patents

___I___ Goodwill

___F___ Development Costs

___I___ Trademarks

___I___ Licence

___F___ Copyrights

Bloomcode: Knowledge

Difficulty: Easy

Learning Objective: Identify the basic accounting issues for intangible assets and goodwill.

Section Reference: Intangible Assets and Goodwill

CPA: Financial Reporting

Exercise 39

During 2017 Blackmud Research had the following transactions for cash. This is Blackmud's first year of operations.

Mar 1 Registered a new patent, with a legal life of 20 years, at a cost of \$30,000.

Jun 30 Incurred research costs of \$68,000.

Aug 1 Incurred development costs of \$50,000 related to a product that meets the standards required for capitalization of costs. The costs are expected to provide commercial benefits for 5 years.

Aug 31 Purchased a trademark with an indefinite life for \$102,000.

Nov 1 Purchased software copyright for \$300,000. The copyright has a remaining legal life of 30 years, and the related software is expected to produce revenue for 6 years.

Instructions

- Record the transactions.
- Prepare the section of the December 31, 2017 balance sheet of Blackmud Research that reports intangible assets. Show calculations where applicable.

Solution 39 (20 min.)

a)

Mar 1	Patent.....	30,000	
	Cash.....		30,000
Jun 30	Research Expense.....	68,000	
	Cash.....		68,000
Aug 1	Development Costs.....	50,000	
	Cash.....		50,000
Aug 31	Trademark.....	102,000	
	Cash.....		102,000
Nov 1	Copyright.....	300,000	
	Cash.....		300,000

b)

BLACKMUD RESEARCH
Balance Sheet (partial)
December 31, 2017

Intangible assets (non-current assets)

Finite-life intangible assets (\$30,000 + 50,000 + 300,000).....	\$ 380,000	
Less: Accumulated amortization*.....	<u>13,750</u>	\$ 366,250
Indefinite-life intangible assets.....		<u>102,000</u>
Total intangible assets.....		<u>\$ 468,250</u>

Amortization:

Patent = (\$30,000 ÷ 20 x 10 ÷ 12).....	\$ 1,250
Development costs (\$50,000 ÷ 5 x 5 ÷ 12).....	4,167
Copyright (\$300,000 ÷ 6 x 2 ÷ 12).....	<u>8,333</u>
Total.....	<u>\$ 13,750</u>

Bloomcode: Application

Difficulty: Medium

Learning Objective: Identify the basic accounting issues for intangible assets and goodwill.

Section Reference: Intangible Assets and Goodwill

Learning Objective: Illustrate the reporting and analysis of long-lived assets.

Section Reference: Statement Presentation and Analysis

CPA: Financial Reporting

Exercise 40

The following information is available from the audited financial statements of Molson Coors Brewing Company and Big Rock Breweries Income Trust for their 2017 year ends.

	Molson/Coors (in millions of US dollars)	Big Rock Breweries (in thousands of Cdn dollars)
Net revenue	\$5,844	\$38,701

Profit	\$373	\$8,380
Total assets, ending	\$11,603	\$42,170
Total assets, beginning	\$11,799	\$41,786

Instructions

- Calculate both companies' asset turnover and return on assets.
- Compare the companies' effectiveness in using their assets to produce revenue and profit.

Solution 40 (10 min.)

a)

	Molson/Coors	Big Rock
Asset turnover	$= \$ 5,844 \div [(11,603 + 11,799) \div 2]$ $= 0.50$	$= \$ 38,701 \div [(42,170 + 41,786) \div 2]$ $= 0.92$
Return on assets	$= \$ 373 \div [(11,603 + 11,799) \div 2]$ $= 3.2\%$	$= \$ 8,380 \div [(42,170 + 41,786) \div 2]$ $= 20\%$

- Big Rock's performance in asset management is better when measured by either of the two ratios. This suggests that Big Rock is more effective in using its assets to generate revenue and profit even though it is a smaller company.

Bloomcode: Application

Difficulty: Medium

Learning Objective: Illustrate the reporting and analysis of long-lived assets.

Section Reference: Statement Presentation and Analysis

CPA: Financial Reporting

Exercise 41

Presented below is information related to long-lived assets at year end on December 31, 2017 for Jankowski Company:

Buildings.....	\$1,080,000
Goodwill.....	420,000
Patents.....	600,000
Coal Mine.....	390,000
Accumulated depreciation—buildings.....	670,000
Accumulated depreciation—coal mine.....	275,000
Accumulated amortization—patents.....	120,000

Instructions

Prepare a partial balance sheet for Jankowski Company that shows how the above listed items would be presented.

Solution 41 (10 min.)

JANKOWSKI COMPANY
Balance Sheet (Partial)
December 31, 2017

Property, Plant, and Equipment

Buildings.....	\$1,080,000	
Less: Accumulated depreciation.....	<u>670,000</u>	\$410,000
Coal mine.....	\$390,000	
Less: Accumulated depreciation.....	<u>275,000</u>	<u>115,000</u>
Total property, plant, and equipment.....		525,000
Intangible Assets		
Patents.....	\$ 600,000	
Less: Accumulated amortization.....	<u>120,000</u>	
Total Intangible Assets.....		480,000
Goodwill.....		420,000
Total long-lived assets.....		<u>\$1,425,000</u>

Bloomcode: Analysis

Difficulty: Easy

Learning Objective: Illustrate the reporting and analysis of long-lived assets.

Section Reference: Statement Presentation and Analysis

CPA: Financial Reporting

Exercise 42

Indicate in the blank spaces below, the appropriate group heading for financial reporting purposes. Use the following code to identify your answer:

- PPE Property, Plant, and Equipment
- NR Natural Resources
- I Intangible Assets
- O Other
- N/A Not on the balance sheet

- | | |
|---|--------------------------------|
| _____ 1. Goodwill | _____ 7. Timberlands |
| _____ 2. Land improvements | _____ 8. Franchises |
| _____ 3. Development costs for a patented product | _____ 9. Licences |
| _____ 4. Accumulated depreciation—buildings | _____ 10. Equipment |
| _____ 5. Trademarks | _____ 11. Depreciation expense |
| _____ 6. Research costs | _____ 12. Land |

Solution 42 (5 min.)

1. I Goodwill
2. PPE Land improvements
3. I Patent

4. PPE Accumulated depreciation—buildings
5. I Trademarks
6. N/A Research costs
7. NR Timberlands
8. I Franchises
9. I Licences
10. PPE Equipment
11. N/A Depreciation expense
12. PPE or NR Land

Bloomcode: Analysis

Difficulty: Medium

Learning Objective: Illustrate the reporting and analysis of long-lived assets.

Section Reference: Statement Presentation and Analysis

CPA: Financial Reporting

Exercise 43

Net sales were \$1,500,000 and profit was \$250,000 in the second year of operation for Tirekicker's Used Car Company. Total assets in the first year were \$800,000 and in the second year \$1,200,000.

Instructions

- a) Determine the asset turnover and the return on assets for Tirekicker's Used Car Company.
- b) What do these ratios show?

Solution 43 (5 min.)

$$\begin{aligned} \text{a) Asset Turnover} &= \text{Net Sales} \div \text{Average Assets} \\ &= \$1,500,000 \div [(\$800,000 + \$1,200,000) \div 2] = 1.5 \text{ times} \end{aligned}$$

$$\begin{aligned} \text{Return on Assets} &= \text{Profit} \div \text{Average Assets} \\ &= \$250,000 \div [(\$800,000 + \$1,200,000) \div 2] = 25\% \end{aligned}$$

- b) The Asset Turnover ratio shows how efficiently a company uses its assets to generate sales revenue. The Return on Assets ratio shows the profitability of assets used in the earning process.

Bloomcode: Application

Difficulty: Easy

Learning Objective: Illustrate the reporting and analysis of long-lived assets.

Section Reference: Statement Presentation and Analysis

CPA: Financial Reporting

Exercise 44

The following information is taken from the records of Wasp Industrial Ltd.

	2018	2017	2016
Total assets reported year end	\$14,110,500	\$12,083,700	\$10,669,900
Sales revenue	2,037,210	2,097,100	2,120,500
Sales discounts	14,521	17,554	16,808
Total expenses	875,770	890,425	925,860

Instructions

- Calculate the 2018 and 2017 asset turnover and return on assets.
- Briefly interpret the results of each ratio examined in part a).

Solution 44 (10 min.)

- a) 2018 asset turnover =

$$(\$2,037,210 - \$14,521) \div [(\$14,110,500 + \$12,083,700) \div 2] = \underline{0.15}$$

2017 asset turnover =

$$(\$2,097,100 - \$17,554) \div [(\$12,083,700 + \$10,669,900) \div 2] = \underline{0.18}$$

2018 return on assets =

$$(\$2,037,210 - \$14,521 - \$875,770) / [(\$14,110,500 + \$12,083,700) \div 2] = \underline{0.09}$$

2017 return on assets =

$$(\$2,097,100 - \$17,554 - \$890,425) / [(\$12,083,700 + \$10,669,900) \div 2] = \underline{0.10}$$

- b) The asset turnover ratio suggests that for each dollar that Wasp has invested in assets, it produced \$0.13 (2018) and \$0.14 (2017) in sales. This demonstrates a declining trend that should be closely compared to the industry average.
- The return on assets ratio suggests that Wasp generated profits of 9% (2018) and 10% (2017) for every dollar invested in assets. This demonstrates a declining trend that should be closely compared to the industry average.

Bloomcode: Application

Difficulty: Medium

Learning Objective: Illustrate the reporting and analysis of long-lived assets.

Section Reference: Statement Presentation and Analysis

CPA: Financial Reporting

LEGAL NOTICE

Copyright © 2016 by John Wiley & Sons Canada, Ltd. or related companies. All rights reserved.

WILEY

The data contained in these files are protected by copyright. This manual is furnished under licence and may be used only in accordance with the terms of such licence.

The material provided herein may not be downloaded, reproduced, stored in a retrieval system, modified, made available on a network, used to create derivative works, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise without the prior written permission of John Wiley & Sons Canada, Ltd.