

Principles Accounting in English 2

CHAPTER TWO PROPERTY, PLANT, AND EQUIPMENT

ACCOUNTING DEPARTMENT

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CHAPTER TWO

PROPERTY, PLANT, AND EQUIPMENT (FIXED ASSETS)

The major characteristics of property, plant, and equipment are as follows.

- 1- They are acquired for use in operations and not for resale.
- 2- They are long-term in nature and usually depreciated. Property, plant, and equipment yield services over a number of years.
- 3- They possess physical substance. Property, plant, and equipment are tangible assets characterized by physical existence or substance.

DETERMINING THE COST OF PLANT ASSETS

The cost principle requires that companies record plant assets at cost. Thus **Rent-A-Wreck** records its vehicles at cost. **Cost consists of all expenditures necessary to acquire the asset and make it ready for its intended use.**

For example, the cost of factory machinery includes the purchase price, freight costs paid by the purchaser, and installation costs. Once cost is established, the company uses that amount as the basis of accounting for the plant asset over its useful life.

In the following sections, we explain the application of the cost principle to each of the major classes of plant assets.

Land

To illustrate, assume that Hayes Manufacturing Company acquires real estate at a cash cost of \$100,000. The property contains an old warehouse that is razed **هدم** at a net cost of \$6,000 (\$7,500 in costs less \$1,500 proceeds from salvaged materials).

Additional expenditures are the attorney's fee, \$1,000, and the real estate broker's commission, \$8,000. The cost of the land is \$115,000, computed as follows.

<u>Land</u>	
Cash price of property	\$100,000
Net removal cost of warehouse	6,000
Attorney's fee	1,000
Real estate broker's commission	8,000
Cost of land	<u><u>\$115,000</u></u>

When Hayes records the acquisition, it debits Land for \$115,000 and credits Cash for \$115,000.

To illustrate, assume Merten Company purchases factory machinery at a cash price of \$50,000.

Related expenditures are for sales taxes \$3,000, insurance during shipping \$500, and installation and testing \$1,000. The cost of the factory machinery is \$54,500, computed as follows.

<u>Factory Machinery</u>	
Cash price	\$50,000
Sales taxes	3,000
Insurance during shipping	500
Installation and testing	1,000
Cost of factory machinery	<u><u>\$54,500</u></u>

Merten makes the following summary entry to record the purchase and related expenditures:

Factory Machinery 54,500

Cash 54,500

(To record purchase of factory machine)

Example: Assume a company purchased a land, its original cost is \$ 50,000, while purchasing there are some other costs which are; \$2,500 attorney's fees, \$1,500 Recording Fees, and the company made filling for land it's cost was \$1,000. Calculate the final cost of the land.

Example: A company bought a machine for production department, the machine cost was \$150,000, transportation cost \$2,000, and installation cost by engineers \$2,500. Calculate the machine cost.

Examples:

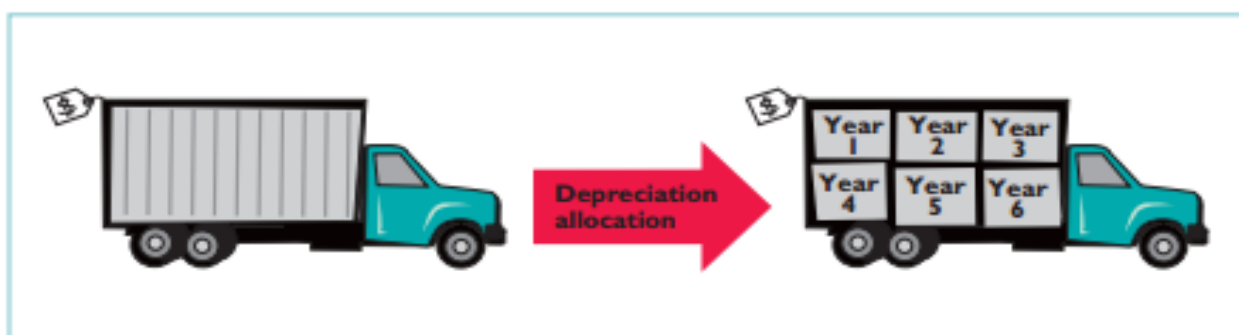
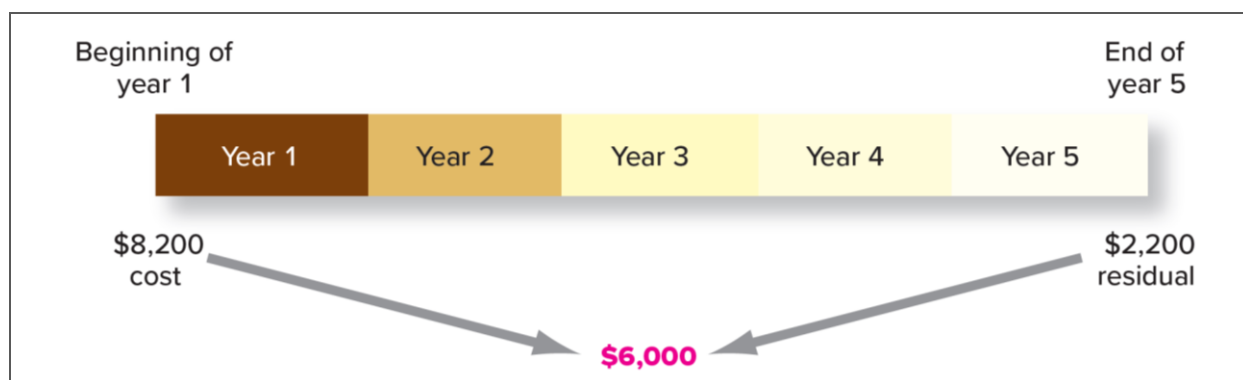
Beaverton Lumber purchased a milling machine for \$35,000. In addition to the purchase price, Beaverton made the following expenditures: freight, \$1,500; installation, \$3,000; testing, \$2,000; personal property tax on the machine for the first year, \$500. What is the initial cost of the machine?

Fullerton Waste Management purchased land and a warehouse for \$600,000. In addition to the purchase price, Fullerton made the following expenditures related to the acquisition: broker’s commission, \$30,000; title insurance, \$3,000; miscellaneous closing costs, \$6,000. The warehouse was immediately demolished at a cost of \$18,000 in anticipation of the building of a new warehouse. Determine the amounts Fullerton should capitalize as the cost of the land and the building.

Fixed Assets Depreciation

Property, plant, and equipment and intangible assets are purchased with the expectation that they will provide future benefits. Specifically, they are acquired to be used as part of the revenue-generating operations, usually for several years. Logically, then, the cost of these acquisitions initially should be recorded as assets, and then these costs should be allocated to expense over the reporting periods benefited by their use. That is, their costs are reported with the revenues they help generate.

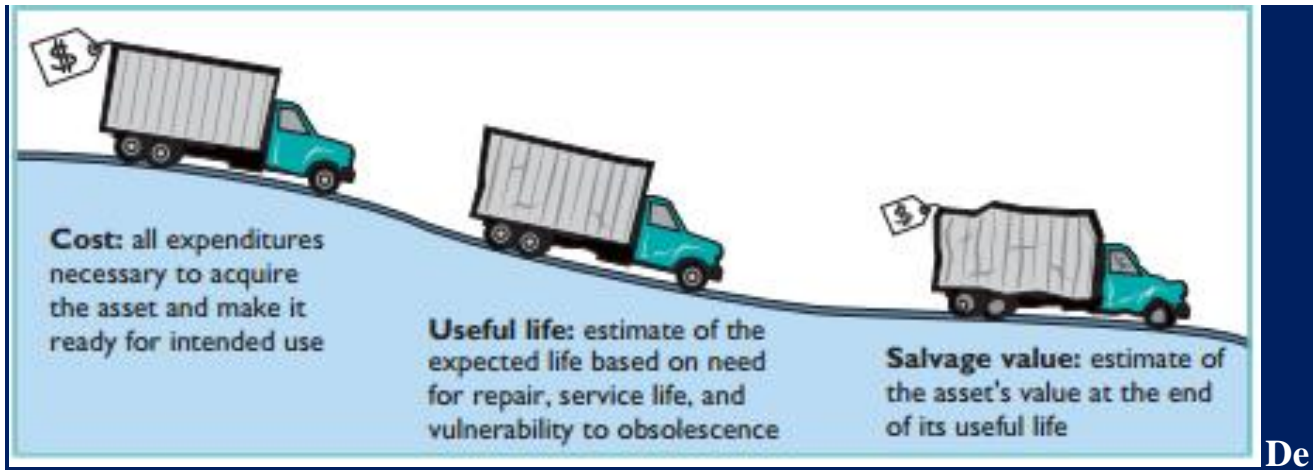
Let’s suppose that a company purchases a used truck for **\$8,200** to deliver products to customers. The company estimates that five years from the acquisition date the truck will be sold for **\$2,200**. It is estimated, then, that **\$6,000** ($\$8,200 - \$2,200$) of the truck’s purchase cost will be used up (consumed) during a five-year useful life.



Basic Factors for calculation depreciation:

The basic factors for calculation of depreciation on fixed assets are:

1. Cost of the assets.
2. Estimated working life of the assets.
3. Estimated scrap value at the end of its life time



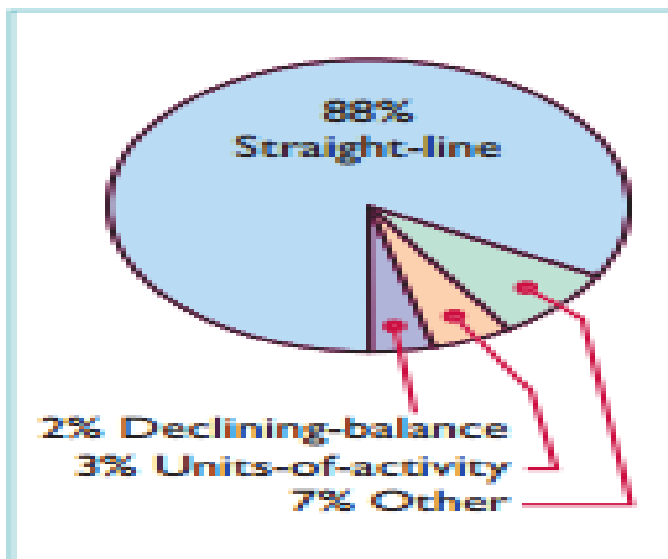
Depreciation for Cost Allocation (Methods for Depreciation Calculate)

Depreciation is generally computed using one of the following methods:

1. Straight-line
2. Units-of-activity
3. Declining-balance

Each method is acceptable under generally accepted accounting principles.

Management selects the method(s) it believes to be appropriate. The objective is to select the method that best measures an asset's contribution to revenue over its useful life. Once a company chooses a method, it should apply it consistently over the useful life of the asset. Consistency enhances the comparability of financial statements. Depreciation affects the balance sheet through accumulated depreciation and the income statement through depreciation expense.



We will compare the three depreciation methods using the following data for a small delivery truck purchased by Barb’s Florists on January 1, 2010.

- Cost \$13,000
- Expected salvage value \$1,000
- Estimated useful life in years 5
- Estimated useful life in miles 100,000

1. Straight Line Method (Fixed percentage Method):

Under this method a fixed amount decreasing of the total cost of the asset every year. At the end of the useful life of the asset, the balance in that asset's account will be equal to its scrap value (if the value of scrap estimated at the beginning).

Under this method the form will be:

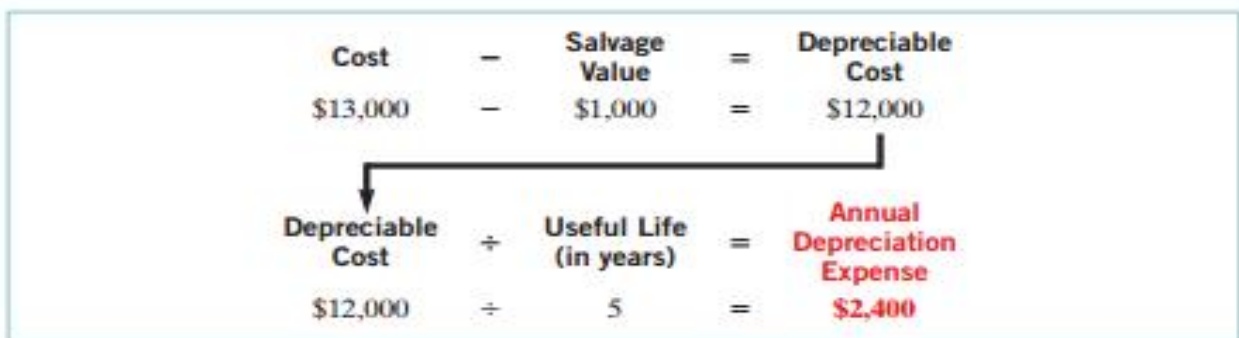
$$\text{Depreciation} = \frac{\text{Cost Price of asset} - \text{Scrap Value}}{\text{Estimated life of Asset in year}}$$

Or

$$D = \frac{C - S}{N}$$

Where:

- D = Amount of depreciation (for one year).
- C = Cost of asset.
- S = Scrap value.
- N = Working life in year.



Alternatively, we also can compute an annual **rate** of depreciation. In this case, the rate is 20% (100% ÷ 5 years). When a company uses an annual straight-line rate, it applies the percentage rate to the depreciable cost of the asset. Illustration 10-10 shows a **depreciation schedule** using an annual rate.

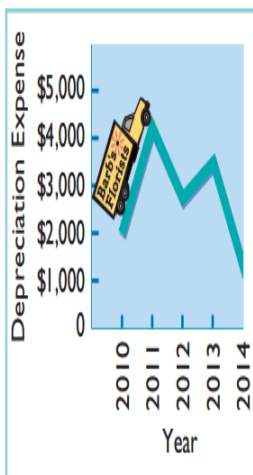
Year	Computation		=	Annual Depreciation Expense	End of Year	
	Depreciable Cost	× Depreciation Rate			Accumulated Depreciation	Book Value
2010	\$12,000	20%		\$2,400	\$ 2,400	\$10,600*
2011	12,000	20		2,400	4,800	8,200
2012	12,000	20		2,400	7,200	5,800
2013	12,000	20		2,400	9,600	3,400
2014	12,000	20		2,400	12,000	1,000

*Book Value = Cost – Accumulated depreciation = (\$13,000 – \$2,400).

2. Units-of-activity

Depreciable Cost	÷	Total Units of Activity	=	Depreciation Cost per Unit
\$12,000	÷	100,000 miles	=	\$0.12
↓				
Depreciable Cost per Unit	×	Units of Activity during the Year	=	Annual Depreciation Expense
\$0.12	×	15,000 miles	=	\$1,800

schedule



Year	Computation		=	Annual Depreciation Expense	End of Year	
	Units of Activity	× Depreciation Cost/Unit			Accumulated Depreciation	Book Value
2010	15,000	\$0.12		\$1,800	\$ 1,800	\$11,200*
2011	30,000	0.12		3,600	5,400	7,600
2012	20,000	0.12		2,400	7,800	5,200
2013	25,000	0.12		3,000	10,800	2,200
2014	10,000	0.12		1,200	12,000	1,000

*(\$13,000 – \$1,800).

3. Declining-balance

PRINCIPLES OF ACCOUNTING

At the end of the period, the depreciation expense is charged to the profit & loss account as follows:

31. 12. 2007	By Profit & Loss	xx	
	To Depreciation expense		xx

EXAMPLE

DuPage Company purchases a factory machine at a cost of \$18,000 on January 1, 2010. DuPage expects the machine to have a salvage value of \$2,000 at the end of its 4-year useful life. During its useful life, the machine is expected to be used 160,000 hours. Actual annual hourly use was: 2010, 40,000; 2011, 60,000; 2012, 35,000; and 2013, 25,000.

Instructions

Prepare depreciation schedules for the following methods:

- (a) straight-line.**
- (b) units-of-activity.**
- (c) declining-balance using double the straight-line rate.**

Straight-Line Method

Year	Computation			=	Annual Depreciation Expense	End of Year	
	Depreciable Cost*	×	Depreciation Rate			Accumulated Depreciation	Book Value
2010	\$16,000		25%		\$4,000	\$ 4,000	\$14,000**
2011	16,000		25%		4,000	8,000	10,000
2012	16,000		25%		4,000	12,000	6,000
2013	16,000		25%		4,000	16,000	2,000

*\$18,000 – \$2,000.

**\$18,000 – \$4,000.

(b)

Units-of-Activity Method

Year	Computation			=	Annual Depreciation Expense	End of Year	
	Units of Activity	×	Depreciation Cost/Unit			Accumulated Depreciation	Book Value
2010	40,000		\$0.10*		\$4,000	\$ 4,000	\$14,000
2011	60,000		0.10		6,000	10,000	8,000
2012	35,000		0.10		3,500	13,500	4,500
2013	25,000		0.10		2,500	16,000	2,000

*(\$18,000 – \$2,000) ÷ 160,000.

(c)

Declining-Balance Method

Year	Computation			=	Annual Depreciation Expense	End of Year	
	Book Value Beginning of Year	×	Depreciation Rate*			Accumulated Depreciation	Book Value
2010	\$18,000		50%		\$9,000	\$ 9,000	\$9,000
2011	9,000		50%		4,500	13,500	4,500
2012	4,500		50%		2,250	15,750	2,250
2013	2,250		50%		250**	16,000	2,000

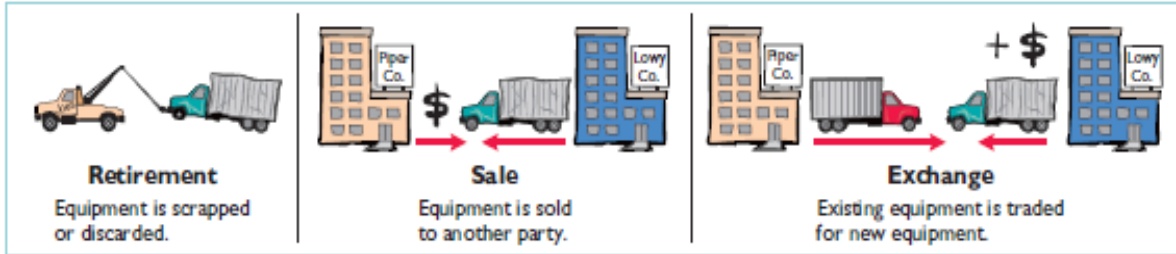
* $\frac{1}{4} \times 2$.

** Adjusted to \$250 because ending book value should not be less than expected salvage value.

Disposal of fixed assets:

Companies dispose of plant assets in three ways—retirement, sale, or Exchange. Whatever the method, at the time of disposal the company must determine the book value of the plant asset.

As noted earlier, book value is the difference between the cost of a plant Asset and the accumulated depreciation to date.



1. Retirement of fixed Assets:

To illustrate the retirement of plant assets, assume that Hobart Enterprises retires its computer printers, which cost \$32,000. The accumulated depreciation on these printers is \$32,000. The equipment, therefore, is fully depreciated (zero book value).

The entry to record this retirement is as follows.

Accumulated Depreciation—Printing Equipment	32,000	
Printing Equipment		32,000
(To record retirement of fully depreciated equipment)		

If a company retires a plant asset before it is fully depreciated, and no cash is received for scrap or salvage value, a loss on disposal occurs. For example, assume that Sunset Company discards delivery equipment that cost \$18,000 and has accumulated depreciation of \$14,000. The entry is as follows

Accumulated Depreciation—Delivery Equipment	14,000	
Loss on Disposal	4,000	
Delivery Equipment		18,000
(To record retirement of delivery equipment at a loss)		

2. Sale of Fixed assets:

In a disposal by sale, the company compares the book value of the asset with the proceeds received from the sale. If the proceeds of the sale exceed the book value of the plant asset, **a gain on disposal occurs**. If the proceeds of the sale are less than the book value of the plant asset sold, **a loss on disposal occurs**.

GAIN ON DISPOSAL

To illustrate a gain, assume that on July 1, 2010, Wright Company sells office furniture for \$16,000 cash. The office furniture originally cost \$60,000. As of January 1, 2010, it had accumulated depreciation of \$41,000. Depreciation for the first six months of 2010 is \$8,000. Wright records depreciation expense and updates accumulated depreciation to July 1 with the following entry.

July 1	Depreciation Expense 8,000	
	Accumulated Depreciation—Office Furniture 8,000	

(To record depreciation expense for the first 6 months of 2010)

After the accumulated depreciation balance is updated, the company computes the gain or loss. Illustration 10-19 shows this computation for Wright Company, which has a gain on disposal of \$5,000.

Cost of office furniture		\$60,000
Less: Accumulated depreciation	(\$41,000 _ \$8,000)	<u>49,000</u>
Book value at date of disposal		11,000
Proceeds from sale		<u>16,000</u>
Gain on disposal		\$ 5,000

July 1	Cash	16,000
	Accumulated Depreciation—Office Furniture	49,000
	Office Furniture	60,000
	Gain on Disposal	5,000

(To record sale of office furniture at a gain)

LOSS ON DISPOSAL

Assume that instead of selling the office furniture for \$16,000, Wright sells it for \$9,000. In this case, Wright computes a loss of \$2,000 as follows

Cost of office furniture	\$60,000
Less: Accumulated depreciation	<u>49,000</u>
Book value at date of disposal	11,000
Proceeds from sale	<u>9,000</u>
Loss on disposal	\$ 2,000

July 1	Cash	9,000
	Accumulated Depreciation—Office Furniture	49,000
	Loss on Disposal	2,000
	Office Furniture	60,000

(To record sale of office furniture at a loss)

Example

If a **car** costing 4500 \$ was sold on Apr. 1st 2007 by 700 \$ cash.

The balance of accumulated depreciation – car on Apr. 1st 2007 is 3250 \$.

Book value = 4500 – 3250 = 1250 \$

Profit or loss on sold = 700 – 1250 = (550) \$

The entries for sale in the journal are:

Apr. 1 st . 2007	<u>By sundries</u>	
	Cash	700
	Accumulated Depreciation	3250
	Loss on Car Sold	550
	To Car	2 4500
	(Being sold car by 700 \$ cash)	

Apr. 1 st . 2007	By Profit & Loss	550
	To Loss on Car Sold	550
	(Being close of loss on car sold in profit & loss account)	

3. Exchanging of Fixed Assets:

Loss Treatment

To illustrate an exchange that results in a loss, assume that Roland Company exchanged a set of used trucks plus cash for a new semi-truck. The used trucks have a combined book value of \$42,000 (cost \$64,000 less \$22,000 accumulated depreciation). Roland’s purchasing agent, experienced in the second-hand market, indicates that the used trucks have a fair market value of \$26,000. In addition to the trucks, Roland must pay \$17,000 for the semi-truck. Roland computes the cost of the semitruck as follows:

Fair value of used trucks	\$26,000
Cash paid	<u>17,000</u>
Cost of semi-truck	<u>\$43,000</u>

Roland incurs a loss on disposal of \$16,000 on this exchange. The reason is that the book value of the used trucks is greater than the fair market value of these trucks. The computation is as follows.

Book value of used trucks (\$64,000_ \$22,000)	\$42,000
Fair market value of used trucks	<u>26,000</u>
Loss on disposal	<u>\$16,000</u>

In recording an exchange at a loss, three steps are required: (1) Eliminate the book value of the asset given up, (2) record the cost of the asset acquired, and (3) recognize the loss on disposal. Roland Company thus records the exchange on the loss as follows.

Semi-truck	43,000	
Accumulated Depreciation—Used Trucks	22,000	
Loss on Disposal	16,000	
Used Trucks		64,000
Cash		17,000

(To record exchange of used trucks for semi-truck.)

Gain Treatment

To illustrate a gain situation, assume that Mark Express Delivery decides to exchange its old delivery equipment plus cash of \$3,000 for new delivery equipment. The book value of the old delivery equipment is \$12,000 (cost \$40,000 less accumulated depreciation \$28,000). The fair market value of the old delivery equipment is \$19,000. The cost of the new asset is the fair market value of the old asset exchanged plus, any cash paid (or other consideration given up). The cost of the new delivery equipment is \$22,000 computed as follows.

Fair market value of old delivery equipment	\$19,000
Cash paid	<u>3,000</u>
Cost of new delivery equipment	<u>\$22,000</u>

A gain results when the fair market value of the old delivery equipment is greater than its book value. For Mark Express there is a gain of \$7,000 on disposal, computed as follows.

Fair market value of old delivery equipment	\$19,000
Book value of old delivery equipment (\$40,000_-\$28,000)	12,000
Gain on disposal	\$ 7,000
Delivery Equipment (new)	22,000
Accumulated Depreciation—Delivery Equipment (old)	28,000
Delivery Equipment (old)	40,000
Gain on Disposal	7,000
Cash	3,000

(To record exchange of old delivery equipment for new delivery equipment)

In recording an exchange at a gain, the following three steps are involved: (1) Eliminate the book value of the asset given up, (2) record the cost of the asset acquired, and (3) recognize the gain on disposal. Accounting for exchanges of plant assets becomes more complex if the transaction does not have commercial substance. This issue is discussed in more advanced accounting classes.

Example 1

Younger Bus Lines uses the units-of-activity method in depreciating its buses. One bus was purchased on January 1, 2010, at a cost of \$168,000. Over its 4-year useful life, the bus is expected to be driven 100,000 miles. Salvage value is expected to be \$8,000.

Instructions

- Compute the depreciation cost per unit.
- Prepare a depreciation schedule assuming actual mileage was: 2010, 26,000; 2011, 32,000; 2012, 25,000; and 2013, 17,000.

Example 2

Kelm Company purchased a new machine on October 1, 2010, at a cost of \$120,000. The company estimated that the machine will have a salvage value of \$12,000. The machine is expected to be used for 10,000 working hours during its 5-year life.

Instructions

Compute the depreciation expense under the following methods for the year indicated.

- Straight-line for 2010.
- Units-of-activity for 2010, assuming machine usage was 1,700 hours.
- Declining-balance using double the straight-line rate for 2010 and 2011.

Example 3

Brainiac Company purchased a delivery truck for \$30,000 on January 1, 2010. The truck has an expected salvage value of \$2,000, and is expected to be driven 100,000 miles over its estimated useful life of 8 years. Actual miles driven were 15,000 in 2010 and 12,000 in 2011.

Instructions

- Compute depreciation expense for 2010 and 2011 using (1) the straight-line method, (2) the units-of-activity method, and (3) the double-declining balance method.
- Assume that Brainiac uses the straight-line method.

- (1) Prepare the journal entry to record 2010 depreciation.
- (2) Show how the truck would be reported in the December 31, 2010, balance sheet.

Example 4

Presented below are selected transactions at Ingles Company for 2010.

Jan. 1 Retired a piece of machinery that was purchased on January 1, 2000. The machine cost \$62,000 on that date. It had a useful life of 10 years with no salvage value.

June 30 Sold a computer that was purchased on January 1, 2007. The computer cost \$40,000. It had a useful life of 5 years with no salvage value. The computer was sold for \$14,000.

Dec. 31 Discarded a delivery truck that was purchased on January 1, 2006. The truck cost \$39,000. It was depreciated based on a 6-year useful life with a \$3,000 salvage value.

Instructions

Journalize all entries required on the above dates, including entries to update depreciation, where applicable, on assets disposed of. Ingles Company uses straight-line depreciation. (Assume depreciation is up to date as of December 31, 2009.)

Example 5

Beka Company owns equipment that cost \$50,000 when purchased on January 1, 2007. It has been depreciated using the straight-line method based on estimated salvage value of \$5,000 and an estimated useful life of 5 years.

Instructions

Prepare Beka Company's journal entries to record the sale of the equipment in these four independent situations.

- (a) Sold for \$28,000 on January 1, 2010.
- (b) Sold for \$28,000 on May 1, 2010.
- (c) Sold for \$11,000 on January 1, 2010.
- (d) Sold for \$11,000 on October 1, 2010.

Example 6

If you have this information about the assets (Furniture) of (AL– Mustafa Co.):
Cost of the furniture 8000 \$ - Balance of accumulated depreciation 5000 \$.

And if you know that:

1. The business (Sold) (Half) of the furniture with profit equal to 20 % from the cost price.
2. The business (Exchanged) the remaining of the furniture with new one paid 500 \$ by check with loss equal to 10 % from the cost price.

Instructions

Journalize the above transactions.

Example 7

- At 1 / 7 / 2008 the business bought a (Furniture) worth 3850 \$ by cash.
- At 1 / 5 / 2009 the business **sold** the furniture worth 2000 \$ by check.

Instructions

1. **Journalize purchasing entry at 1 / 7 / 2008.**
2. **Compute annual depreciation expenses using (Straight line method) if you know that the estimated scrap value are 250 \$ and the estimated working life are 3 years.**

- 3. Journalize depreciation expenses entry by using (Indirect method) at 31/12/2008.**
- 4. Journalize selling entry at 1 / 5 / 2009.**

Example 8

- At 1 / 9 / 2007 the business bought (Machinery) with cost 7200 \$ by cash (There is no estimated scrap value and the estimated working life are 4 years).
- At 1 / 8 / 2009 the business (Exchanged) the machinery with new one valued with 5000 \$ and the business paid 1500 \$ by check.

Instructions

Journalize the necessary entries.