

Depreciation

What Is Depreciation?

The term depreciation refers to an accounting method used to allocate the cost of a tangible or physical asset over its useful life or life expectancy. Depreciation represents how much of an asset's value has been used. Depreciating assets helps companies earn revenue from an asset while expensing a portion of its cost each year the asset is in use. Not accounting for depreciation can greatly affect a company's profits. Companies can also depreciate long-term assets for both tax and accounting purposes.

Important Points:

- Depreciation ties the cost of using a tangible asset with the benefit gained over its useful life.
- There are many types of depreciation, including straight-line and various forms of accelerated depreciation.
- Accumulated depreciation refers to the sum of all depreciation recorded on an asset to a specific date.
- The carrying value of an asset on the balance sheet is its historical cost minus all accumulated depreciation.
- The carrying value of an asset after all depreciation has been taken is referred to as its salvage value.

Understanding Depreciation

Assets such as machinery and equipment are expensive. Instead of realizing an asset's entire cost in year one, companies can use depreciation to spread out the cost and generate revenue from it. This is done through depreciation, which allows a company to write off an asset's value over a period of time, notably its useful life. It may be used to account for declines over time in the carrying value, which represents the difference between the original cost and the accumulated depreciation of the years.

Depreciation is taken regularly so a company can move the asset's cost from the balance sheet to the income statement.² When a company buys an asset, it records the transaction as a debit to increase an asset account on the balance sheet and a credit to reduce cash (or increase accounts payable), which is also on the balance sheet. Neither journal entry affects the income statement, where revenues and expenses are reported.

At the end of an accounting period, an accountant books depreciation for all capitalized assets that are not fully depreciated. The journal entry consists of a:

- debit to depreciation expense, which flows through to the income statement
- credit to accumulated depreciation, which is reported on the balance sheet

As noted above, businesses can take advantage of depreciation for both tax and accounting purposes. This means they can take a tax deduction for the cost of the asset, reducing taxable income. But the Internal Revenue Service (IRS) states that when depreciating assets,

companies must spread the cost out over time. The IRS also has rules for when companies can take a deduction.

The IRS publishes depreciation schedules detailing the number of years an asset can be depreciated for tax purposes, based on various asset classes.

Special Considerations

Depreciation is considered a non-cash charge since it doesn't represent an actual cash outflow. The entire cash outlay might be paid initially when an asset is purchased, but the expense is recorded incrementally for financial reporting purposes. That's because assets provide a benefit to the company over a lengthy period of time. But the depreciation charges still reduce a company's earnings, which is helpful for tax purposes.⁴

The matching principle under generally accepted accounting principles (GAAP) is an accrual accounting concept that dictates that expenses must be matched to the same period in which the related revenue is generated. Depreciation helps to tie the cost of an asset with the benefit of its use over time. In other words, the asset is put to use each year and generates revenue—the incremental expense associated with using up the asset is also recorded.

The total amount depreciated each year, which is represented as a percentage, is called the depreciation rate. For example, if a company had \$100,000 in total depreciation over the asset's expected life, and the annual depreciation was \$15,000. This means the rate would be 15% per year.

The depreciation rate is used in both the declining balance and double-declining balance calculations.

Threshold Amounts

Different companies may set their own threshold amounts for when to begin depreciating a fixed asset or property, plant, and equipment (PP&E). For example, a small company may set a \$500 threshold, over which it depreciates an asset. On the other hand, a larger company may set a \$10,000 threshold, under which all purchases are expensed immediately.

Accumulated Depreciation

Accumulated depreciation is a contra asset account, meaning its natural balance is a credit that reduces the net asset value (NAV). Accumulated depreciation on any given asset is its cumulative depreciation up to a single point in its life.

As stated earlier, carrying value is the net of the asset account and the accumulated depreciation. The salvage value is the carrying value that remains on the balance sheet after which all depreciation is accounted for until the asset is disposed of or sold.

It is based on what a company expects to receive in exchange for the asset at the end of its useful life. An asset's estimated salvage value is an important component in the calculation of depreciation.

Types of Depreciation

Straight-Line

Depreciating assets using the straight-line method is the most basic way to record depreciation. It reports equal depreciation expense each year throughout the entire useful life until the entire asset is depreciated to its salvage value.⁵

Let's assume that a company buys a machine at a cost of \$5,000. The company decides on a salvage value of \$1,000 and a useful life of five years. Based on these assumptions, the depreciable amount is \$4,000 (\$5,000 cost - \$1,000 salvage value).

The annual depreciation using the straight-line method is calculated by dividing the depreciable amount by the total number of years. In this case, it amounts to \$800 per year ($\$4,000 \div 5$). This results in a depreciation rate of 20% ($\$800 \div \$4,000$).

Declining Balance

The declining balance method is an accelerated depreciation method. This method depreciates the machine at its straight-line depreciation percentage times its remaining depreciable amount each year. Because an asset's carrying value is higher in earlier years, the same percentage causes a larger depreciation expense amount in earlier years, declining each year.⁶

Using the straight-line example above, the machine costs \$5,000, has a salvage value of \$1,000, a five-year life, and is depreciated at 20% each year, so the expense is \$800 in the first year ($\$4,000$ depreciable amount \times 20%), \$640 in the second year ($(\$4,000 - \$800) \times 20\%$), and so on.

Double Declining Balance (DDB)

The double-declining balance (DDB) method is another accelerated depreciation method. After taking the reciprocal of the useful life of the asset and doubling it, this rate is applied to the depreciable base, book value, for the remainder of the asset's expected life.⁶

For example, an asset with a useful life of five years would have a reciprocal value of 1/5 or 20%. Double the rate, or 40%, is applied to the asset's current book value for depreciation. Although the rate remains constant, the dollar value will decrease over time because the rate is multiplied by a smaller depreciable base for each period.

Sum-of-the-Year's-Digits (SYD)

The sum-of-the-year's-digits (SYD) method also allows for accelerated depreciation. To start, combine all the digits of the expected life of the asset.⁶

For example, an asset with a five-year life would have a base of the sum of the digits one through five, or $1 + 2 + 3 + 4 + 5 = 15$. In the first depreciation year, 5/15 of the depreciable base would be depreciated. In the second year, only 4/15 of the depreciable base would be depreciated. This continues until year five depreciates the remaining 1/15 of the base.

Units of Production

This method requires an estimate for the total units an asset will produce over its useful life. Depreciation expense is then calculated per year based on the number of units produced. This method also calculates depreciation expenses based on the depreciable amount.

Example of Depreciation

If a company buys a piece of equipment for \$50,000, it may expense its entire cost in year one or write the value of the asset off over the asset's 10-year useful life. This is why business owners like depreciation. Most business owners prefer to expense only a portion of the cost, which boosts net income.

The company can also scrap the equipment for \$10,000 at the end of its useful life, which means it has a salvage value of \$10,000. Using these variables, the accountant calculates depreciation expense as the difference between the cost of the asset and its salvage value, divided by the useful life of the asset. The calculation in this example is $(\$50,000 - \$10,000) \div 10$. This results in a total of \$4,000 of depreciation expenses per year.

As such, the company's accountant does not have to expense the entire \$50,000 in year one, even though the company paid out that amount in cash. Instead, the company only has to expense \$4,000 against net income. The company expenses another \$4,000 next year and another \$4,000 the year after that, and so on until the asset reaches its \$10,000 salvage value in ten years.

Why Are Assets Depreciated Over Time?

New assets are typically more valuable than older ones. Depreciation measures the amount of value an asset loses over time—directly from ongoing usage through wear and tear, and indirectly from the introduction of new product models and factors like inflation.

How Are Assets Depreciated for Tax Purposes?

Depreciation is often what people talk about when they refer to accounting depreciation. This is the process of allocating the cost of an asset over the course of its useful life in order to align its expenses with revenue generation.

Businesses also create accounting depreciation schedules with tax benefits in mind since depreciation on assets is deductible as a business expense in accordance with IRS rules.

Depreciation schedules can range from simple straight-line to accelerate or per-unit measures.

How Does Depreciation Differ From Amortization?

Depreciation refers only to physical assets or property. Amortization is an accounting term that essentially depreciates intangible assets such as intellectual property or loan interest over time.

What Is the Difference Between Depreciation Expense and Accumulated Depreciation?

The basic difference between depreciation expense and accumulated depreciation lies in the fact that one appears as an expense on the income statement while the other is a contra asset reported on the balance sheet.

Both pertain to the wearing out of equipment, machinery, or another asset, and help to state its true value, which is an important consideration when making year-end tax deductions and when a company is being sold and the assets need a proper valuation.

Although both of these depreciation entries should be listed on year-end and quarterly reports, it is depreciation expense that is the more common of the two due to its application regarding deductions and can help lower a company's tax liability. Accumulated depreciation is commonly used to forecast the lifetime of an item or to keep track of depreciation year-over-year.

Practical Problems:

Illustration 12

Purchased a machine on 1.1.2014 at a cost of ₹ 2,00,000. The scrap value of the machine was estimated at ₹ 20,000 and its life at 5 years. On 1.1.2015, the machine was sold for ₹ 1,20,000. Another machine of same type was purchased at a cost of ₹ 1,00,000 on that date. The scrap value of the machine was estimated at ₹ 12,000 and its life at 10 years. The installation cost of the first and second machine were ₹ 20,000 and ₹ 4,000 respectively.

Show Machinery Account for the years 2014 and 2015.

[C.U.B.Com. (General) — 2016]

Solution		In the books of ...				
Dr.		Machinery Account				Cr.
Date	Particulars	₹	Date	Particulars	₹	
1.1.2014	To Bank A/c (Cost)	2,00,000	31.12.2014	By Depreciation A/c	40,000	
	To Bank A/c (Installation Cost)	20,000		By Balance c/d	1,80,000	
		2,20,000			2,20,000	
1.1.2015	To Balance b/d	1,80,000	1.1.2015	By Bank A/c	1,20,000	
	To Bank A/c (Cost)	1,00,000		By Loss on Sale of Machinery A/c	60,000	
	To Bank A/c (Installation Cost)	4,000	31.12.2015	By Depreciation A/c	9,200	
		2,84,000		By Balance c/d	94,800	
					2,84,000	
1.1.2016	To Balance b/d	94,800				

Working Notes :

(1) Depreciation for 2014	₹	(2) Depreciation for 2015	₹
Cost of Machinery	2,00,000	Cost of Machinery	1,00,000
Add: Installation Cost	20,000	Add: Installation Cost	4,000
	2,20,000		1,04,000
Less: Scrap Value	20,000	Less: Scrap Value	12,000
Depreciable Amount	2,00,000	Depreciable Amount	92,000
Depreciation = ₹ 2,00,000 ÷ 5	40,000	Depreciation = ₹ 92,000 ÷ 10	9,200

Illustration 14

On 1st January, 2012, X Ltd. purchased 5 machines each costing ₹ 1,50,000. A sum of ₹ 7,500 was spent on freight and insurance and total installation charges came to ₹ 7,500. On 1st July, 2013, one of the machines was sold for ₹ 1,35,000 and was replaced by another machine at a total cost of ₹ 1,20,000.

The firm closes its books on 31st December each year. It charges depreciation at 15% p.a. on fixed instalment method. Prepare Machinery Account for the years 2012 and 2013.

[C.U.B.Com. (General) — 2014]

**Solution
Dr.**

**In the books of X Ltd.
Machinery Account**

Cr.

Date	Particulars	₹	Date	Particulars	₹
1.1.2012	To Bank A/c (Purchase Cost)	7,50,000	31.12.2012	By Depreciation A/c (Note 1)	1,14,750
	To Bank A/c (Freight and Insurance)	7,500		By Balance c/d	6,50,250
	To Bank A/c (Installation)	7,500			
		7,65,000			7,65,000
1.3.2013	To Balance b/d	6,50,250	1.7.2013	By Depreciation A/c (Note 1)	11,475
1.7.2013	To Profit and Loss A/c (Profit on Sale)	16,425	"	By Bank A/c (Sale of old machine)	1,35,000
	To Bank A/c (Purchase Cost)	1,20,000	31.12.2013	By Depreciation A/c (Note 1)	1,00,800
		7,86,675	"	By Balance c/d	5,39,400
					7,86,675

Working Note : (1) Statement of Depreciation [Straight Line Method] [all figures in ₹]

Date	Particulars	4 Machines (Still in use)	1 Machine (Sold out)	New Machine	Total Depreciation
1.1.2012	Original Cost	6,00,000	1,50,000		
	Add: Freight and Insurance	6,000	1,500		
	Add : Installation Charges	6,000	1,500		
	Total Cost	6,12,000	1,53,000		
31.12.2012	Less: Depreciation @ 15%	91,800	22,950		1,14,750
1.1.2013	W.D.V.	5,20,200	1,30,050		
1.7.2013	Less: Depreciation for 6 months @ 15% on ₹ 1,53,000		11,475		11,475
	W.D.V. on 1.7.2013		1,18,575		
	Less: Selling Price		1,35,000		
	Profit on Sale		16,425		
	Cost of new machine purchased on 1.7.2013			1,20,000	
31.12.2013	Less: Depreciation @ 15%	91,800		9,000	1,00,800
		4,28,400		1,11,000	

Illustration 16

Plant and Machinery to the value of ₹ 40,000 was purchased on 1st January, 2011. On 1st July, 2014, the machinery was replaced by a new machine costing ₹ 52,000, the vendor taking the old machine in part exchange at a valuation of ₹ 8,200.

Write up the Plant and Machinery Account for the four years ended 31st December, 2014 providing for depreciation by writing 10% off the diminishing value of the plant and machinery employed at the end of each year.

[C.U.B.Com. (Hons.) — 2015]

Solution

Dr.			Plant and Machinery Account			Cr.		
Date	Particulars	₹	Date	Particulars	₹			
1.1.2011	To Bank A/c (Purchased)	40,000	31.12.2011	By Depreciation A/c (Note 1)	4,000			
				By Balance c/d	36,000			
		40,000			40,000			
1.1.2012	To Balance b/d	36,000	31.12.2012	By Depreciation A/c (Note 2)	3,600			
				By Balance c/d	32,400			
		36,000			36,000			
1.1.2013	To Balance b/d	32,400	31.12.2013	By Depreciation A/c (Note 3)	3,240			
				By Balance c/d	29,160			
		32,400			32,400			
1.1.2014	To Balance b/d	29,160	1.7.2014	By Depreciation A/c (Note 4)	1,458			
1.7.2014	To Bank A/c	52,000		By Vendor A/c	8,200			
				By Loss on Exchange of Machinery A/c (Note 5)	19,502			
			31.12.2014	By Depreciation A/c (Note 4)	2,600			
				By Balance c/d	49,400			
		81,160			81,160			

Dr.			Vendor Account			Cr.		
Date	Particulars	₹	Date	Particulars	₹			
1.7.2014	To Plant and Machinery A/c (Old) (taken over)	8,200	1.7.2014	By Plant and Machinery A/c	52,000			
"	To Bank A/c	43,800						
		52,000			52,000			

Working Notes :**(1) Depreciation of 2011**

10% of ₹ 40,000 for one year ₹ 4,000

(1) Depreciation of 2012

10% of (₹ 40,000 – 4,000) for one year ₹ 3,600

(1) Depreciation of 2013

10% of (₹ 36,000 – 3,600) for one year ₹ 3,240

(1) Depreciation of Old Machinery

10% of (₹ 32,400 – 3,240) for half-year ₹ 1,458

(1) Calculation of Loss on Exchange of Old Machine

Book Value as on 1.1.2014 29,160

Less: Depreciation up to the date of sale on 1.7.2014 1,458

27,702

Less: Exchange Value (agreed) 8,200

19,502

Illustration 17

On 01.01.2010 Machinery was purchased by Mr. A Dasgupta for ₹ 80,000. On 01.07.2011 additions were made to the extent of ₹ 14,000. On 01.04.2012 further additions of ₹ 8,200 were made.

On 30th June, 2013, machinery, original value of which was ₹ 12,000 on 01.01.2010 was sold for ₹ 10,000. Depreciation is charged at 10% p.a. on original cost.

Show the Machinery Account for the years from 2010 to 2013 in the books of Mr. A Dasgupta who closes his books on 31st December every year.

[C.U.B.Com. (Hons.) — 2014]

Solution

In the books of Mr A. Dasgupta Machinery Account

Dr.			Cr.		
Date	Particulars	₹	Date	Particulars	₹
1.1.2010	To Bank A/c (Cost – M-I)	80,000	31.12.2010	By Depreciation A/c	8,000
				By Balance c/d	72,000
		80,000			80,000
1.1.2011	To Balance c/d	72,000	31.12.2011	By Depreciation A/c	8,700
1.7.2011	To Bank A/c (Cost – M-II)	14,000		By Balance c/d	77,300
		86,000			86,000
1.1.2012	To Balance b/d	77,300	31.12.2012	By Depreciation A/c	10,015
1.4.2012	To Bank (Cost – M-III)	8,200		By Balance c/d	75,485
		85,500			85,500
1.1.2013	To Balance b/d	75,485	30.6.2013	By Depreciation A/c (Sold out machine)	600
30.6.2013	To Profit and Loss A/c (Profit)	2,200		By Bank A/c	10,000
			31.12.2013	By Depreciation A/c	9,020
				By Balance c/d	58,065
		77,685			77,685

Working Notes :

Calculation of Depreciation [Method : Straight Line]

Date	Particulars	Machine I		Machine II	Machine III	Total Depreciation
		Sold	Retained			
1.1.2010	Cost	12,000	68,000			
31.12.2010	Depreciation @ 10% of original cost	1,200	6,800			8,000
1.1.2011	W.D.V.	10,800	61,200			
1.7.2011	Cost			14,000		
31.12.2011	Depreciation @ 10% of original cost	1,200	6,800	700		8,200
1.1.2012	W.D.V.	9,600	54,400	13,300		
1.4.2012	Cost				8,200	
31.12.2012	Depreciation @ 10% of original cost	1,200	6,800	1,400	615	10,015
1.1.2013	W.D.V.	8,400	47,600	11,900	7,585	
30.6.2013	Depreciation @ 10% of original cost for 1/2 year	600				
		7,800				
	Selling Price	10,000				
	Pront on Sale of Machinery	2,200				
31.12.2013	Depreciation @ 10% of original cost		6,800	1,400	820	9,020
1.1.2014	W.D.V.		40,800	10,500	6,765	

1.1.2014 — Balance of Machinery Account, i.e., W.D.V. = (40,800 + 10,500 + 6,765) = ₹ 58,065.

Illustration 21

On 1 January, 2001 a company purchased a machine at a cost of ₹ 80,000. In order to provide sufficient fund for replacement of the machine at the end of its working life it decided to create a Sinking fund and to invest the amount in Government Securities bearing interest @ 5% per annum. The working life of the machine was 4 years and estimated scrap value was ₹ 16,000.

The machine became obsolete and was sold at ₹ 30,000 on 31 December, 2003. The Government Securities were sold at a profit of ₹ 3,000. A new machine was purchased on 1 January, 2004 at ₹ 1,20,000. Sinking Fund Table shows that ₹ 0.2320 invested each year will produce ₹ 1 at the end of 4 years at 5% annual interest.

Prepare Machinery Account, Sinking Fund Account and Sinking Fund Investment Account.

[C.U.B.Com. (Hons.) — 2004]

Solution

Amount required = ₹ 80,000 – ₹ 16,000 = ₹ 64,000. Annual contribution = ₹ 64,000 × 0.232 = ₹ 14,848.

In the Books of ...					
Machinery Account			Cr.		
Dr.		₹			₹
Date	Particulars		Date	Particulars	
1.1.2001	To Bank A/c	80,000	30.12.2001	By Balance c/d	80,000
1.1.2002	To Balance b/d	80,000	30.12.2002	By Balance c/d	80,000
1.1.2003	To Balance b/d	80,000	30.12.2003	By Bank A/c	30,000
			"	By Sinking Fund A/c	49,808
			"	By Profit & Loss A/c (Loss on sale)	192
		80,000			80,000

Sinking Fund Account					
Dr.		₹			₹
Date	Particulars		Date	Particulars	
31.12.2001	To Balance c/d	14,848	31.12.2001	By Depreciation A/c	14,848
31.12.2002	To Balance c/d	30,438	1.1.2002	By Balance b/d	14,848
				By Interest on Investment A/c	742
			31.12.2002	By Depreciation A/c	14,848
		30,438			30,438

31.12.2003	To Machinery A/c	49,808	1.1.2003	By Balance b/d	30,438
			31.12.2003	By Interest on Investment A/c	1,572
			"	By Depreciation A/c	14,848
			"	By Sinking Fund Investment A/c (Profit)	3,000
		49,808			49,808

Sinking Fund Investment Account					
Dr.		₹			₹
Date	Particulars		Date	Particulars	
31.12.2001	To Bank A/c	14,848	31.12.2001	By Balance c/d	14,848
1.1.2002	To Balance b/d	14,848	31.12.2002	By Balance c/d	30,438
31.12.2002	To Bank A/c (742 + 14,838)	15,590			
		30,438			30,438
1.1.2003	To Balance b/d	30,438	31.12.2003	By Bank A/c (Sales)	33,438
31.12.2003	To Sinking Fund A/c (Profit)	3,000			
		33,438			33,438