**Depreciation**

**Depreciation** is the decrease in value of assets. Generally the cost is allocated, as depreciation expense. Such expense is recognized by businesses for financial reporting and tax purposes. Methods of computing depreciation may vary by asset for the same business. Methods and lives may be specified in accounting and/or tax rules in a country. Several standard methods of computing depreciation expense may be used, including straight line and declining balance methods.

In determining the profits (net income) from an activity, the receipts from the activity must be reduced by appropriate costs. The cost of an asset so allocated is the difference between the amount paid for the asset and the amount expected to be received upon its disposition. The asset is referred to as a depreciable asset. Depreciation is a method of allocation, not valuation.

Any business or income producing activity using tangible assets may incur costs related to those assets. Where the assets produce benefit in future periods, the costs must be deferred rather than treated as a current expense. The business then records depreciation expense as an allocation of such costs for financial reporting. Generally this involves four criteria:

* cost of the asset,
* expected salvage value, also known as residual value of the asset,
* estimated useful life of the asset, and
* a method of apportioning the cost over such life.

**Accumulated depreciation**

While depreciation expense is recorded on the income statement of a business, its impact is generally recorded in a separate account and disclosed on the balance sheet as accumulated depreciation, under fixed assets.

The values of the fixed assets stated on the balance sheet will decline, even if the business has not invested in or disposed of any assets. The amounts will roughly approximate fair value. Otherwise, depreciation expense is charged against accumulated depreciation. Showing accumulated depreciation separately on the balance sheet has the effect of preserving the historical cost of assets on the balance sheet.

## Methods of depreciation

There are several methods for calculating depreciation, generally based on either the passage of time or the level of activity (or use) of the asset.

### Straight-line depreciation

Straight-line depreciation is the simplest and most-often-used technique, in which the company estimates the salvage value of the asset at the end of the period during which it will be used to generate revenues (useful life) and will expense a portion of original cost in equal increments over that period. The salvage value is an estimate of the value of the asset at the time it will be sold or disposed of; it may be zero. Salvage value is also known as scrap value or residual value.

**Straight-line method:**

\mbox{Annual Depreciation Expense} = {\mbox{Cost of Fixed Asset} - \mbox{Residual Value} \over \mbox{Useful Life of Asset} (years)}

For example, a vehicle that depreciates over 5 years, is purchased at a cost of **US$17,000**, and will have a salvage value of **US$2000**, will depreciate at **US$3,000** per year: **($17,000 − $2,000)/ 5 years = $3,000** annual straight-line**depreciation expense**. In other words, it is the **depreciable cost** of the asset divided by the number of years of its useful life.

This table illustrates the straight-line method of depreciation. Book value at the beginning of the first year of depreciation is the original cost of the asset. At any time book value equals original cost minus accumulated depreciation.

**book value = original cost − accumulated depreciation** Book value at the end of year becomes book value at the beginning of next year. The asset is depreciated until the book value equals scrap value.

|  |  |  |  |
| --- | --- | --- | --- |
| **Book value at beginning of year** | **Depreciation expense** | **Accumulated depreciation** | **Book value at end of year** |
| **$17,000 (original cost)** | $3,000 | $3,000 | $14,000 |
| $14,000 | $3,000 | $6,000 | $11,000 |
| $11,000 | $3,000 | $9,000 | $8,000 |
| $8,000 | $3,000 | $12,000 | $5,000 |
| $5,000 | $3,000 | **$15,000** | **$2,000 (scrap value)** |

Syntax

SLN(cost, salvage, life)

The SLN function syntax has the following [arguments (argument: A value that provides information to an action, an event, a method, a property, a function, or a procedure.)](javascript:AppendPopup(this,'ofArgument_2_2')):

* **Cost** Required. The initial cost of the asset.
* **Salvage** Required. The value at the end of the depreciation (sometimes called the salvage value of the asset).
* **Life** Required. The number of periods over which the asset is depreciated (sometimes called the useful life of the asset).

Example

After you copy the example to a blank worksheet, you can adapt it to suit your needs.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | |  | | **1** | | **2** | | **3** | | **4** | | **5** | | **6** | | |  |  | | --- | --- | | **A** | **B** | | **Data** | **Description** | | 30,000 | Cost | | 7,500 | Salvage value | | 10 | Years of useful life | | **Formula** | **Description (Result)** | | =SLN(A2, A3, A4) | The depreciation allowance for each year (2,250) | |

### Declining-balance method (or Reducing balance method)

Depreciation methods that provide for a higher depreciation charge in the first year of an asset's life and gradually decreasing charges in subsequent years are called **accelerated depreciation methods**. This may be a more realistic reflection of an asset's actual expected benefit from the use of the asset: many assets are most useful when they are new. One popular accelerated method is the **declining-balance method**. Under this method the book value is multiplied by a fixed rate.

**Annual Depreciation = Depreciation Rate** \* **Book Value at Beginning of Year**

The most common rate used is double the straight-line rate. For this reason, this technique is referred to as the **double-declining-balance method**. To illustrate, suppose a business has an asset with **$1,000** original cost, **$100**salvage value, and **5 years** useful life. First, calculate straight-line depreciation rate. Since the asset has 5 years useful life, the straight-line depreciation rate equals **(100% / 5) = 20%** per year. With double-declining-balance method, as the name suggests, double that rate, or **40%** depreciation rate is used. The table below illustrates the double-declining-balance method of depreciation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Book value at beginning of year** | **Depreciation rate** | **Depreciation expense** | **Accumulated depreciation** | **Book value at end of year** |
| **$1,000 (original cost)** | 40% | $400 | $400 | $600 |
| $600 | 40% | $240 | $640 | $360 |
| $360 | 40% | $144 | $784 | $216 |
| $216 | 40% | $86.40 | $870.40 | $129.60 |
| $129.60 | $129.60 - $100 | $29.60 | **$900** | **$100 (scrap value)** |

When using the double-declining-balance method, the salvage value is not considered in determining the annual depreciation, but the book value of the asset being depreciated is never brought below its salvage value, regardless of the method used. The process continues until the salvage value or the end of the asset's useful life, is reached. In the last year of depreciation a subtraction might be needed in order to prevent book value from falling below estimated Scrap Value.

Description

Returns the depreciation of an asset for a specified period using the double-declining balance method or some other method you specify.

Syntax

DDB(cost, salvage, life, period, [factor])

The DDB function syntax has the following [arguments (argument: A value that provides information to an action, an event, a method, a property, a function, or a procedure.)](javascript:AppendPopup(this,'ofArgument_2_2')):

* **Cost** Required. The initial cost of the asset.
* **Salvage** Required. The value at the end of the depreciation (sometimes called the salvage value of the asset). This value can be 0.
* **Life** Required. The number of periods over which the asset is being depreciated (sometimes called the useful life of the asset).
* **Period** Required. The period for which you want to calculate the depreciation. Period must use the same units as life.
* **Factor** Optional. The rate at which the balance declines. If factor is omitted, it is assumed to be 2 (the double-declining balance method).

Remarks

* The double-declining balance method computes depreciation at an accelerated rate. Depreciation is highest in the first period and decreases in successive periods. DDB uses the following formula to calculate depreciation for a period:
* Min( (cost - total depreciation from prior periods) \* (factor/life), (cost - salvage - total depreciation from prior periods) )
* Change factor if you do not want to use the double-declining balance method.

Example

After you copy the example to a blank worksheet, you can adapt it to suit your needs.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | |  | | **1** | | **2** | | **3** | | **4** | | **5** | | **6** | | **7** | | **8** | | **9** | | |  |  | | --- | --- | | **A** | **B** | | **Data** | **Description** | | 2400 | Initial cost | | 300 | Salvage value | | 10 | Lifetime in years | | **Formula** | **Description (Result)** | |  |  | | =DDB(A2,A3,A4\*12,1,2) | First month's depreciation (40.00) | | =DDB(A2,A3,A4,1,2) | First year's depreciation (480.00) | | =DDB(A2,A3,A4,2,1.5) | Second year's depreciation using a factor of 1.5 instead of the double-declining balance method (306.00) | | =DDB(A2,A3,A4,10) | Tenth year's depreciation. Microsoft Excel automatically assumes that factor is 2 (22.12) | |