1

The Cost of Property, Plant, Equipment

The cost of property, plant, and equipment includes the purchase price of the asset and all expenditures necessary to prepare the asset for its intended use.

**Land**. Land purchases often involve real estate commissions, legal fees, bank fees, title search fees, and similar expenses. To be prepared for use, land may need to be cleared of trees, drained and filled, graded to remove small hills and depressions, and landscaped. In addition, old buildings may need to be demolished before the company can use the land. Such demolition expenses are considered part of the land's cost. For example, if a company purchases land for $100,000, pays an additional $3,000 in closing costs, and pays $22,000 to have an old warehouse on the land demolished, then the company records the cost of the land at $125,000.

**Land improvements**. The cost of land improvements includes all expenditures associated with making the improvements ready for use. For example, when one business contracts with another business to put a parking lot on a piece of land, the cost of the parking lot is simply the agreed-upon price. A company that builds its own parking lot would determine the lot's cost by combining the cost of materials and wages paid to employees for building the lot.

**Buildings**. The cost of buildings includes the purchase price and all closing costs associated with the acquisition of the buildings, including payments by the purchaser for back taxes owed. Remodeling an acquired building and making repairs necessary for it to be used are also considered part of the cost. If a building is constructed for the company over an extended period, interest payments to finance the structure are included in the cost of the asset only while construction takes place. After construction is complete and the building is ready for productive use, interest payments are classified as interest expense.

**Equipment, vehicles, and furniture**. The cost of equipment, vehicles, and furniture includes the purchase price, sales taxes, transportation fees, insurance paid to cover the item during shipment, assembly, installation, and all other costs associated with making the item ready for use. These costs do not include such things as motor vehicle licensing and insurance, however, even if they are paid when a vehicle purchase occurs. Expenses of this type are normal, recurring operational expenses that do not add lasting value to the vehicle.

2

## Depreciating Assets

**Depreciation** expense is used to better match the expense of a long-term asset to the revenue it generates. ... The most common **depreciation methods** include: Straight-line, Double declining balance & Units of production.

One method is known as **straight line** basis. For **example**, a piece of equipment with a useful life of 8 years may cost $14,000. At the end of 8 years, the asset has a salvage value of $2,000.

The amount of **depreciation** taken during each year of its useful life, on a **straight line** basis, is $1,500.

For double-declining **depreciation**, though, your **formula** is (2 x straight-line **depreciation** rate) x Book value of the asset at the beginning of the year. The straight line **depreciation** rate is the percentage of the asset's cost minus salvage value that you are paying as seen above.

To **calculate depreciation** using the double-declining **method**, it's possible to double the amount of **depreciation** expense under the straight-line **method**. To do this, divide 100 per cent by the number of years of useful life of the asset. Then, multiply this rate by 2.

## What Are the Main Types of Depreciation Methods?

There are several types of depreciation expense and different formulas for determining the book value of an asset. The most common depreciation methods include:

1. *Straight-line*
2. *Double declining balance*
3. *Units of production*
4. Sum of years digits

Depreciation expense is used in accounting to allocate the cost of a tangible asset over its useful life. In other words, it is the reduction of value in an asset over time due to usage, wear and tear, or obsolescence.  The four main depreciation methods mentioned are explained in detail below.

## #1 Straight-Line Depreciation Method

Straight-line depreciation is a very common and simple method of calculating the expense. In straight-line depreciation, the expense amount is the same every year over the useful life of the asset.

**Depreciation Formula for the Straight Line Method:**

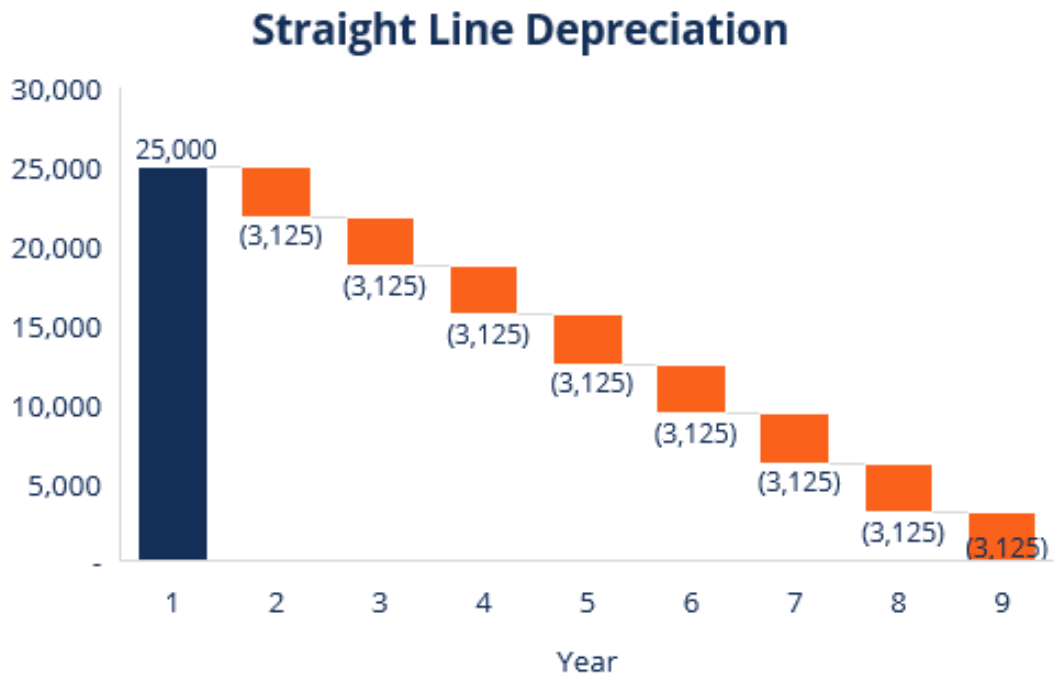
**Depreciation Expense = (Cost – Salvage value) / Useful life**

## Example

Consider a piece of equipment that costs $25,000 with an estimated useful life of 8 years and a $0 salvage value. The depreciation expense per year for this equipment would be as follows:

| Year # | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| **Straight Line** | | | | | | | | |
| Opening Book Value | | 25,000 | 21,875 | 18,750 | 15,625 | 12,500 | 9,375 | 6,250 |
| Depreciation | 8 | 3,125 | 3,125 | 3,125 | 3,125 | 3,125 | 3,125 | 3,125 |
| Ending Book Value | 25,000 | 21,875 | 18,750 | 15,625 | 12,500 | 9,375 | 6,250 | 3,125 |

**Depreciation Expense = ($25,000 – $0) / 8 = $3,125 per year**




## #2 Double Declining Balance Depreciation Method

Compared to other depreciation methods, double-declining-balance results in larger expense in the earlier years as opposed to the later years of an asset's useful life. The method reflects the fact that assets are more productive in its early years than in its later years. With the double-declining-balance method, the depreciation factor is 2x that of a straight line expense method.

**Depreciation formula for the double declining balance method:**

**Periodic Depreciation Expense = Beginning book value x Rate of depreciation**

## Example

Consider a piece of equipment that costs $25,000 with an estimated useful life of 8 years and a $2,500 salvage value. To calculate the double declining balance depreciation, set up a schedule:

| Year # | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| **DDB** | | | | | | | | |
| Opening Book Value | | 25,000 | 18,750 | 14,063 | 10,547 | 7,910 | 5,933 | 4,449 |
| Depreciation | 25% | 6,250 | 4,688 | 3,516 | 2,637 | 1,978 | 1,483 | 1,112 |
| Ending Book Value | 25,000 | 18,750 | 14,063 | 10,547 | 7,910 | 5,933 | 4,449 | 3,337 |

The information on the schedule is explained below:

1. The beginning book value of the asset is filled in at the beginning of year 1 and the salvage value is filled in at the end of year 8.
2. The rate of depreciation (Rate) is calculated as follows:

**Expense = (100% / Useful life of asset) x 2 ….(1/life) x 2**

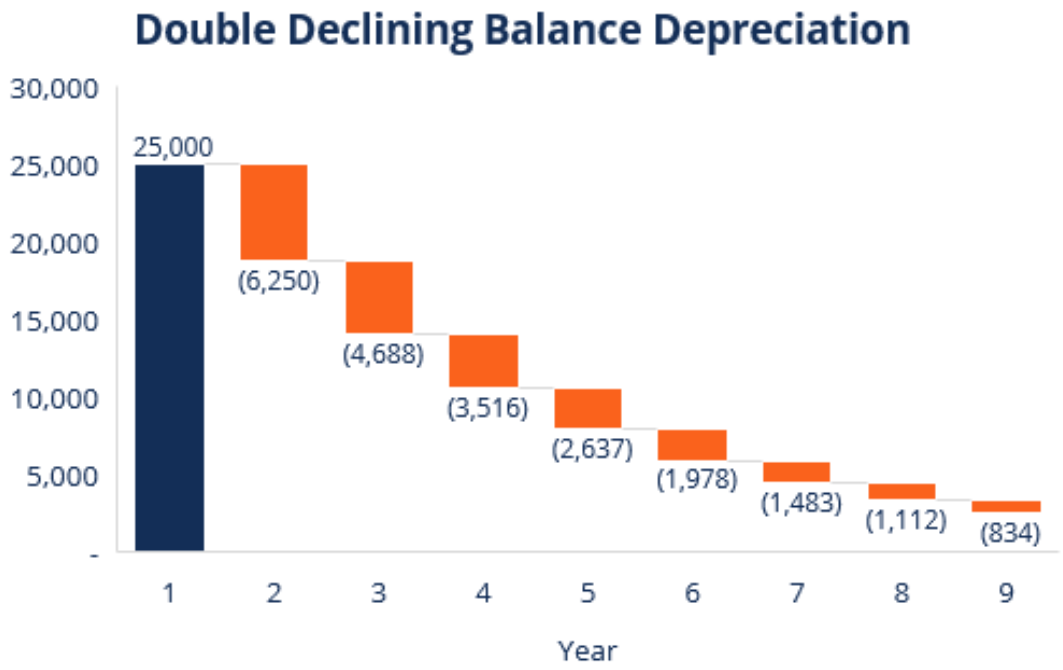
**Expense = (100% / 8) x 2 = 25%**

Note: Since this is a double declining method**,** we multiply the rate of depreciation by 2.

3. Multiply the rate of depreciation by the beginning book value to determine the expense for that year. For example, $25,000 x 25% = $6,250 depreciation expense.

4. Subtract the expense from the beginning book value to arrive at the ending book value. For example, $25,000 – $6,250 = $18,750 ending book value.

5. The ending book value for that year is the beginning book value for the following year. For example, the year 1 ending book value of $18,750 would be the year 2 beginning book value. Repeat this until the last year of useful life.




### #3 Units of Production Depreciation Method

Units-of-production depreciation method depreciates assets based on the total number of hours used or the total number of units to be produced over its useful life.

**The formula for the units-of-production method:**

**Depreciation Expense = (Number of units produced / Life in number of units) x (Cost – Salvage value)**

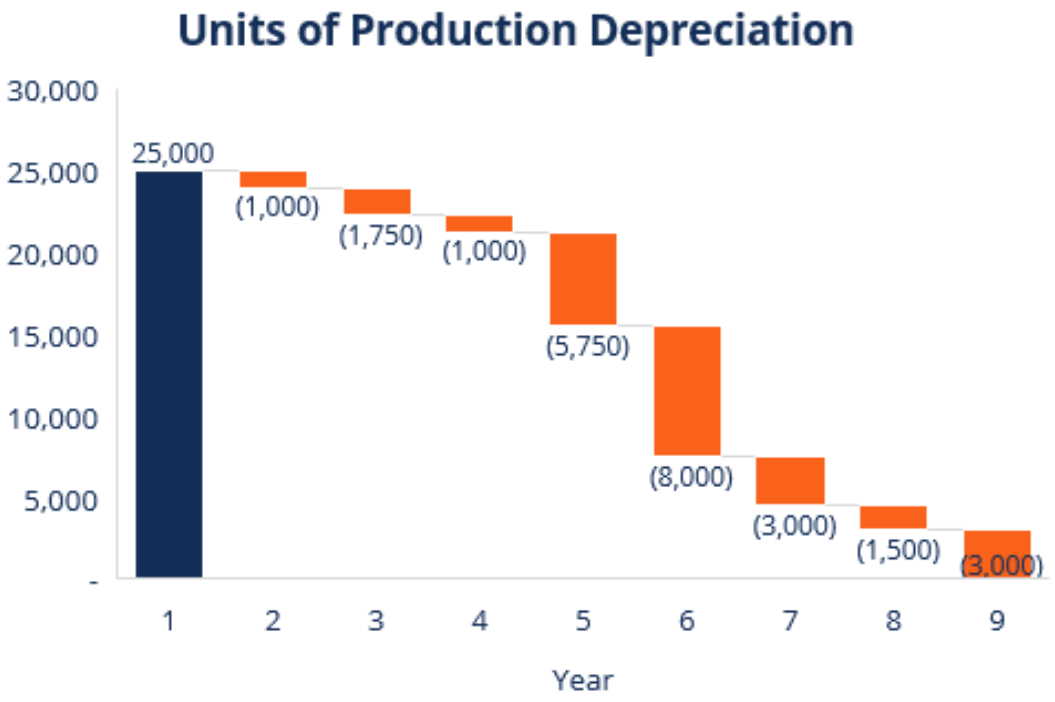
### Example

Consider a machine that costs $25,000 with an estimated total unit production of 100 million and a $0 salvage value. During the first quarter of activity, the machine produced 4 million units.

| Year # | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| **Units** | | | | | | | | |
| Production (Units) | | 4 | 7 | 4 | 23 | 32 | 12 | 6 |
| Opening Book Value | | 25,000 | 24,000 | 22,250 | 21,250 | 15,500 | 7,500 | 4,500 |
| Depreciation | | 1,000 | 1,750 | 1,000 | 5,750 | 8,000 | 3,000 | 1,500 |
| Ending Book Value | 25,000 | 24,000 | 22,250 | 21,250 | 15,500 | 7,500 | 4,500 | 3,000 |

To calculate the depreciation expense using the formula above:

**Depreciation Expense = (4 million / 100 million) x ($25,000 – $0) = $1,000**




### #4 Sum-of-the-Years-Digits Depreciation Method

Sum-of-the-years-digits method is one of the accelerated depreciation methods. A higher expense is incurred in the early years while lower expense is incurred in the latter years of the asset.

In sum-of-the-years digits depreciation method, the remaining life of an asset is divided by the sum of the years and then multiplied by the depreciating base to determine the expense.

**The depreciation formula for the sum-of-the-years-digits method:**

**Depreciation Expense = (Remaining life / Sum of the years digits) x (Cost – Salvage value)**

Consider the following example to more easily understand the concept of the sum-of-the-years-digits depreciation method.

## Example

Consider a piece of equipment that costs $25,000 with an estimated useful life of 8 years and a $0 salvage value. To calculate the sum-of-the-years-digits depreciation method, set up a schedule:

| Year # | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| **SYD** | | | | | | | | |
| Remaining Life | | 8 | 7 | 6 | 5 | 4 | 3 | 2 |
| Opening Book Value | | 25000 | 19,444 | 14,583 | 10,417 | 6,944 | 4,167 | 2,083 |
| Depreciation | | 5,556 | 4,861 | 4,167 | 3,472 | 2,778 | 2,083 | 1,389 |
| Ending Book Value | 25,000 | 19,444 | 14,583 | 10,417 | 6,944 | 4,167 | 2,083 | 694 |

The information in the schedule is explained below:

1. The depreciation base is constant throughout the years and is calculated as follows:

**Depreciation Base = Cost – Salvage value**

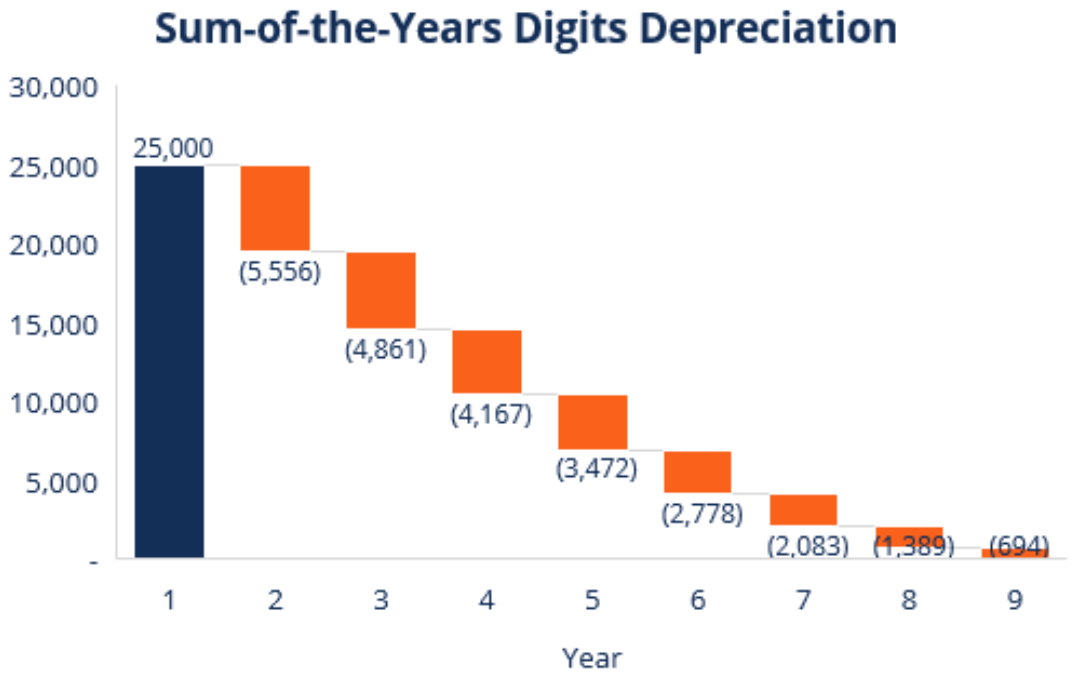
**Depreciation Base = $25,000 – $0 = $25,000**

2. The remaining life is simply the remaining life of the asset. For example, at the beginning of the year, the asset has a remaining life of 8 years. The following year, the asset has a remaining life of 7 years, etc.

3. RL / SYD is “remaining life divided by sum of the years.” In this example, the asset has a useful life of 8 years. Therefore, the sum of the years would be 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 = 36 years. The remaining life in the beginning of year 1 is 8. Therefore, the RM / SYD = 8 / 36 = 0.2222.

4. The RL / SYD number is multiplied by the depreciating base to determine the expense for that year.

5. The same is done for the following years. In the beginning of year 2, RL / SYD would be 7 / 36 = 0.1944. 0.1944 x $25,000 = $4,861 expense for year 2.

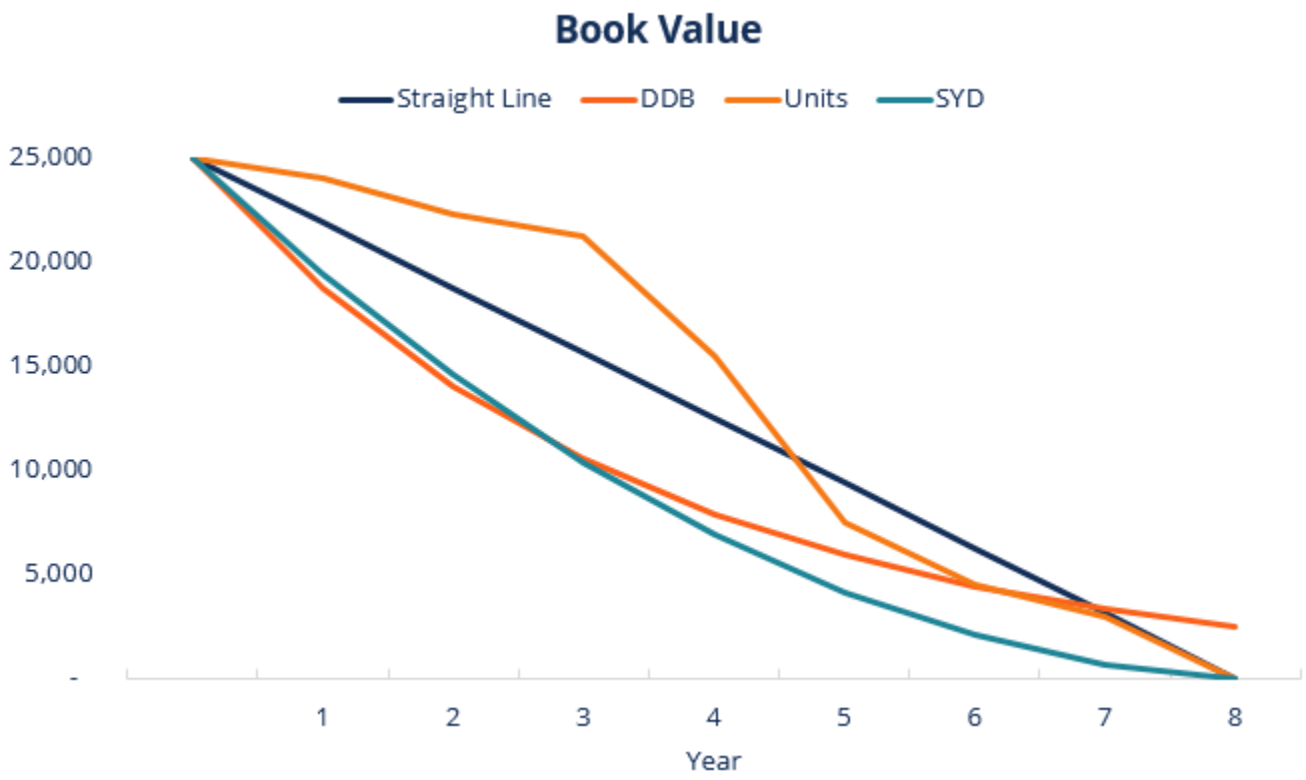



## Summary of Depreciation Methods

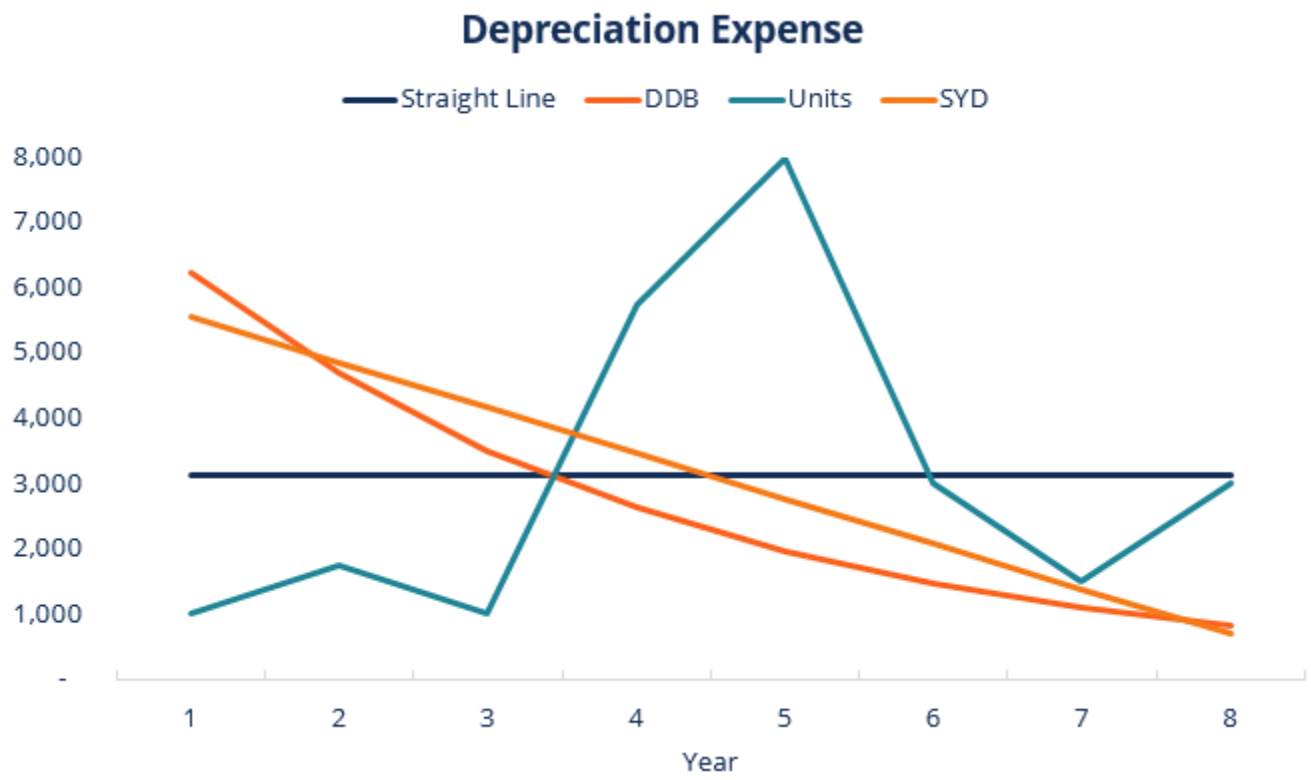
Below is the summary of all four depreciation methods from the examples above.

| Year # | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| **Straight Line** | | | | | | | | |
| Opening Book Value | | 25,000 | 21,875 | 18,750 | 15,625 | 12,500 | 9,375 | 6,250 |
| Depreciation | 8 | 3,125 | 3,125 | 3,125 | 3,125 | 3,125 | 3,125 | 3,125 |
| Ending Book Value | 25,000 | 21,875 | 18,750 | 15,625 | 12,500 | 9,375 | 6,250 | 3,125 |
| **DDB** | | | | | | | | |
| Opening Book Value | | 25,000 | 18,750 | 14,063 | 10,547 | 7,910 | 5,933 | 4,449 |
| Depreciation | 25% | 6,250 | 4,688 | 3,516 | 2,637 | 1,978 | 1,483 | 1,112 |
| Ending Book Value | 25,000 | 18,750 | 14,063 | 10,547 | 7,910 | 5,933 | 4,449 | 3,337 |
| **Units** | | | | | | | | |
| Production (Units) | | 4 | 7 | 4 | 23 | 32 | 12 | 6 |
| Opening Book Value | | 25,000 | 24,000 | 22,250 | 21,250 | 15,500 | 7,500 | 4,500 |
| Depreciation | | 1,000 | 1,750 | 1,000 | 5,750 | 8,000 | 3,000 | 1,500 |
| Ending Book Value | 25,000 | 24,000 | 22,250 | 21,250 | 15,500 | 7,500 | 4,500 | 3,000 |
| **SYD** | | | | | | | | |
| Remaining Life | | 8 | 7 | 6 | 5 | 4 | 3 | 2 |
| Opening Book Value | | 25000 | 19,444 | 14,583 | 10,417 | 6,944 | 4,167 | 2,083 |
| Depreciation | | 5,556 | 4,861 | 4,167 | 3,472 | 2,778 | 2,083 | 1,389 |
| Ending Book Value | 25,000 | 19,444 | 14,583 | 10,417 | 6,944 | 4,167 | 2,083 | 694 |

Here is a graph of the book value of an asset over time with each method.




Here is a summary of the expense over time for each of the 4 types of depreciation expense.




https://corporatefinanceinstitute.com/resources/knowledge/accounting/types-depreciation-methods/

3

## Lump Sum Purchase

### Definition

The term lump sum purchase refers to an agreement that involves a single price paid for a bundle, or group, of assets. Since the lump sum purchase can involve several asset classes, it's necessary to allocate the price paid to each asset so the purchase can be accurately reflected on the company's balance sheet.

### Explanation

It's fairly common for a company to purchase a group of assets, and not explicitly identify the price paid for each item as part of the purchase agreement. The classic example would be the purchase of a building. The buyer may have paid one price for the building, land, and equipment inside the structure.

The accountant's challenge is to assign book values to each asset type. This can be accomplished using an appraisal of each item's fair market value and assigning a pro rata share of the purchase price to each. This information can be refined if the seller provides the remaining book value of each asset to the buyer.

Example

Company A has entered into an agreement to purchase a call center from Company XYZ. As part of the agreement, Company A is entitled to the land, office building, as well as the telecommunications equipment. Company A has negotiated a lump sum purchase price of $30,000,000.

In this example, we'll assume the assets are of three types: telecommunications equipment, building, and land. Company A's insurance appraiser indicated the land is valued at $2,000,000, the building at $34,000,000 and the telecommunications equipment at $4,000,000. With this information the following allocation was performed by Company A's accounting department:

| | Fair Market Value | % of Total | Allocation of Lump Sum |
|---|---|---|---|
| Land | $2,000,000 | 5.0% | $1,500,000 |
| Building | $34,000,000 | 85.0% | $25,500,000 |
| Equipment | $4,000,000 | 10.0% | $3,000,000 |
| Totals | $40,000,000 | 100.0% | $30,000,000 |

4

Last-In, First-Out (LIFO) Method

Last-In, First-Out is one of the common techniques used in the valuation of inventory on hand at the end of a period and the cost of goods sold during the period. LIFO assumes that goods which made their way to inventory (after purchase, manufacture etc.) later are sold first and those which are manufactured or acquired early are sold last. Thus LIFO assigns the cost of newer inventory to cost of goods sold and cost of older inventory to ending inventory account. This method is exactly opposite to first-in, first-out method.
Last-In, First-Out method is used differently under periodic inventory system and perpetual inventory system. Let us use the same example that we used in FIFO method to illustrate the use of last-in, first-out method.

Example

Use LIFO on the following information to calculate the value of ending inventory and the cost of goods sold of March.

| | | |
|---|---|---|
| Mar 1 | Beginning Inventory | 60 units @ $15.00 |
| 5 | Purchase | 140 units @ $15.50 |
| 14 | Sale | 190 units @ $19.00 |
| 27 | Purchase | 70 units @ $16.00 |
| 29 | Sale | 30 units @ $19.50 |

Solution

LIFO Periodic

Units Available for Sale = 60 + 140 + 70 = 270

| | | |
|---|---|---|
| Units Sold | = 190 + 30 | = 220 |
| Units in Ending Inventory | = 270 − 220 | = 50 |

| **Cost of Goods Sold** | **Units** | **Unit Cost** | **Total** |
|---|---|---|---|
| Sales From Mar 27 Inventory | 70 | $16.00 | $1,120 |
| Sales From Mar 5 Purchase | 140 | $15.50 | $2,170 |
| Sales From Mar 1 Purchase | 10 | $15.00 | $150 |
| | **220** | | **$3440** |

| **Ending Inventory** | **Units** | **Unit Cost** | **Total** |
|---|---|---|---|
| Inventory From Mar 27 Purchase | 50 | $15.00 | $750 |

LIFO Perpetual

| **Date** | **Purchases** | | | **Sales** | | | **Balance** | | |
|---|---|---|---|---|---|---|---|---|---|
| | Units | Unit Cost | Total | Units | Unit Cost | Total | Units | Unit Cost | Total |
| Mar 1 | | | | | | | 60 | $15.00 | $900 |
| 5 | 140 | $15.50 | $2,170 | | | | 60 | $15.00 | $900 |
| | | | | | | | 140 | $15.50 | $2,170 |
| 14 | | | | 140 | $15.50 | $2,170 | 10 | $15.00 | $150 |
| | | | | 50 | $15.00 | $750 | | | |
| 27 | 70 | $16.00 | $1,190 | | | | 10 | $15.00 | $150 |
| | | | | | | | 70 | $16.00 | $1,120 |
| 29 | | | | 30 | $16.00 | $480 | 10 | $15.00 | $150 |
| | | | | | | | 40 | $16.00 | $640 |
| 31 | | | | | | | 10 | $15.00 | $150 |
| | | | | | | | 40 | $16.00 | $640 |

5

Dividing Partnership Net Income

Phil LaRue and Russ Small have decided to form a partnership. They have agreed that LaRue is to invest $16,000 and Small $24,000. LaRue is to devote full-time to the business and Small one half time. The following plans for division of income are being considered:
a. Equal division
b. In the ratio of original investments
c. In the ratio of time being devoted to the business
d. Interest of 10% on original investments and the remainder in the ratio of 3:2
e. Interest of 10% on original investments, salary allowances of $30,000 to LaRue and $15,000 to Small, and the remainder equally.
f. Plan (e) except that LaRue is also to be allowed a bonus equal to 20% of the amount by which net income exceeds the salary allowances.

For each plan, determine the division of net income under each of the following assumptions: (1) net income of $135,000 and (2) net income of $60,000.

Complete calculations are shown for each plan using a net income of $135,000. A checking answer is given for each plan using a net income of $60,000.



**Solution Preview**

Complete calculations are shown for each plan using (1) net income of $135,000 and a checking answer is given for each plan using (2) net income of $60,000.

The attached MS Word document also contains the problem solutions.

Thank you for using BrainMass.com. Have a great day!

Solutions:
a 1. Equal division 135,000 / 2 = $67,500 each a 2. $30,000 each
b 1. Ratio of original investment
LaRue $16,000 + Small $24,000 = Total $40,000
LaRue = $16,000 / $40,000 = 40% or 2/5 Small = $24,000 / $40,000 = 60% ...

Solution Summary
This solution is comprised of a detailed explanation along with calculations of how to determine what share of the net income each partner will receive. The following methods for sharing the net income are illustrated:
a. Equal division.
b. Ratio of original investments.
c. Ratio of time being devoted to the business.
d. Interest on original investments and the remainder as a ratio.
e. Interest on original investments, salary allowances, and the remainder equally.
f. Interest on original investments, salary allowances, bonus allowance, and the remainder equally.