

Quadrant II – Notes

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Subject: Computer Science

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Paper Title: Computer Applications for Business I

Unit: 02

Module Name: Depreciation Accounting

Module No: 20

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Depreciation

The word depreciation has been derived from the Latin word 'Depretium' which means 'decline in price' or 'value'. Depreciation relates to fixed assets which lose value on account of usage. Depreciation is a part of the operating cost. It is the reduction in the value of an asset. The decrease in the value of an asset is due to its use, caused by wear and tear or any other reason. The decrease in the value of an asset is gradual and continuous.

Assessment and Allocation of Depreciation depends on the depreciable asset's original cost, estimated residual value (Salvage) and expected useful life.

Original Cost includes payment to vendors, transportation, customs, installation, initial repairs to second hand assets etc.

Estimated residual value (Salvage) is the amount likely to be realized on the disposition of asset as a scrap.

Expected useful life is the depreciable asset's effective service, expressed in periods, to the organization. It is based on various factors

such as physical potentiality of an asset, maintenance, magnitude of use, legal requirements, obsolescence and the policy of the firm.

Functions in Spreadsheets for Depreciation

The two spreadsheet functions for depreciation which will be covered are i) Straight Line Method function SLN() and ii) Reducing Balance/ Declining Balance function DB() besides these two function spreadsheets support three other depreciation functions.

Straight Line Method

Returns the straight-line depreciation of an asset for one period. This method is also known as Fixed Instalment Method.

Syntax: SLN (cost, salvage, life)

Cost: The initial cost of the asset.

Salvage: The value at the end of the depreciation.

Life: The number of periods over which the asset is depreciated (sometimes called the useful life of the asset).

Example 1:

Assume you have been given the following details

Purchase Price	₹ 156,000
Taxes @ 3.5%	
Shipping and Installation.	₹ 2,780
Est. Useful Life (years)	6
Est. Salvage Value	₹ 32,000

Calculate the depreciation amount using the straight line method.

The above question is modeled in Spreadsheets as shown in Figure 1 below.

Straight Line Method				Year	Beginning of the year Book Value	Depreciation Expenses	End of year Book Value
2	Purchase Price		156,000	1			
3	Taxes @ 3.5%			2			
4	Shipping and Installation.		2,780	3			
5	Total Depreciable Basis			4			
6				5			
7	Est. Useful Life (years)		6	6			
8	Est. Salvage Value		32,000				

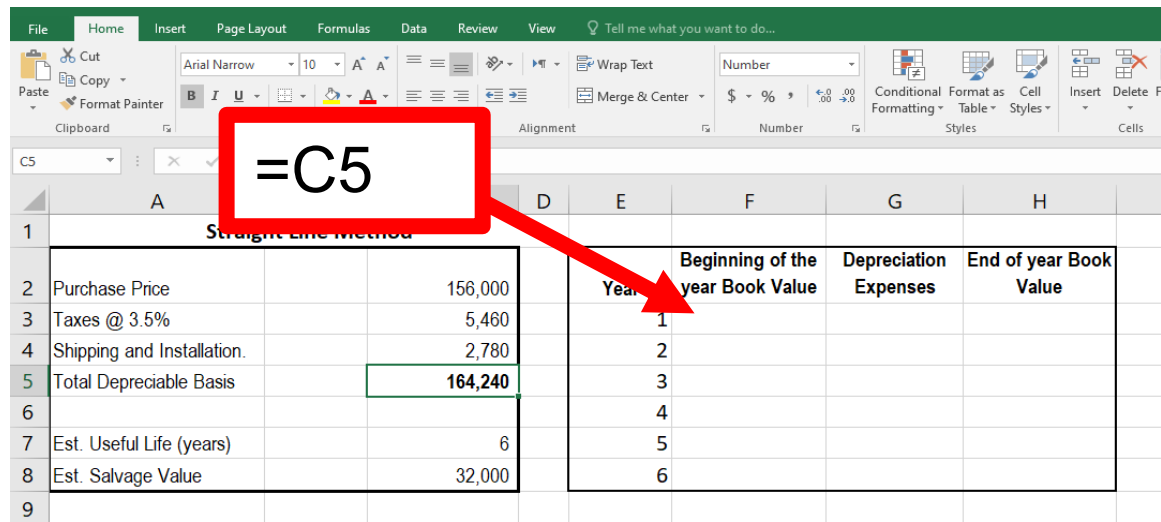
Figure 1: Format for calculating depreciation using straight line method

The tax and total depreciable basis is calculated as shown in Figure 2 below.

Straight Line Method				Year	Beginning of the year Book Value	Depreciation Expenses	End of year Book Value
2	Purchase Price		156,000	1			
3	Taxes @ 3.5%			2			
4	Shipping and Installation.		2,780	3			
5	Total Depreciable Basis			4			
6				5			
7	Est. Useful Life (years)		6	6			
8	Est. Salvage Value		32,000				

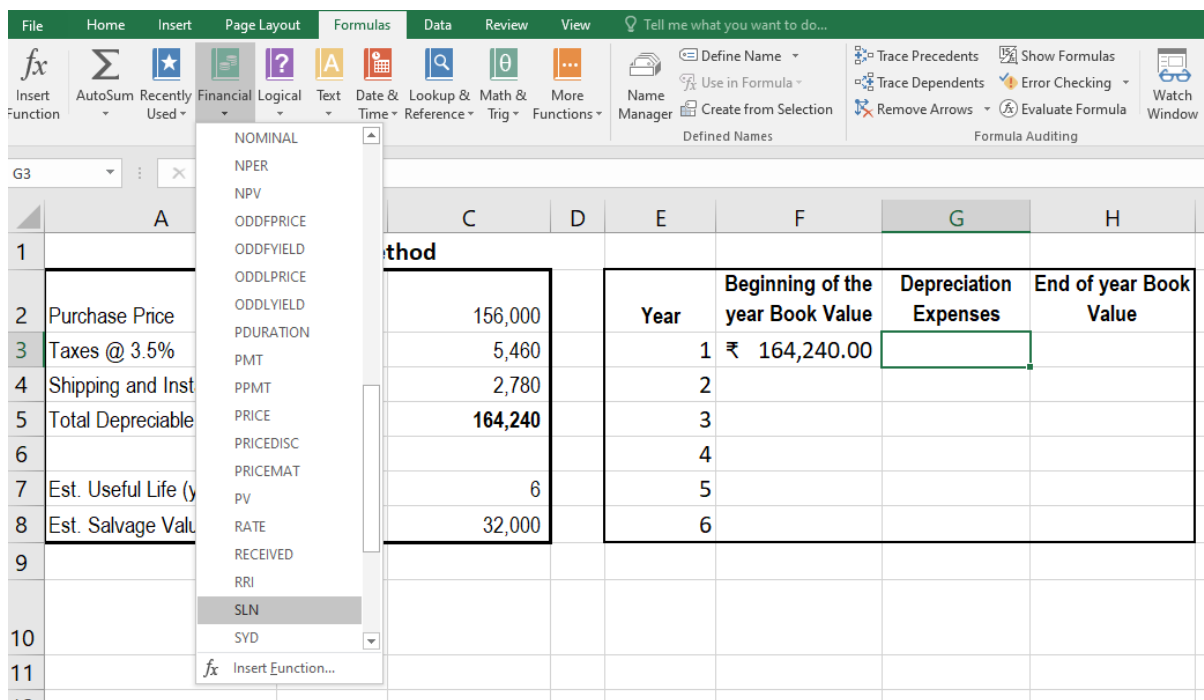
Figure 2: Calculation of Tax and Total Depreciable Basis

The calculation of beginning of the year book value, depreciation expense and end of the year book value is shown from Figure 3 to Figure 7.



	A	B	C	D	E	F	G	H
1	Straight Line Method							
2	Purchase Price		156,000		Year	Beginning of the year Book Value	Depreciation Expenses	End of year Book Value
3	Taxes @ 3.5%		5,460		1			
4	Shipping and Installation.		2,780		2			
5	Total Depreciable Basis		164,240		3			
6					4			
7	Est. Useful Life (years)		6		5			
8	Est. Salvage Value		32,000		6			
9								

Figure 3: Calculation of Beginning of Year Book Value



	A	B	C	D	E	F	G	H
1	Straight Line Method							
2	Purchase Price		156,000		Year	Beginning of the year Book Value	Depreciation Expenses	End of year Book Value
3	Taxes @ 3.5%		5,460		1	₹ 164,240.00		
4	Shipping and Installation.		2,780		2			
5	Total Depreciable Basis		164,240		3			
6					4			
7	Est. Useful Life (years)		6		5			
8	Est. Salvage Value		32,000		6			
9								
10								
11								

Figure 4: Using Straight Line Method to calculate depreciation expense

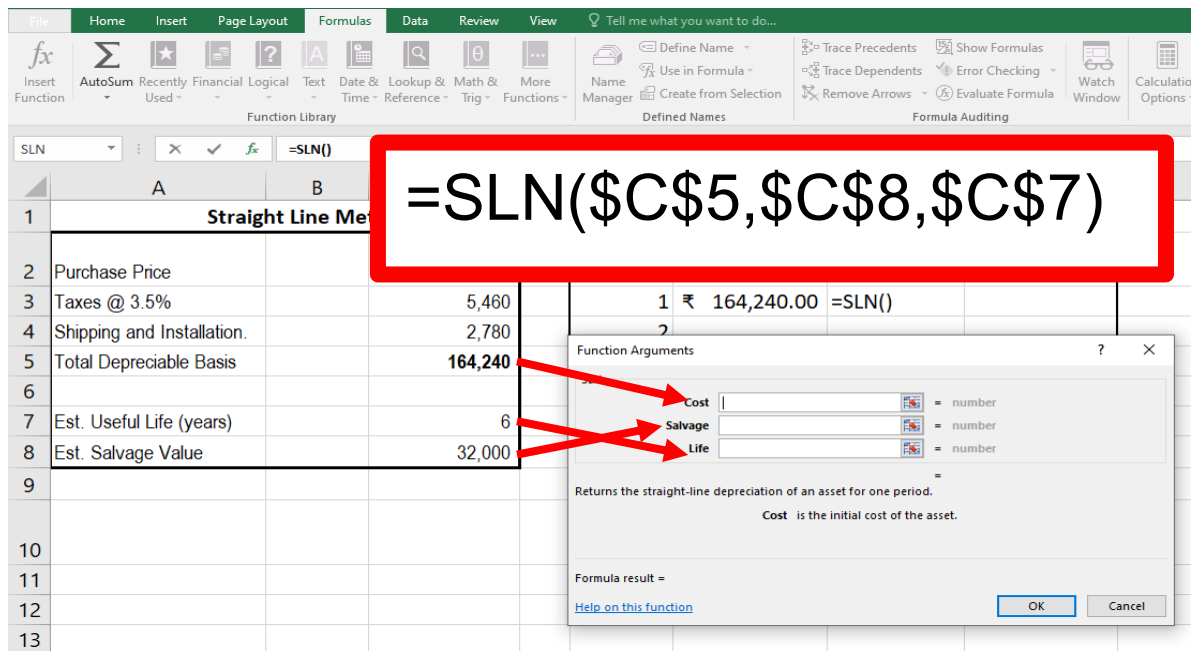


Figure 5: Calculation of Depreciation Expense using SLN Function

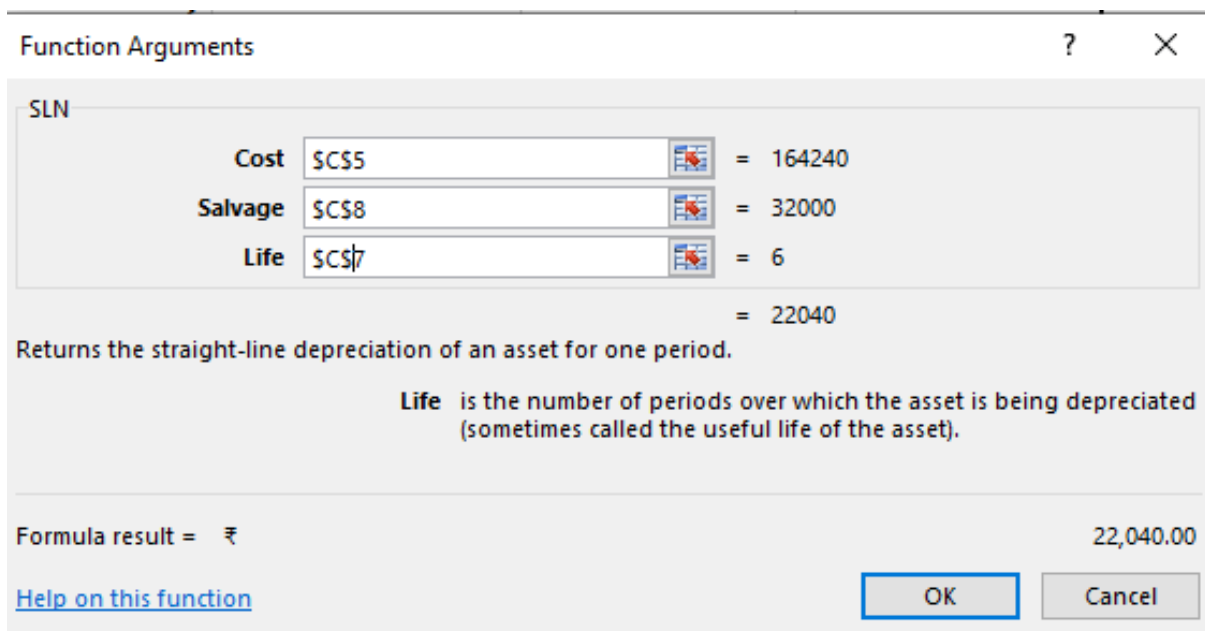


Figure 6: Calculation Depreciation Expense using SLN function

In the Figures 5 and 6 note that absolute reference has been used, as we wish to use autofill to calculate the depreciation expense for the remaining years.

Straight Line Method							
				Year	Beginning of the year Book Value	Depreciation Expense	End of year Book Value
2	Purchase Price		156,000				
3	Taxes @ 3.5%		5,460	1	₹ 164,240.00	₹ 22,040.00	₹ 142,200.00
4	Shipping and Installation.		2,780		142,200.00	₹ 22,040.00	₹ 120,160.00
5	Total Depreciable Basis			3	₹ 120,160.00	₹ 22,040.00	₹ 98,120.00
6				4	₹ 98,120.00	₹ 22,040.00	₹ 76,080.00
7	Est. Useful Life (years)			5	₹ 76,080.00	₹ 22,040.00	₹ 54,040.00
8	Est. Salvage Value			6	₹ 54,040.00	₹ 22,040.00	₹ 32,000.00
9							

Figure 7: Formulas used to calculate Depreciation Expense, End of Year Book Value and Beginning of Year Book Value for all the remaining years which is to be dragged to fill the table

Fixed Declining Balance Method

Returns the depreciation of an asset for a specified period using the fixed-declining balance method.

Syntax: DB(cost, salvage, life, period, [month])

Cost: The initial cost of the asset.

Salvage: The value at the end of the depreciation.

Life: The number of periods over which the asset is depreciated (sometimes called the useful life of the asset).

Period: The period for which you want to calculate the depreciation. Period must use the same units as life.

Month: The number of months in the first year. If omitted, it is assumed to be 12.

Example 2:

Assume you have been given the following details

Purchase Price	₹ 2,00,000
Taxes @ 4.5%	
Shipping and Installation.	₹ 21,000
Est. Useful Life (years)	5
Est. Salvage Value	₹ 25,000

Calculate the depreciation amount using the declining balance method.

The above question is modeled in Spreadsheets as shown in Figure 8.

	A	B	C	D	E	F	G	H
1	Declining Balance / Reducing Balance Method / Written Down Value Method							
2								
3	Purchase Price	₹	200,000.00		Year	Beginning of the year Book Value	Depreciation Expenses	End of year Book Value
4	Taxes @ 4.5%				1			
5	Shipping and Installation.	₹	21,000.00		2			
6	Total Depreciable Basis				3			
7					4			
8	Est. Useful Life (years)			5	5			
9	Est. Salvage Value	₹	25,000.00					
10								

Figure 8: Format for calculating depreciation using Declining Balance Method

The solution to the problem in Example 2 is shown in Figure 9.

Note that here the formula has an extra parameter named *period* which refers to the year for which the depreciation expense is being calculated. Since the value for year, changes in the table, the last parameter for the DB function namely period is given using relative reference.

The screenshot displays an Excel spreadsheet with the following data:

			Year	Beginning of the year Book Value	Depreciation Expenses	End of year Book Value
3	Purchase Price	₹ 200,000.00	1	₹ 230,000	=DB()	
4	Taxes @ 4.5%	₹ 9,000.00	2			
5	Shipping and Installation.	₹ 21,000.00				
6	Total Depreciable Basis	₹ 230,000.00				
8	Est. Useful Life (years)	5				
9	Est. Salvage Value	₹ 25,000.00				

The formula bar shows the formula: **=DB(\$C\$6,\$C\$9,\$C\$8,E4)**

The Function Arguments dialog box for the DB function is open, showing the following arguments:

- Cost: ₹ 230,000.00
- Salvage: ₹ 25,000.00
- Life: 5
- Period: E4
- Month: 12

The dialog box also includes a description: "Returns the depreciation of an asset for a specified period using the fixed-declining balance method. Cost is the initial cost of the asset." and a "Formula result =" field.