



## BALANCE SHEET EQUATIONS

### ❖ Straight-Line Method

$$\text{Depreciation Expense} = \frac{\text{Acquisition Cost} - \text{Salvage Value}}{\text{Estimated Useful Life}}$$

### ❖ Declining Balance Method

$$\text{Depreciation} = (\text{Cost} - \text{Accumulated Depreciation}) \times \text{Depreciation Rate}$$

$$\text{Straight line depreciation rate} = \frac{1}{\text{Estimated Useful Life}}$$

\*Depreciation rate for **double declining** balance method

$$= \text{Straight line depreciation rate} \times 200\%$$

\*Depreciation rate for **150% declining** balance method

$$= \text{Straight line depreciation rate} \times 150\%$$

Year	Book Value at the beginning	Depreciation Rate (a)	Depreciation Expense (b)	Book Value at the year-end (c)
200A	(1)	a %	(1) * a	(1) - (b)
200B	(c)	a %	(c) * a	(c) - (b)
200C	(c)	a %	(c) * a	(c) - (b)
200D	(c)	a %	(c) * a	(c) - (b)
200E	(c)	a %	(c) * a	(should be equal to salvage value, if any)

### ❖ Sum-of-the-Years'-Digit Method

$$\text{Depreciation Expense} = (\text{Cost} - \text{Salvage Value}) \times \text{Fraction}_x$$

$$\text{Fraction for } x \text{ year} = \frac{1}{(1 + 2 + 3 + \dots + n)}$$

$$\text{Fraction for the last year} = \frac{1}{(1 + 2 + 3 + \dots + n)}$$

Where: n = number of years for useful life; x = specific year

### Present Values, Future Values and Interest Income (Expense)

Where: n = # of payments in intervals  
 R = Periodic payment  
 I<sub>k</sub> = interest paid after the K<sup>th</sup> payment  
 PR<sub>k</sub> = principal repaid just after the K<sup>th</sup> payment  
 OL<sub>k</sub> = outstanding principal just after the K<sup>th</sup> payment

I<sub>k</sub> = Previous OL times interest rate (OL<sub>k-1</sub> \* i)

PR<sub>k</sub> = R - I<sub>k</sub>

OL<sub>k</sub> = OL<sub>k-1</sub> - PR<sub>k</sub>



Step 1:

n	R	lk	PRk	OLk
0				Insert A here
1	Insert R here			
2	Insert R here			
3	Insert R here			
Total				

Step 2:

N	R	lk	PRk	OLk
0				84000
1	33184.60	Multiply OL0 by i here		
2	33184.60			
3	33184.60			
Total				

Step 3:

N	R	lk	PRk	OLk
0				84000
1	33184.60	7560	Subtract R1 by I1 here	
2	33184.60			
3	33184.60			
Total				

Step 4:

N	R	lk	PRk	OLk
0				84000
1	33184.60	7560	25624	Subtract OL0 by PR1 here
2	33184.60			
3	33184.60			
Total				

Step 5:

N	R	lk	PRk	OLk
0				84000
1	33184.60	7560	25624	58375.40
2	33184.60	Multiply OL1 by i here		
3	33184.60			
Total				

Step 6:

N	R	lk	PRk	OLk
0				84000
1	33184.60	7560	25624	58375.40
2	33184.60	5253.79	Subtract R2 by I2 here	
3	33184.60			
Total				