Engineering Economy

Chapter 16 Reference

Depreciation

I. Definition

Depreciation : Reduction in value of an asset

Depreciation Accounting

: Aims to distribute the cost of tangible capital assets over the estimated useful life of the unit in a systematic and rational manner

: Is a process of allocation, not of valuation

: Is the portion of the total charge under such a system that is allocated to the year

II. Case Example

- BoYoung decided to establish Equipment Rentals with an initial investment of $50,000 in cash
- Balance Sheet at the beginning of the start-up

Assets		Liabilities & Owner's Equity	
Cash	$50,000	BY, Invested Capital	$50,000

- BoYoung then rented a suitable building, employed a full-time person to run the rental business, and purchased a large array of tools for a total price of $35,000 in cash

II. Case Example

- Balance Sheet at the opening of E.R.

Assets		Liabilities & Owner's Equity	
Cash	$15,000	BY, Invested Capital	$50,000
Tools	$35,000		
Total	$50,000	Total	$50,000

- During the first year of operation, E.R. paid out $30,000 for wages, insurance, rent, and other business disbursements, but it received a total of $46,000 in rental fees for tools.
- Cash increased by $6,000, and receivables by $10,000
- If BoYoung had assumed there's no depreciation, then

II. Case Example

- Balance Sheet at the end of 1st year of E.R.

Assets		Liabilities & Owner's Equity	
Cash	$21,000	BY, Invested Capital	$50,000
Accounts Receivable	$10,000	Retained Earning	$16,000
Tools	$35,000		
Total	$66,000	Total	$66,000

- BoYoung realized that the tools would not last indefinitely, and set up a 5-year SL depreciation plan with a zero salvage value.
- This means one-fifth of the original cost would be written off each year.

II. Case Example

- Balance Sheet with the depreciation

Assets		Liabilities & Owner's Equity	
Cash	$21,000	BY, Invested Capital	$50,000
Accounts Receivable	$10,000	Retained Earning	$9,000
Tools	$28,000		($16,000 - $7,000)
	($35,000 - $7,000)		
Total	$59,000	Total	$59,000

- Profit and Loss Statements for the first year

Receipts from renting tools	$46,000
Operating Expenses	
Disbursements for rent, wages, etc	$30,000
Depreciation on assets	$7,000
Profit	$9,000

- (Cash + Accts Rec'ble) in the safety box is $15,000 + $16,000(9,000+7,000) = $31,000

III. Comments

- $7,000 of depreciation charge on the books involved no cash flow, was an allocation to the first year for the total acquisition of assets

- The profits in PL depends on the depreciation charge, therefore, are not real profits

- The valuation of assets on BS is similarly influenced by the depreciation charge, and is not influenced by a market value