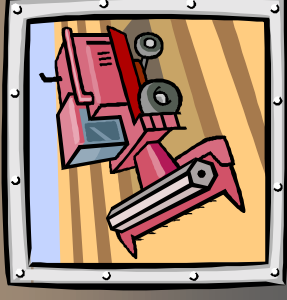


Depreciation



Refers to decrease in value of an asset w/time

Important for 2 Reasons:



Info must be provided to shareholders



Income tax consequences (our main concern)



Tax Consequences

TAX INFO

Income taxes are calculated as follows:

$$\text{Taxes} = (\text{Income} - \text{Deductions}) * \text{Tax rate}$$

Depreciation is one of the dedn's for businesses

Thus, depreciation(D) reduces taxes by an amt equal to depreciation times the tax rate

For example, depreciation of \$10,000 for a company in the 40% tax bracket will reduce taxes by \$4,000

Depreciation Models

Two common ones:

Straight line (still used abroad for tax purposes)

MACRS (Only one allowed in US for tax purposes)





Straight Line



$$D = \frac{P - SV}{n}$$

$$BV = P - mD$$

Where: D= Depreciation

P= First cost

SV = Salvage value

BV = Book value

n = Life

m = Year

Example: A certain machine has a first cost of \$20,000 with a \$5,000 salvage value after 5 years. Find D and BV after 3 years.

Solution:

$$D_3 = (20,000 - 5,000) / 5 = \$3,000$$

$$BV_3 = 20,000 - 3(3,000) = \$11,000$$

MACRS Depreciation



$$D = P * d$$

$$BV_n = P - \Sigma D$$

Where d = Depreciation rate from Table

ΣD = Sum of depreciation thru yr n

Example: For an asset with $P = \$20,000$, $SV = \$5,000$ and $n = 5$, find the depreciation & book value for yr 3.

Solution:

$$D_3 = 20,000 * 0.1920 = \$3,840$$

$$BV_3 = 20,000 - 20,000(0.20 + 0.32 + 0.192) = \$5,760$$



Depletion



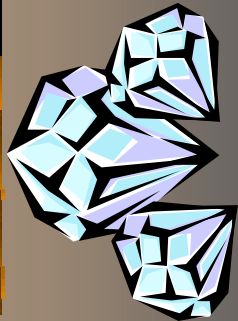
Depletion applies to non-renewable assets (like natural resources)

Two types of depletion: Cost & Percentage

Cost depletion: Multiply factor by amt of resource removed

Where: factor, P_t = First cost / Resource capacity

Percentage depletion: Multiply income by % from Table

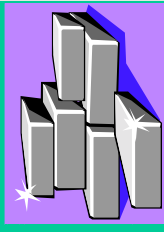


Depletion Example



Example: A silver mine purchased for \$2.5 million is expected to yield one million ounces of silver. Determine the depletion charge in a yr when 300,000 ounces are mined and sold for \$5.00 per ounce by

(a) Cost depletion, and (b) Percentage depletion



Solution:

$$(a) P_t = 2,500,000 / 1,000,000 = \$2.50 \text{ per ounce}$$

$$\text{Cost depletion} = 2.50(300,000) = \boxed{\$750,000}$$

$$(b) \text{Percentage depl} = 300,000(5.00)(0.15) = \boxed{\$225,000}$$