1. Principles of Accounting

- It involves the process providing quantitative information, primarily financial in nature, for use in the decision-making process - it the language of business.
- The rules and conventions of accounting are commonly referred to as "principles," which means "a general law or rule adopted or professed as a guide to action; a settled ground or basis of conduct or practice."
- Accounting principles do not prescribe exactly how each event occurring in an organization should be recorded. Consequently, there are many matters in accounting practice that differ from one organization to another because a single detailed set of rules could not conceivably apply to every organization. As a result, the accountants have considerable latitude within "generally accepted accounting principles" in which to express their own ideas as to the best way of recording and reporting a specific event.
- The general acceptance of an accounting principle or practice usually depends on how well it meets three criteria:
  - Relevance: it should result in information that is meaningful and useful to those who need to know something about a certain organization.
  - Objectivity: the information is not influenced by the personal bias or judgment of those who furnish it. It connotes reliability, trustworthiness, and verifiability.
  - Feasibility: it can be implemented without undue complexity or cost.

2. Income statements

The accounting report that summarizes the revenues and the expenses of an accounting period, also called "profit and loss statement" (p. 307).

<table>
<thead>
<tr>
<th>Revenues</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>Operating costs</td>
<td>Depletion</td>
<td>Writeoffs</td>
</tr>
<tr>
<td></td>
<td>Deferred (amortized) development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxable income</td>
<td>Federal/state income tax</td>
<td>Net income</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ Depreciation</td>
<td>+ Deferred (amortized) development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ Depletion</td>
<td>+ Writeoffs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Capital Costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cash Flow After-Tax</td>
<td></td>
</tr>
</tbody>
</table>
1) **Cash Flow** (p. 307) –

The money that remains available to a company or individual to pay off its debts and invest in new projects from sales revenue after paying all of its operating expenses and taxes.

\[
\text{Cash Flow} = \text{Sales Revenue} - \text{Operating Expenses} - \text{Income Taxes}
\]

2) **Working Capital** -

The money necessary to operate a business on a day to day basis, money for include such items as: raw materials, necessary inventory, accounts receivable, and ready cash.

3) "**Expensed**" (p. 310)

To deduct the items in full amount in the year occurred – expensed:

a. **Operating Costs** – costs for direct labor, indirect labor, materials, parts and supplies used for product produced and sold. Others include: utilities, freight and containers, interests, royalties, taxes.

b. **Research and Experimental Costs** – labor, supplies, etc., can be amortized using S.L. over 5 years (rarely used).

c. **Mining exploration** – expenditures required to delineate the extent and quality of an ore body, including: drilling, assaying, engineering fees, geological fees, exploratory shafts, pits, drifts, etc. This may be either (1) capitalized into the cost depletion basis or (2) expensed 70% of mining exploration costs in the year incurred with the remaining 30% deducted using S.L. amortization over a 60-month period; with the first year costs prorated (except for Subchapter S corporations which are treated as individual taxpayer).

   If "expense" option is chosen, these deductions are subject to recapture using either method: (1) forego taking depletion deductions until the cost basis of exploration charges is fully recovered, or (2) restore a dollar amount equal to the previously expensed exploration charges as income ==> details later.

d. **Mining Development** – expenditures incurred after the determination has been made that an ore body is economically viable and the decision has been made to develop the property. Typical costs are: overburden stripping, U/G shafts, drifts, tunnels, etc.

   Such costs are not subject to recapture and may expense only 70% in year incurred and the remaining 30% spread over a five-year period, with the first year deduction prorated.


4) **Repair expenditures vs capital expenditures** :

a. **Repair expenditure** – an expenditure for the purpose of keeping the property in an ordinary efficient operating condition. It does not add to the value or life to the property, merely keeps the property in an operating condition over its probable useful life for which it was designed for.

b. **Capital expenditure** – it is an alteration, additions or improvements that increase the asset useful life or value or make it adaptable for a different use.

3. **Depreciation** (p. 313)

- Depreciation, depletion, and amortization are means of recovering in before-tax dollars, you investment in certain types of property used in your trade or business, or held for the produc-
Depreciation – Cost of buildings, machinery, equipment and trucks are examples of business property costs that are covered by depreciation over the useful life of the asset. Depletion – Acquisition costs and lease bonus paid for mineral rights for natural resources, (e.g., oil and gas, minerals, and standing timber). Amortization – Cost of acquiring a business lease, R & D expenses, trademark expenses, and pollution control equipment costs.

- Annual charge against income which reflects a rough estimate of the dollar cost of the capital equipment used in the production process => capitalized (The investment cost is not taken as an expenses immediately in the year in which it is incurred, but is taken later through depreciation).
- It is an allowable deduction when computing taxable income which represents the exhaustion, wear, and tear of property used in a trade or business, or of property held for the production of income.
- The purpose is to provide a means by which a business or trade can recapture the capital needed to keep itself in business. (Having recaptured the initial asset cost from the annual tax deduction, the owner can, in theory, replace the worn-out piece of equipment with a new one and keep himself in business.) It is used in the following contexts:
  1) A tax allowance – merely a book transaction and does not involve any expenditure of cash
  2) A cost of operation – considered to be a manufacturing/production cost the same way as labor cost or raw-materials costs
  3) A means of building up a fund to finance plant/equipment replacement – same as 2.
  4) A measure of falling value – because that a plant or a piece of equipment has a limited life, deducting cumulative depreciation from initial value gives a measure of the asset's falling value, usually called "book value" or adjusted basis.

- Requirements for depreciation:
  1) Must be used in business or held for the production of income.
  2) Must have a determinable life which is longer than one year.
  3) Must be something that wears out, decays, gets used up, becomes obsolete, or loses values from natural causes.
  4) Must be available for service.

- Depreciable property may be either tangible or intangible:
  **Tangible:** property which is physically employed in the production process but does not include inventories, stock-in-trade, a depletable natural resources, or land apart from its improvement.
  **Intangible:** includes items such as patents, copyright, franchises, licenses, contracts, or similar assets having a limited useful life. (Goodwill is not depreciable because its useful life cannot be determined.) Because there is generally no physical deterioration or obsolescence in intangible assets, the more general term, amortization is used rather than depreciation.

- If depreciable property is cols, all or a portion of any extra depreciation claimed in prior years may have to be recaptured as taxable income.

4. Depreciation Methods (p. 315)

- Depreciation of tangible property placed in service after 1986 is based on using Modified Accelerated Cost Recovery System (ACRS) depreciation for (1) the applicable depreciation
method, (2) the applicable recoverable period (depreciation life), and (3) the applicable first year convention.

Under the new tax law, there are three applicable conventions that have an effect on the allowable depreciation deduction in the first year. These conventions apply to the modified ACRS (Accelerated Cost Recovery System) method, straight line ACRS method and the alternative ACRS method. The recovery period begins when an asset is placed in service under the applicable first year deduction convention.

❖ **Half-Year Convention in 1st Year**
- apply to personal property other than residential rental and non-residential real property
- all property is deemed to be placed in service in the *middle* of the year;
- one half of the first year's normal depreciation is allowed in the year that the property is placed in service, regardless of when the property is placed in service during the year.

❖ **Mid-Quarter Convention in 1st year**
- property, other than nonresidential real property and residential rental property;
- if more than 40% of the aggregate basis of such property is placed in service during the last 3 months of the tax year.
- namely, all property placed in service during any quarter of a tax year is treated as placed in service at the *midpoint* of such quarter.

for example, if more than 40% of qualifying assets were placed during
1) 1st quarter ==> 10.5/12 of the full first year depreciation
2) 2nd quarter ==> 7.5/12 of the full first year depreciation
3) 3rd quarter ==> 4.5/12 of the full first year depreciation
4) 4th quarter ==> 1.5/12 of the full first year depreciation

❖ **Mid-Month Convention**
- residential rental property and non-residential real property
- deemed to be placed in service (or disposed of) during the middle of the month
- the allowable deduction is based on the number of months the property was in service.

for example: property placed in January ==> 11.5/12 of the first year depreciation is allowed.

❖ Depreciation methods (p. 317)

1) **Straight Line**: Traditionally, to charge as an expense an equal fraction of the net cost of the asset each year.

   \[
   \text{Straight Line Depreciation Per Year} = \frac{\text{Purchase Price} - L}{n} = \frac{\text{Cost}}{n}
   \]

Under current law, the actual estimated asset use life and salvage value have no effect on depreciation calculations.

Example 7-3: XYZ Mining Co. purchased a new machine in January of this tax year for $10,000. The estimated life of the machine is 8 years when salvage value is estimated to be $3,000. Determine the annual allowable depreciation deduction by the straight line method assuming the machine is in the 5 year depreciation life category and that the half
year convention is applicable in the first year (p. 318).

\[
\begin{array}{ccc}
\text{Depreciation} \\
\text{year 1:} & ($10,000)(1/5)(1/2) & = $1,000 \\
\text{Years 2 to 5:} & ($10,000)(1/2) & = $2,000 \\
\text{Year 6:} & ($10,000)(1/5)(1/2) & = $1,000 \\
\hline
\text{cumulative depreciation} & = $10,000
\end{array}
\]

Because of the half year 1 convention, it takes 6 years to fully depreciate the asset.

2) **Accelerated Methods**: It relates to the amount of service provided each year. Some fixed assets are more valuable in their youth than in their old age because their mechanical efficiency tends to decline with age, their maintenance costs tend to increase with age, or because of the increasing likelihood that better equipment will become available and then obsolete.

- **Declining Balance & Double Declining Method** (p. 320):
  
  Declining Balance Method: The depreciation for each year is found by applying a S.L. rate of 1/n to 2/n, to the net book value (the cost less total depreciation accumulated up to that time) of the asset at the beginning of that year rather than to the original cost of the asset.

  Double Declining Method: If it is used for income tax purposes, the law permits the company to take *double* the rate allowed under the S.L. method; hence the name, double-declining balance.

Example 7-4 Assume the machine mentioned in Example 7-3 is to be depreciated using 200% declining balance for a 5-year depreciation life and the cost was incurred in the final quarter of the tax year, so the mid-quarter convention would be appropriate since more than 40% of depreciable cost is incurred in the fourth quarter. Determine the annual depreciation (p. 321).

The 200% declining balance 5-year life rate is 2/5 or 0.4;

\[
\begin{array}{cccc}
\text{year} & \text{200\% D.B. rate (2/5)} & \text{Adjusted Basis} & \text{Depreciation} \\
1 & 0.4(2 \text{ mo/12 mo}) & $10,000 & $500 \\
2 & & $9,500 & 3,800 \\
3 & & $5,700 & 2,280 \\
4 & & $3,420 & 1,368 \\
5 & & $2,052 & 821 \\
6 & & $1,231 & \\
\hline
\text{Cumulative depreciation after 5 years} & & & $8,769
\end{array}
\]

Un-depreciated amount can be taken care of when switched to S.L. method.

- **Sum-of-Years-Digits Method**: A different depreciation rate is applied each year and provides a larger depreciation charge during the early years of ownership than in the later years. The rate is a fraction in which the denominator is the sum of these digits and the numerator is, for the first year, \( n \); for the second year, \( n-1 \); and so on.; where \( n \) is the service life and sum can by found by using the following formula:
SOYD = \frac{n+1}{2}

Example: SOYD = 10 \frac{10+1}{2} = 55

Example: Trucks purchased by a mining company cost $40,000 each. Past records indicate the trucks should have an economic life of 5 years. They can be sold for an average of $8,000 each after 5 years of use.

SOYD factor = \frac{5(5+1)}{2} = 15

Depreciation charge during year 1 = ($40,000 – $8,000) x (5/15) = $10,667
year 2 = $32,000 x (4/15) = $8,533

3) Units-of-Production Method (p. 323): Since the asset consists of a bundle of service units, the cost of each unit being the *depreciable cost* of the asset (purchase price minus salvage value) divided by the number of such units (or useful life, say, 6,000 hours), and the depreciation charge for a period therefore being related to the number of units consumed in the period.

Example: purchase price = $3,000
Salvage value = $500
Useful life = 5,000 hours
Unit depreciation = ($3,000 - $500)/5,000 = 50¢
or: for the same example,
unit production = 4,000 units
Unit depreciation = (3,000 - 500)/4,000 = 62.5 ¢

Example 7-6

5. Switching from Declining Balance to S.L. (p. 322)

It is desirable to switch to straight line from declining balance in the year when you will get a bigger deduction by switching. This occurs when the S.L. rate exceeds the declining balance rate.

Example 7-5 Assume the machine mentioned in Example 7-3 is to be depreciated using 200% declining balance switching to S.L. for a 5-year depreciation life, use the same mid-quarter convention for the entire $10,000 cost being incurred in the fourth quarter of the first year of depreciation. Determine the annual depreciation to depreciate the asset as rapidly as possible.

In switching to S.L. from declining balance depreciation, the remaining adjusted basis is depreciated S.L. over the remaining years of depreciation life.

<table>
<thead>
<tr>
<th>year</th>
<th>Method</th>
<th>Rate</th>
<th>Adjusted Basis</th>
<th>Depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>200% D.B.</td>
<td>0.4</td>
<td>$10,000</td>
<td>$500</td>
</tr>
</tbody>
</table>
2  200% D.B.  0.4  9,500  $3,800
3  200% D.B.  0.4  5,700  $2,280
4  S.L.  0.5  3,420  $1,710
5  S.L.  0.5  3,420  $1,710
6             0

Cumulative depreciation after 5 years  $10,000


☐ Apply to the cost of most tangible depreciable property placed in service after 12/31/1986. Cost and recovery methods are the same, for both new or used, with salvage value neglected in computations.

☐ ACRS depreciable property is often called recovery property depreciated over one of the following lives: 3, 5, 7, 10, 15, 20, 27.5 or 31 years. Depreciation lives are determined based on Asset Depreciation Range (ADR) mid-point class lives that were effect prior to the introduction of ACRS depreciation rates in 1981. (handout)

*Tables 7-1, 7-2, 7-3 (pp. 326-327)*

7. Depletion ( p. 330 )

☐ Definition: the economic interest in mineral deposits, oil and gas wells, or standing timber can be recovered through federal tax deductions for depletion over the economic life of the property. This happens when 1) you have an economic interest in minerals in place or standing timber, and 2) received income by any form of legal relationship from extraction of the minerals or severance of the timber, for the return of capital.

☐ The principal asset is the natural resource which it is producing – a portion of the proceeds realized on the sale of mineral represents *capital* – you cannot tax on capital ==> they should be deducted.

* Tax viewpoint: the statutory deduction from gross income designed to permit the return to the taxpayer of the *capital* consumed in the production and sale of a natural resource – a method for amortizing the value of the primary asset of a mining enterprise.

* Economic/geological sense: the exhaustion of a natural resource.*

☐ Mining includes,

* Extraction of minerals from the ground,

* Treatment processes considered as mining applied by the mine owner or operator to the minerals or the ore;

* Transportation that is not over 50 miles from the point of extraction to the plant or mill in which allowable treatment processes are applied. (Treatment processes considered as mining depend upon the ore or mineral mined, and generally include those processes necessary to bring the mineral or ore to the stage at which it first becomes commercially marketable. This usually means to a shipping grade and form. However, in certain cases, additional processes are specified in the IRS regulations, and are considered as mining.)

☐ Depletion allowance is uniquely available to the mining industry which permits mineral producers to claim sizable federal income tax deductions, and they significantly increase cash flows in
mining. During periods of normal profitability, percentage depletion often reduces the effective income tax rate for base metal, precious metal, and uranium mining to less than 30%.

<table>
<thead>
<tr>
<th>Company</th>
<th>1978 Point Reduction in Tax Rate, %</th>
<th>1979 Point Reduction in Tax Rate, %</th>
<th>1978 Point Tax Savings $1,000</th>
<th>1979 Point Tax Savings $1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hecla</td>
<td>14.0</td>
<td>48.0</td>
<td>5,208</td>
<td>2,313</td>
</tr>
<tr>
<td>AMAX</td>
<td>21.3</td>
<td>30.6</td>
<td>92,630</td>
<td>62,050</td>
</tr>
<tr>
<td>Kennecott</td>
<td>14.9</td>
<td>0.0</td>
<td>24,778</td>
<td>0</td>
</tr>
<tr>
<td>Phelps Dodge</td>
<td>11.0</td>
<td>2.0</td>
<td>13,940</td>
<td>520</td>
</tr>
<tr>
<td>Homestake</td>
<td>16.6</td>
<td>18.9</td>
<td>14,255</td>
<td>8,008</td>
</tr>
<tr>
<td>ASARCO</td>
<td>5.9</td>
<td>10.5</td>
<td>18,690</td>
<td>7,538</td>
</tr>
<tr>
<td>Newmont</td>
<td>15.0</td>
<td>22.9</td>
<td>30,470</td>
<td>12,685</td>
</tr>
<tr>
<td>Pennzoil</td>
<td>10.3</td>
<td>8.1</td>
<td>37,339</td>
<td>15,683</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$237,350</td>
<td>$108,797</td>
</tr>
</tbody>
</table>

8. Depletion Methods (p. 330)

Two methods are usually used: (1) Cost Depletion and (2) Percentage Depletion. Compute each year in both cases and use the one that gives the greater tax deduction. Methods can be switched from year to year with the exception that major oil and gas companies may only take cost depletion on oil and gas properties. For timber also, only cost depletion is applicable.

\[
\text{Percent Depletion} \quad \begin{cases} \text{Cost Depletion} \quad \text{The Larger is the "Allowed Depletion"} \\
\text{50% Limit on Percent Depletion} \quad \text{The smaller if the "Allowed Percent Depletion"} \end{cases}
\]

☐ Cost Depletion (p. 331)

The capitalized costs that generally go into the cost depletion basis for petroleum and mining projects are for mineral rights acquisition and/or lease bonuses or their equivalent ascertained costs:

\[
(\text{Adjusted Basis}) \times \frac{\text{Mineral Units Removed & Sold During Year}}{\text{Mineral Units Recoverable at Beginning of Year}}
\]

where Adjusted Basis = Cost Basis + Adjustments – Cumulative Depletion

Example 7-8. You own an oil property for which you paid $150,000 in mineral rights acquisition costs last year. Recoverable oil reserves are estimated at $1,000,000 barrels. 90,000 barrels of oil are produced this year and are sold for $29.00 per barrel. Your operating and overhead expenses are $180,000 this year and allowable depreciation is $120,000. You
expect the same production rate, operating costs, and selling price next year. Calculate cost depletion for this year and also next year assuming we do not use percent depletion this year.

Year 1: Cost depletion = \( \frac{50,000 \text{ barrels}}{100,000 \text{ barrels}} \times 150,000 \) = $7,500

Year 2: Cost depletion = \( \frac{50,000 \text{ barrels}}{95,000 \text{ barrels}} \times (150,000 - 7,500) \) = $7,500

**Percentage Depletion** (p. 332)

- It is a specified percentage of gross income after royalties from the sale of minerals from the mineral property during the tax year, with the max of 50% of taxable income from the property.

- Table 7-5 (p.334)

**Example 7-9.** For the case discussed in Example 7-8, with 50,000 bbl of oil production this year, selling price of $29.00/bbl, operating costs of $180,000 and depreciation of $120,000, compare percentage and cost depletion for this year and next year assuming the analysis is for a small producer eligible for either percentage or cost depletion. The 15% depletion is applicable. Assume the base oil price is $25.00/bbl for windfall profit tax calculation purposes and use a 15% windfall tax rate. Also assume severance taxes are negligible. Use 40% income tax rate and calculate cash flow for this year (p. 325).

<table>
<thead>
<tr>
<th>Revenue (50,000 bbl @ $29.00/bbl)</th>
<th>$1,450,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Operating costs</td>
<td>-180,000</td>
</tr>
<tr>
<td>– Windfall tax ( (50,000 \times (29-25) \times 0.15) )</td>
<td>-30,000</td>
</tr>
<tr>
<td>- Depreciation</td>
<td>-120,000</td>
</tr>
<tr>
<td><strong>Taxable income before depletion</strong></td>
<td>1,120,000</td>
</tr>
<tr>
<td>– 50% limit for % depl. ((0.5)(1,120,000))</td>
<td>560,000</td>
</tr>
<tr>
<td>– % depl. ((0.15)(1,450,000))</td>
<td>-217,500*</td>
</tr>
<tr>
<td>– Cost depl. (example 8-2)</td>
<td>7,500</td>
</tr>
<tr>
<td><strong>Taxable income</strong></td>
<td>902,500</td>
</tr>
<tr>
<td>– Tax @ 40%</td>
<td>-361,000</td>
</tr>
<tr>
<td><strong>Net Income (Profit)</strong></td>
<td>541,500</td>
</tr>
<tr>
<td>+ Depreciation</td>
<td>120,000</td>
</tr>
<tr>
<td>+ Depl.</td>
<td>217,500</td>
</tr>
<tr>
<td><strong>Cash Flow</strong></td>
<td>879,000</td>
</tr>
</tbody>
</table>

* $217,500 is less than the 50% limit for % depl, it is the allowable depletion. This is also larger than $7,500 cost depletion, so it is chosen

9. **Common Problems in Depletion**

1) **Difficulty in determining the cutoff point**

   It is not so easy to determine the gross income from "mining", for example, many major producers in this country are fully integrated through to metal fabricating operations; no income
is generated until the ore is mined, crushed, concentrated, and smelted, and the resulting metal is refined. To them, "mining" should include all the operations mentioned above. Formerly, the cutoff point for depletion calculations was the "first marketable product," the form of which varied from mineral to mineral. Now, IRS simply lists specifically many processes which are deemed to be "mining," and others are classified as "non-mining."

2) Allocation of profit

Although the concentration phase marks the end of mining for depletion calculations in most metal mining operations, yet to be solved is the problem of allocation profit. With vertically integrated firms, there are no conventional marketing transactions at the concentrate stage (50 miles) and another method must be used to partition total profit among the various production stages in order to derive gross income from mining. The choice has generally been between using a "representative field price" provided by the IRS and the "proportional profits" method.

3) Who is entitled to depletion?

Any taxpayer who has an economic interest in a property producing a mineral covered by depletion legislation may claim depletion deductions. Frequently, however, the land owner paid little for the land and bears virtually none of the risk involved in bringing a new property into production, yet is entitled to claim depletion deductions on their royalty income; the operating lessee must, on the other hand, deduct royalty payments from gross receipts when determining gross income from mining.

4) Aggregation of properties

The aggregation provision of depletion legislation permits mineral producers to maximize their depletion deduction benefit lots of mining operations in the west, in which a company may elect to combine two or more producing properties into one operating unit for the depletion calculation rather than determining individual deductions for each property. Four criteria often are used to qualify such practice (1) common field or operating personnel; (2) common supply and maintenance facilities; (3) common processing or treatment plants; and (4) common storage facilities.

5) Recapture of exploration deductions

Since 1969, the allowable depletion deduction in any tax year can be affected by the firm's prior treatment of exploration expenditures. Before 1969, mining firms could expense only a limited amount of exploration activity; the remainder was assigned to individual project accounts. If a project was abandoned the exploration costs in the account could be expensed, but exploration expenditures for successful projects were capitalized into the depletion basis. Now, a mining company may elect to take all exploration expenditures as a current deduction, provided that if the project becomes a mine, the taxpayer must recapture these exploration deductions.

10. Amortization (p. 337)

Certain specified expenditures may be amortized for Federal income tax purpose and deducted each year as amortization:

1. Corp's organization expenses under certain conditions;
2. The cost of acquiring a lease (other than mineral lease) for business purposes;
3. R & D expenses (over 60 months or longer or deducted currently as a business expense if connected with your trade or business.
4. Amounts, other than the purchase price, paid in connection with trademark and trade name acquisition, protection, etc. (60 months or more).
5. Cost of certified pollution-control facilities, etc.