Cost-Volume-Profit, Contribution Margin and Equivalent Units

Cost, Volume, Profit
- Total costs = Variable costs + fixed costs
  - \( Y = mx + b \) (equation of a line)
  - \( X \) is the volume of goods

Contribution Margin
- Selling price per unit less variable cost per unit = CM per unit
- CM per unit \( \times \) number of units sold = Total CM
- To find break even in units: \( \frac{\text{Total Fixed Costs}}{\text{CM per unit}} \)
  - Set total contribution margin = fixed cost
  - Break even in $: \( \text{Break even units} \times \text{sales price/unit} \)
- Contribution margin percentage: \( \frac{\text{Total Contribution Margin}}{\text{Total Sales}} \)
  - To find break even sales $ volume: \( \frac{\text{Total fixed Costs}}{\text{CM percentage}} \)

Equivalent Units of Production
- Used in process accounting systems
- For end of the month production reports
- Example: it takes $100 in costs to produce one lawn mower
  - If we have 4 lawn mowers \( \frac{1}{4} \) complete, this is the same as one mower completed, with $100 in costs
  - 100 units that are 40% complete = 40 equivalent units complete
- Costs are assigned to WIP pools based on equivalent units multiplied by costs to produce one unit.

By-Products
- These are relatively minor outputs accounted for by one of two methods:
  - The NRV from sale of by-products is deducted from joint costs.
  - Proceeds of by-products are treated as other revenue.

Spoilage
- Costs are allocated to products if normal, or expensed if abnormal