

BUSINESS MATH

BUSINESS MATH REVIEWER | SEM3 | 2025-2026

BUYING AND SELLING

Cost Price

- the price that a company or store has to pay for the goods it is going to sell the price that has to be spent to produce good or services before any profits is added

Operating cost

- The price (per unit) incurred relative to the production and sale of a commodity

Selling price

- The price at which commodity is sold per unit

Profit

- Money earned after the cost price and the operation cost accounted for after the sale of a commodity

Mark-up

- The difference between selling and price and the cost price

MARK UP CAN BE STATE IN TWO WAYS

- Mark-up rate base on cost
 - The ratio or mark-up to its cost expressed in percent
- Mark-up rate base on selling price
 - The ratio of mark-up to its selling price expressed in percent

MARK-UP (BASIC FORMULA)

Selling price formula

- **Mark-up + Total cost**

Mark-up Formula

- **Selling price (current amount) - cost (previous selling price)**

Cost formula

- **Selling price (new) - Mark-up**

MARK-UP (BASE ON COST)

Mark-up Formula

- **Rate x Cost**

Rate formula

- **Mark-up / Cost**

MARK-UP (BASE ON SELLING PRICE)

Mark-up formula

- **Rate x Selling price**

Rate

- **Mark-up / Selling price**

Selling price

- **Mark-up / Rate**

MARK ON AND MARK DOWN

Mark-on

- The increase from the regular selling price as a result of
 - Increase in demand for the product during peak season
 - Increase in demand for the product due to a shortage of alternative products
 - Shortage of supply of raw materials due to a calamity or other factors. Sudden increase in demand due to special events, occasions and other factors.

FORMULA FOR MARK-ON

- **Peak selling price or new selling price - selling price (og price)**
- **Mark on rate x selling price**

Markon rate

- **Markon / selling price (previous or original price) * 100**

New selling price formula

- **NSP= mark on + selling price**

Mark down

- Is the cut down on the regular price due to the following reasons.
- Obtained by getting the difference between original selling price and new selling price (reducing the original selling price)

Md

- Markdown

OSP or SP

- Original Selling Price or Selling Price

NSP or S

- New Selling Price or Sale Price

MdR

- Markdown Rate

FORMULA FOR MARK DOWN

MD

- **OSP - NSP**

MD

- **OSP X MdR (if the mark down rate is given)**

NSP

- **OSP - MD**

MdR

- **Md / OSP x 100**

BREAK EVEN POINT

Variable cost (VC)

- Are costs that vary in proportion to changes in the activity base. Expenses such as direct materials, direct labor, packaging and etc., are example of cost variable

TO COMPUTE TOTAL VC:

Total variable cost

- **Variable cost per unit x unit sold or produced**

VC ratio

- **Variable cost per unit / selling price per unit**

Fixed cost (FC)

- Are costs that remain the same in total regardless of changes in the activity level

Contribution margin (CM)

- The difference between the total sales and total variable cost
- Helps in determining how much income is added for every additional unit

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CM'S FORMULA

Contribution margins

- **Sales - variable cost**

Sales

- **Sales volume x Selling price per unit**

Cm per unit

- **Selling or sales price - variable cost per unit**

Cm ratio

- **Unit contribution margin / unit selling price**

Break Even Point (BEP)

- It is a point where total revenues, total cost and expenses are equal
- Can show how much units must be sold to avoid loss

BEP FORMULA

BEP units

- **Fixed cost / cm per unit**
- **or**
- **Fixed cost / selling price - vc**

BEP Sales

- **Fixed cost / cm ratio**

Target profit

- The sales required to earn a target or desired amount of profit is determined by modifying the break-even equation as follows:

SALES

- **Fixed cost + target profit / unit contribution margin**

PAYROLL, SALARY, WAGES & TAXES

Payroll

- The total amount required to pay workers and employees given a certain time period

Gross pay

- The total amount of employees earnings before deductions have been made by the employer. May be in form of salary wage

Wage

- The amount of money a worker is paid for the work they have rendered.
- It is computed on an hourly, daily, weekly or piece work basis

Salary

- Is a fixed monthly wages

Compensation

- The total monetary value given to an employee

COMPUTATIONAL FORMULAS:

Weekly salary

- **Annual salary / 52 weeks**

Biweekly salary (every other week)

- **Annual salary / 26**

Monthly salary

- **Annual salary / 12 months**

Semi-monthly salary (twice a month)

- **Annual salary / 24**

Gross pay

- **Regular pay + overtime**

Regular pay

- **Number of hours worked x Hourly rate**

Overtime pay

- **Number of overtime hours worked x Overtime rate x Hourly rate**

Total earning

- **Total number of items produced x Rate per piece**

+25%

- Overtime rate (regular working day)

+130% to hourly rate

- If the employee worked on a special non working holiday

+150%

- If the employee worked on a special non working holiday and is also his/her rest day

X2 of the regular hourly rate (commonly known as double pay)

- If the employee worked on a regular holiday

+160% of the hourly rate (x2.6)

- If the employee worked on a regular holiday, which is also his/her rest day

130%

- On a rest day, special nonworking holiday, or regular holiday

Taxation

- Imposition of a mandatory tax of the government of a country to its citizens

Sales tax

- Is a tax based on the retail selling, rental price of tangible personal property, admission charges on amusement centers, sports recreation and other services

TRADE DISCOUNT

Trade discount

- A reduction from list price granted to buyers

Single discount

- A discount that is given to a customer (usually wholesaler) when the customer buys a product

Series discount

- A discount that you offer based on a number of different conditions

DISCOUNT FORMULAS AND TERMINOLOGIES:

lp = list price

d = discount

nip = net invoice price

dr = discount rate