Examrace

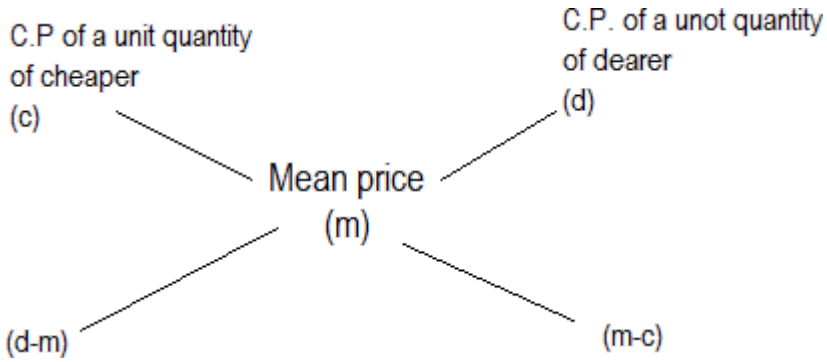
Allegation & Mixture Tricks and Formulas

Alligation or Mixture

- Alligation: It is the rule that enables us to find the ratio in which two or more ingredients at the given price must be mixed to produce a mixture at a given price.
- Mean Price: The cost price of a quantity of the mixture is called the mean price.
- Rule of Alligation: If two ingredients are mixed, then:

$$\left(\frac{Quantity\ of\ cheaper}{Quantity\ of\ de\ arer}\right) = \left)\frac{(C.P.\ of\ dearer) - (Mean\ price)}{(Mean\ price) - (C.P.\ of\ cheaper)}\right)$$

We represent the above formula as under:

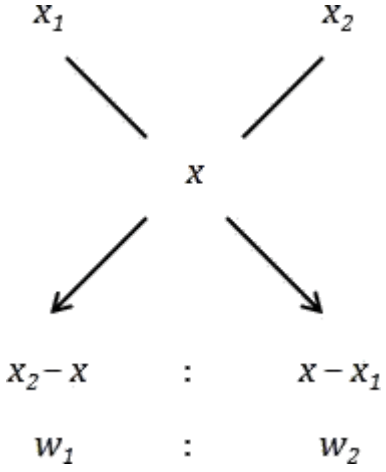


(Cheaper quantity) : (Dearer quantity) = (d − m) : (m − c)

Alligation Rule

The ratio of the weights of the two items mixed will be inversely proportional to the deviation of attributes of these two items from the average attribute of the resultant mixture. $\frac{w_1}{w_2} = \frac{(x_2 - x)}{(x - x_1)}$

Alligation Cross



Successive Replacement

Where x is the original quantity, y is the quantity that is replaced and n is the number of times the replacement process is carried out.

$$\frac{Quantity\ of\ milk\ remaining\ after\ n^{th}\ replacement}{Quantity\ of\ total\ mixture} = \left(\frac{x-y}{x}\right)^n$$

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