Mixture and Alligation

Concept & Formula

No unique ratio in case of more than 2 weights

Method of Calculating Averages in weighted form

Ratio of weights is inversely proportional to average attributes to each weight

$x_1 \quad x_2$

$\times$

$x_2 - x \quad : \quad x - x_1$

$w_1 \quad : \quad w_2$

$$\rightarrow \frac{w_1}{w_2} = \frac{x_2 - x}{x - x_1}$$

Rule of Alligation: If two ingredients are mixed, then

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

$\therefore$ (Cheaper quantity) : (Dearer quantity) = $(d - m) : (m - c)$

Replacement

k_0 = Initial concentration of a solution
k_1 = Final concentration
n = No. of dilutions
v = Original volume

Then $k_1 = k_0 \left(\frac{V - X}{V}\right)^n$

x = vol. of solution replaced each time

Applicable for a 2 liquid solution

Trace the Mind Map

▸ First Level ▸ Second Level ▸ Third Level