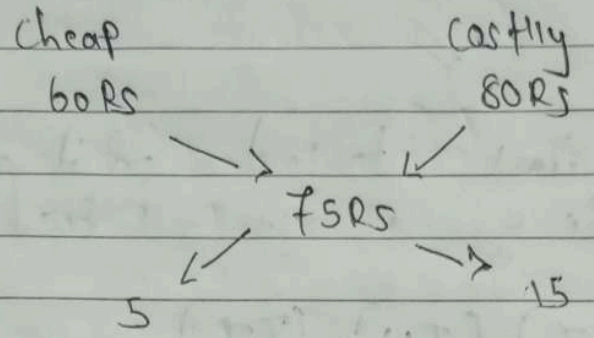
Mixtures & Alligation



B:Costly = 5:15

Share of A = $\frac{A}{A+B}$

Share of B = $\frac{B}{A+B}$

1) one can is completely contains 100% water another contain 50% water & 50% wine when emptied in vessel find the ratio

100L - Can 1

50L Wine + 50L Water - Can 2

when all of them are added

100 + 50L - 150 Water : 50L Wine

3:1

2) Resultant price of mixture of golden rice Rs 480/kg. made from 2 varieties of rice ₹420 & 580 ₹ respectively. what are the quantity of both rice

Cheap: Costly

420 520

480

40 : 60

4 : 6 = 2 : 3 //

3) A mixture consist of some amount of sandal wood & 240 litres of water. priced at 275/litre. Sandal wood oil is priced ₹325/litre. how much oil there

~~0 — 275~~ 0 325

275

~~50~~ : ~~275~~

2 : 11

120

$\frac{2}{11} = \frac{240}{oil}$ = 1320 litres oil

4) How much milk should be added in a milk solution to make milk quantity 75%, if 80L of milk solution has 45% milk in it

$80L_{sln} = \frac{45}{100} \times 80L_{sln} = 36L_{milk}$

$36L_{milk} + xL_{milk} = 80L_{sln} + (x)_{milk}$

20

$(36+x) = \frac{75}{100} \times 80 + x$ = 96 litres$_{milk}$

5) A pot contains 40 litres of juice. How much juice will be there in the pot. If 4 litres of juice was removed and was replaced by water and repeated twice

Initially we had 40 litre
we remove 4

40l - 4l = 36l
ratio of J : water
9 : 1

further this process is repeated twice

removed
$\frac{36}{36+4} \times 4 = 3.6$

36 - 3.6 = 32.4 litre

Juice water

32.4 : 7 : 6

$\frac{32.4}{32.4+7.6} = \frac{32.4}{40} \times 4 = 3.24$

So totally 40 - 3.6 - 3.24 = 24.16

6) one glass has juice & water in the ratio 5:2 while other glass has 7:4 respectively If both glasses poured in a vessel, then what will be final ratio of W:J

Given

5:2 — 111y

$\frac{5}{7}$ - J $\frac{2}{7}$ w $\frac{7}{11}$ - J $\frac{4}{11}$ - w

Jst add

J: $\frac{5}{7} + \frac{7}{11} = \frac{55+49}{77} = \frac{104}{77}$

w: $\frac{2}{7} + \frac{4}{11} = \frac{22+28}{77} = \frac{50}{77} = 25:97$

w:J

7) Ramesh mixes 60 litres of Type1 acid with some litres of type-2 acid. Type1 acid is 32 Type 2 28 . Ramesh sells this acid at 28 /litres. how much Type2 acid he used

Type1	Type2
60	x
32	28

$60 \times 32 + 235 = 28(60+x)$

S = 48 litres

8) In a mixture of 90 the ratio of acid & water is 2:1 . If the ratio of acid & water is 1:2 then amount of water

A:W = 90 Acid = $\frac{2}{3} \times 90 = 60$ W = 30

2:1 = 90

So in order to make it add 90 litres of water

2:1

9.) 3 types of sugar got mixed by accident. First was ₹145/kg Second ₹165/kg Quantities of sugar 2:1:3 he sold all of them for 180/kg. cost of 3rd type

$145 + 165 + ? = 180 \times 6k$
$2k \quad k \quad 3k$

$290 + 165 + 3? = 1080$

$? = \frac{525}{3} = 175$ Rs

10.) A mixture of two food salt to sugar 7:32, Industrial - 2:11 & 5:21 in what proportions are they mixed

Lets take salt then Calculate sugar

$\frac{2}{13}$ $\frac{5}{26}$

$\frac{7}{39}$

ratio of quantity $= \frac{5}{26} - \frac{7}{39} = \frac{1}{78}$ $\quad \frac{2}{13} - \frac{7}{39} \quad \frac{1}{39}$

$\frac{1}{78} : \frac{1}{39} = 1 : 2$

11.) A with hone honey lite 9:8 Solut is 28 H= W To

12.) Ro He fin Wha

11) A Solution of honey and water is 28 litres with honey & water 4:3. To this 21 litre honey - water solution is added that has honey to water ratio 2:1 Again a 51 litre honey-water Sln has honey to water ratio as 9:8 is added to the After 10 litres of Solution is replaced with pure honey. what is ratio of water to honey

28 litre
$H = \frac{4}{7} \times 28 = 16$
$W = 12$

21 litre
$H = \frac{2}{3} \times 21 = 14$ lit.
$W = 7$ litre

51
$\frac{9}{17} \times 51 = 27$
$W = 24$

Total = 100 l$_{Sln}$ - 57 l,t$_{honey}$ 43 lit$_{water}$

$\frac{57}{100} \times 10 = 5.7$ - Honey removed 4.3 - water

$57 - 5.7 + 10 = 61.3$ Honey

$43 - 4.3 = 38.7$ water

61.3 : 38.7

12) Rohit buys some rice at ₹10.4/kg. He mixes it with rice having ₹8.8/kg final mixture 15 kg with total ₹146.4. What is quantity of rice priced at ₹8.8

$\frac{146.4}{15}$ = 9.8 ≈ 8m.

k(2+3) = 55

k5 =

8.8 10.4

↘ ↙

9.6

0.64 0.96

↓

2:3

2k + 3k = 15k

k = 3

26.6 kg

13.) Sunil started a juice counter. Initially he had 140 litre juice which had 30% water in it. He sold 20 litres of juice Then he added equal amount of lemon syrup and water. Now syrup became 1:2 how much water was adde

30% water 70% in 140 litre
he sells 20

So in 120 litre

$\frac{30}{100} \times 120$ = 36 litres water
84 litres syrup

$\frac{84 + A}{36 + A} = \frac{1}{2}$

A = 12 litres

14) A milkman had water & milk mixture in a can with water to milk ratio 5:7. He accidentally spills 9 litres of mixture. He then fills the can with equal quantity of spilled mixture. This makes water to milk 9:7. How much it had init.

$5k \quad 7k$

$\frac{5}{12} \times 9 = 3.75$ litres - water

$\frac{7}{12} \times 9 = 5.25$

$5k - 3.75 + 9 = 5k + 5.25$

$M = 7k - 5.25$

$\frac{9}{7} = \frac{5k + 5.25}{7k - 5.25} \Rightarrow k = 3$

7(a) 21 litres