

When 40% of a number is added to 42, the resultant no, is itself find the number.

Solution

let the number = x .

$$40\% = \frac{40}{100}$$

$$\frac{40}{100}(x) + 42 = x.$$

$$\frac{40}{100}(x - x) = -42.$$

$$x \left(\frac{40}{100} - 1 \right) = -42.$$

$$\neq x \left(1 - \frac{40}{100} \right) = \neq 42.$$

$$x \left(\frac{1 \times 100 - 40}{1 \times 100} \right) = 42.$$

$$x \left(\frac{100 - 40}{100} \right) = 42.$$

$$x \left(\frac{3 \cancel{100}}{5 \cancel{100}} \right) = 42.$$

$$x \left(\frac{3}{5} \right) = 42.$$

$$x = 42 \times \frac{5}{3} = \frac{70}{3} = 23 \frac{1}{3}$$

$$\boxed{x = 70.}$$

Question 2:-

A metal bar weighs 8.15 ounces.
93% of the bar is silver, how
many of silver are in bar?

$$\begin{aligned} \text{weight of metal bar} &= 8.15 \\ 93\% \times 8.15 &= \text{silver} \end{aligned}$$

$$\frac{93}{100} \times \frac{815}{100} = \text{silver}$$

$$0.93 \times 8.15$$

$$\boxed{7.57} \text{ Ans.}$$

$$\begin{array}{r} 8.15 \\ 8.15 \\ \times 0.93 \\ \hline 2445 \\ 7335 \times \\ 000 \times \times \\ \hline 7.5795 \end{array}$$

Question 3:-

15 liter of mixture contains 20%
alcohol and the rest is water.
If 3 liters of water be mixed in
it, what is percentage of alcohol
in new mixture?

Solution:-

$$\text{Total mixture} = 15 \text{ liters}$$

$$\text{Alcohol} = 20\%$$

$$\text{Water} = 80\%$$

$$\frac{20}{100} \times 15 = 3 \text{ liter alcohol}$$

$$\therefore 15 - 3 = 12 \text{ liter water}$$

if 3 liter of water be mixed in it

$$\text{water} + \text{mixture} = 3 + 12 \\ 15 \text{ liter water.}$$

$$15 \text{ liter water} + 3 \text{ liter alcohol} = 18 \text{ liter mixture}$$

Percentage of alcohol in new mixture

$$\frac{\text{alcohol}}{\text{total mixture}} \times 100 = \text{percentage}$$

← 3 → percentage
← 18 →

$$0.16 \times 100 = \boxed{16.66 \%}$$

Question 4:

A student earned a grade of 80% in maths that had 20 problems. How many problems in that test did the student's answer correctly.

$$80\% \times 20 = x$$

$$\frac{80}{100} \times 20 = x$$

$$\frac{16}{5} = x$$

$$x = 16$$

Question 5: 1 kg of tea and 4 kg of sugar cost Rs 35, but if sugar rises by 50% and tea 10% they would cost Rs 42.50. Find the price per kg of sugar.

Solution

$$1 \text{ kg of tea} + 4 \text{ kg of Sugar} = 35$$

$$1 \text{ kg sugar rises} = 50\%$$

$$1 \text{ kg tea rises} = 10\%$$

Let, the tea = T
the sugar = S

as given :-

$$1T + 4S = 35 \rightarrow \textcircled{A}$$

$$80\% \times 20 = x$$

$$\frac{80}{100} \times x = x$$

$$\frac{16}{81} = x$$

$$x = 16$$

Question 5: 1 kg of tea and 4 kg of sugar cost Rs 35, but if sugar rises by 50% and tea 10% they would cost Rs 42.50. Find the price per kg of sugar.

Solution

$$1 \text{ kg of tea} + 4 \text{ kg of Sugar} = 35$$

$$1 \text{ kg sugar rises} = 50\%$$

$$1 \text{ kg tea rises} = 10\%$$

Let, the tea = T
the sugar = S

as given :-

$$1T + 4S = 35 \rightarrow \textcircled{A}$$

new sugar raise by 50%
and tea raise by 10%

So

$$T = T + 10\%T$$
$$4S = 4S + (50\%)4S$$

So resulting eq is:

$$(T + 10\%T) + [4S + (50\%)(4S)] = 42.5$$

$$\left(T + \frac{10}{100}T\right) + \left(4S + \frac{50}{100} \times 4S\right) = 42.5$$

$$\left(T + \frac{1}{10}T\right) + (4S + 2S) = 42.5$$

taking LCM:

$$\left(\frac{10T + 1T}{10}\right) + (4S + 2S) = 42.5$$

$$\frac{11T}{10} + 6S = 42.5$$

multiplying 10 on both sides.

$$10 \left[\frac{11T}{10} + 6S \right] = (42.5)(10)$$

$$10 \left[\frac{11T}{10} \right] + 10 \times 6S = 425.0$$

$$\boxed{11T + 60S = 425} \quad (5)$$

now we need to find value of
Sugar = $S = ?$

$$t + 4s = 38$$

$$4s = 38 - t$$

$$t = 35 - 4s$$

Putting value of T in equation (1).

$$11(35 - 4s) + 60(s) = 425$$

$$385 - 44s + 60s = 425$$

$$425 - 385 = 60s - 44s$$

$$40 = 16s$$

$$\frac{40}{16} = s$$

$$2.5$$

$$2.5 = s$$

$$\begin{array}{r} 35 \\ \times 11 \\ \hline 35 \\ 385 \\ \hline 385 \end{array}$$

$$\begin{array}{r} 425 \\ - 385 \\ \hline 40 \end{array}$$

$$\begin{array}{r} 560 \\ - 44 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 116 \\ \times 2 \\ \hline 32 \end{array}$$

$$\begin{array}{r} 1 \\ \times 16 \\ \hline 16 \\ 160 \\ \hline 176 \end{array}$$

$$\begin{array}{r} 1 \\ \times 16 \\ \hline 16 \\ 160 \\ \hline 176 \end{array}$$