

General Science and Ability : Maths Practice.

Qno.1: When 40% of a number is added to 42, the result is the number itself. Find the number

Sol: Let the number be "x".

$$40\% \text{ of a number} = \frac{40}{100} x = \frac{2}{5} x$$

According to given condition:

$$\frac{2}{5} x + 42 = x$$

$$42 = x - \frac{2}{5} x$$

$$42 = \frac{5x - 2x}{5} = \frac{3x}{5}$$

$$\frac{42 \times 5}{3} = x = \frac{210}{3} = 70.$$

$$\boxed{x = 70}$$

Qno.2: A metal Bar weights 8.5 ounces. 93% of the bar is silver, how many of silver are in the bar?

Sol: Total weight = 8.5 ounces.

Silver bar = 93%.

$$\text{Silver bar (Weight)} = \frac{93}{100} (8.5).$$

$$\begin{array}{r} 2 \\ 93 \\ \times 17 \\ \hline 651 \\ 930 \\ \hline 1581 \end{array}$$

$$\begin{array}{r} 2 \\ 93 \\ \times 8.5 \\ \hline 465 \\ 7440 \\ \hline 790.5 \end{array}$$

$$= \frac{93}{100} \times 8.5$$

$$\boxed{= 7.905}$$

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

Sol: Mixture wt = 15 L

Alcohol = 20% , Water = 80%

Added water = 3 liters

Mixture wt after adding water = 18 litres.

* %age of alcohol in new mixture =

$$= \frac{\text{Alcohol in Mix}}{\text{Total Mix}} \times 100.$$

$$\text{Alcohol in Mix} = \frac{20}{100} \times 15 = \frac{300}{100} = 3 \text{ liters.}$$

$$\% \text{ alcohol in new mix} = \frac{3 \text{ liters}}{18 \text{ liters}} \times 100$$

$$= \frac{\overset{50}{+50} 300}{18} = \frac{50}{3}$$

$$\begin{array}{r} 16.6 \\ 3 \overline{) 50} \\ \underline{3} \\ 20 \\ \underline{18} \\ 2 \end{array}$$

$$\% \text{ Alcohol} = 16.66$$

Qno. 4: A student earned a grade of 80% in math that had 20 problems. How many problems in the test did the student answer correctly?

Sol: Grade = 80%

Total Problems = 20

$$\frac{\text{Correctly attempted problems}}{100} = \frac{\text{Grades}}{100} \times \text{Total Problems.}$$

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

Correctly attempted = 16 problems.

Qno.5: 1kg of Tea and 4kg of Sugar cost Rs 35, but if sugar rises by 50% and Tea by 10%. They would cost 42.50. Find the ^{price} per 1kg of Sugar?

Sol:

$$1 \text{ kg Tea} + 4 \text{ kg Sugar} = \text{Rs. } 35.$$

$$10\% \text{ rise in } 1 \text{ kg Tea} + 50\% \text{ rise in } 4 \text{ kg Sugar} = 42.50$$

Let Tea = x and sugar = y .

$$1x + 4y = 35 \text{ — (1) equ}$$

$$\left(\frac{10}{100}y + 1x\right) + \left(\frac{50}{100}y + 4y\right) = 42.50.$$

$$(0.1 + 1x) + (0.5 + 4y) = 42.50$$

$$1.1x + 4.5y = 42.50 \text{ — (2) equ}$$

we have to find price of sugar = y

Add equation (2) from equation (1).

$$\begin{array}{r} x + 4y = 35 \\ 1.1x + \end{array}$$

Multiply equation ① by 1.1 on both sides.

$$1.1 \times 1x + 1.1 \times 4y = 1.1 \times 35$$

$$1.1x + 4.4y = 38.5 \text{ --- } \textcircled{3}$$

$$\begin{array}{r} 35 \\ \times 1.1 \\ \hline 35 \\ 35x \\ \hline 38.5 \end{array}$$

Sub eq ③ from eq ②:

$$\begin{array}{r} 1.1x + 4.5y = 42.50 \\ \pm 1.1x + 4.4y = \pm 38.5 \\ \hline 0.1y = 4.00 \end{array}$$

$$0.1y = 4$$

$$y = 40$$