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Q1) When 40% of a number is added to 42, the result is the number itself. Find the number?

Sol

Let the number be  $x$

$$40\% \text{ of } x + 42 = x$$

$$\frac{40}{100} \text{ of } (x)$$

100

$$\frac{2}{5} \text{ of } (x) \quad \text{--- (1)}$$

then

$$\frac{2}{5} \text{ of } (x) + 42 = x$$

Subtract eq (1) from both sides

$$0.40x + 42 = x$$

Subtract  $0.40x$  both side

$$42 = 0.60x$$

$$x = \frac{42}{0.60}$$

$$x = 70 \text{ Ans}$$

Q2) A metal bar weight 8.15 ounces.  
93% of the bar is silver, how many  
of silver are in the bar?

Sol

Total weight of bar = 8.15  
percentage of silver bar is 93%.

$$\text{Weight of silver} = \frac{\text{Weight of metal bar}}{\text{Percentage of Silver}}$$
$$= \frac{8.15}{93\%}$$

$$93\% = 0.93$$
$$= \frac{8.15}{0.93}$$

Weight of Silver = 7.57 ounces.

Q3) 15 liter of a mixture contains 20% alcohol and the rest is water. If 3 litres of water be mixed in it, what is percentage of alcohol in the new mixture?

Sol

total mixture = 15 litres

$$\text{Alcohol} = \frac{20}{100} \times 15 = 3 \text{ litre}$$

3 litre water mixed in new mixture = 15 + 3 = 18 litres

$$\frac{\text{Alcohol}}{\text{Total mixture}} \times 100\%$$

$$\frac{3 \text{ litre}}{18 \text{ litre}} \times 100\%$$

$$\frac{1}{6} \times 100$$

$$= \frac{1}{6} \times 100 \cdot \frac{(100)}{100} \Rightarrow \frac{1}{6} \times 100$$

$$= 16.67\%$$

Q4) 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

Total number of problem = 20  
Percentage of correctans = 80%

80% of 20

$$\frac{80}{100} \times 100 \text{ of } 20$$

$$0.80 \times 20$$

$$= 16 \text{ problem}$$

Q5) 1 kg of tea and 4 kg of sugar cost Rs 35, but if sugar rises by 50% and tea 100%. They would cost Rs 42.50. Find the price per kg of sugar

Sol

Let price of 1 kg of tea = x

Let price of 1 kg of sugar = y

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

OR

$$1 \text{ kg of tea} + 1.5 \text{ kg sugar} = \text{Rs } 42.5$$

$$x + 4y = 35 \quad \text{--- (1)}$$

$$x + 1.5y = 42.5 \quad \text{--- (2)}$$

(LMS Solve it further, I cannot solve it)

- Q) A man buys 5 kg of meat at Rs 500 per kg. In addition, for every kilogram of a meat purchased, he has to pay a consumption tax of 6% on the selling price. Calculate the total amount of money that he has to pay.  
(SS-2018)

Sol

total cost of meat of 5 kg at Rs 500 per kg

$$= 5 \times 500$$

$$= 2500$$

consumption tax is 6% of (2500)

~~Total cost = Cost of meat~~

$$0.06 \times 2500 = 150$$

Total cost = Cost of meat + Tax

$$= \text{Rs } 2500 + \text{Rs } 150$$

$$= 2650 \text{ Rs}$$

Q) It takes 3 litres of paint to cover an area of 24 square meter. What Percentage increase in the quality of paint would be required to cover an area of 50.4 square meter.  
(CSS-2018)

Sol

Cover an area of 50.4 square with same quality of paint

$$\frac{50.4}{24} \times 3 = 6.3 \text{ litres paint}$$

Percentage increase of quality of paint

$$\begin{aligned} &= 6.3 - 3 \\ &= \frac{3}{3} \times 100\% \\ &= 100\% \end{aligned}$$

Q) The Cost of hiring a car for 2 days in 2018 was Rs 264 which was 20% more than in 2013. What was the cost of hiring a car in 2013?  
(CSS-2019)

Sol

let cost of hiring a car in 2013 = x

Cost of hiring a car in 2018 =  $120\%$  of  $x$

$$\frac{120x}{100}$$

$$100$$

$$\text{Rs } 12x$$

$$12x = 264$$

Divide 1.2 both side

$$x = 220 \text{ Ans}$$

Q) Mr. Faheem has dinner with his family at a restaurant which offers a  $10\%$  discount on food. The marked price of food they order was Rs 15000. Given that there was a service charges  $10\%$  and GST  $17\%$ , calculate the total amount of money he has pay.  
(SS-2021)

Sol

Marked price of food Rs 15000

Discount =  $10\%$  of 15000

$$= 0.1 \times 15000 = \text{Rs } 1500$$

Price after discount =  $15000 - 1500$

$$= \text{Rs } 13500$$

Service charge =  $10\%$  of Rs 13500

$$= 0.1 \times 13500$$

$$= \text{Rs } 1350$$

GST =  $17\%$  of Rs 13500

$$= 0.17 \times 13500 = 2295$$

Total amount paid

$$\text{Rs } 13500 + \text{Rs } 1350 + \text{Rs } 2295$$

$$= 17145 \text{ Ans}$$

Q The Income of company decreased by 10% and 15% in two successive year. What is the percentage of decreased in income after two year?  
(CSS-2022)

Sol

New income after 1st percent decrease  
 $100 \left( \frac{1-10}{100} \right) = 90$

New income after 2nd percent  
 $90 \left( \frac{1-15}{100} \right) = 76.5$

Percentage decrease after two year  
 $\frac{100 - 76.5}{100} \times 100\%$   
 $= 23.5\%$  Ans

Q) Ali Buys an oven for Rs 36800 and sell it at a gain of 8.5%. For how much does he sell it?  
(CSS-2023)

Sol

Price of oven is 36800 Rs  
Profit = 8.5%

Profit =  $\frac{\text{New Price} - \text{Original Price}}{\text{Original Price}} \times 100$

$8.5\% = \frac{\text{New Price} - 36800}{36800} \times 100$

$$\frac{85 \times 36800}{100} = \text{Selling price} = 36800$$

$$3128 = \text{SP} - 36800$$

$$\text{SP} = 3128 + 36800$$

$$\text{Selling price} = \text{Rs } 39928$$