



Exercise 9A

Q13

Answer :

Let x be the number of days the school was opened.

Number of days Sonal attended school = 204 days

Percentage of her attendance = 85% of x

$$= \left(x \times \frac{85}{100} \right) \\ = \frac{85x}{100}$$

$$\text{Now, } \frac{85x}{100} = 204$$

$$\Rightarrow x = \left(204 \times \frac{100}{85} \right)$$

$$\Rightarrow x = 240$$

\therefore The school was opened for 240 day.

Q14

Answer :

Let B's income be Rs 100

Then, A's income = Rs 80

$$\text{Therefore, B's income is more than A's income by} = \frac{(100-80)}{80} \times 100\% \\ = \frac{20}{80} \times 100\% = 25\%$$

$$= Rs125$$

\therefore B's income is more than that of A's by $(125 - 100)\%$, i.e., 25%.

Q15

Answer :

Let the consumption of petrol originally be 1 unit and let its cost be Rs 100.

New cost of 1 unit of petrol = Rs 110

Now, Rs 110 will yield 1 unit of petrol.

i.e., Rs 100 will yield $\left(\frac{1}{110} \times 100 \right)$, i.e., $\frac{10}{11}$ units of petrol.

Now, reduction in consumption = $\left(1 - \frac{10}{11}\right) = \frac{1}{11}$ unit

Percentage of reduction = $\left(\frac{1}{11} \times \frac{1}{1} \times 100\right)\% = 9\frac{1}{11}\%$

∴ A motorist must reduce the consumption of petrol by $9\frac{1}{11}\%$.

Q16

Answer :

Let x be the population of the town a year ago. Then, present population = 108% of x

$$= \left(x \times \frac{108}{100}\right) = \frac{27x}{25}$$

Now, $\frac{27x}{25} = 54000 \Rightarrow x = \left(54000 \times \frac{25}{27}\right) \Rightarrow x = 50000$

Hence, the population of the town a year ago was 50000.

Q17

Answer :

Let Rs x be the value of the machine last year.

Then, present value = 80% of Rs x

$$= \text{Rs} \left(x \times \frac{80}{100}\right)$$

$$= \text{Rs} \frac{4x}{5}$$

Now, $\frac{4x}{5} = 160000$

$$\Rightarrow x = \left(160000 \times \frac{5}{4}\right)$$

$$\Rightarrow x = 40000 \times 5 = 200000$$

Hence, the value of the machine last year was Rs 2,00,000.

Q18

Answer :

Mass of the alloy = 1 kg

Percentage of copper = 40%

Percentage of nickel = 32%

Percentage of zinc = $\{100 - (40 + 32)\}\%$
 $= 28\%$

∴ Mass of zinc in 1 kg of alloy = $\left(\frac{28}{100} \times 1\right)$ kg
 $= 0.28 \text{ kg} = 0.28 \times 1000 \text{ g} = 280 \text{ g}$

Q19

Answer :

Amount of protein = 12% of 2600

$$= \left(2600 \times \frac{12}{100}\right)$$

$$= 312 \text{ cal}$$

Amount of fat = 25% of 2600

$$= \left(2600 \times \frac{25}{100}\right)$$

$$= 650 \text{ cal}$$

Amount of carbohydrate = 63% of 2600

$$= \left(2600 \times \frac{63}{100}\right)$$

$$= 1638 \text{ cal}$$

Q20

Answer :

Let x be the amount of gunpowder.

Amount of nitre = 75%

Let x kg be the amount of gunpowder containing 9 kg of nitre.

i.e., (75% of x) = 9 kg

$$\Rightarrow \left(x \times \frac{75}{100}\right) = 9$$

$$\Rightarrow \frac{75x}{100} = 9$$

$$\Rightarrow x = \left(9 \times \frac{100}{75}\right)$$

$$\Rightarrow x = 12 \text{ kg}$$

Hence, 12 kg of gunpowder contains 9 kg of nitre.

Now, amount of sulphur = 10%

Let x kg be the amount of gunpowder containing 2.5 kg of sulphur.

i.e., (10% of x) = 2.5 kg

$$\Rightarrow \left(x \times \frac{10}{100}\right) = 2.5$$

$$\Rightarrow \frac{10x}{100} = 2.5$$

$$\Rightarrow \frac{x}{10} = 2.5$$

$$\Rightarrow x = (2.5 \times 10)$$

$$\Rightarrow x = 25 \text{ kg}$$

Hence, 25 kg of gunpowder contains 2.5 kg of sulphur.

Q21

Let Rs x be the amount of money recieved by C.

Then, amount of money B gets = (50% of Rs x)

Amount of money A gets = (50% of B)

= (25% of Rs x)

Now, $x + (50\% \text{ of Rs } x) + (25\% \text{ of Rs } x) = \text{Rs } 7000$

$$\Rightarrow x + \left(x \times \frac{50}{100}\right) + \left(x \times \frac{25}{100}\right) = \text{Rs } 7000$$

$$\Rightarrow x + \frac{50x}{100} + \frac{25x}{100} = \text{Rs } 7000$$

$$\Rightarrow \left(x + \frac{50x}{100} + \frac{25x}{100}\right) = \text{Rs } 7000$$

$$\Rightarrow \frac{175x}{100} = \text{Rs } 7000$$

$$\Rightarrow x = \text{Rs } \left(7000 \times \frac{100}{175} \right)$$

$$\Rightarrow x = \text{Rs } 4000$$

\therefore C gets Rs 4000.

$$\begin{aligned} \text{Amount of money B gets} &= (50\% \text{ of Rs } x) \\ &= (50\% \text{ of Rs } 4000) \\ &= \text{Rs } \left(4000 \times \frac{50}{100} \right) \\ &= \text{Rs } 2000 \end{aligned}$$

$$\begin{aligned} \text{Amount of money A gets} &= (25\% \text{ of Rs } x) \\ &= (25\% \text{ of Rs } 4000) \\ &= \text{Rs } \left(4000 \times \frac{25}{100} \right) \\ &= \text{Rs } 1000 \end{aligned}$$

Q22

Answer :

22 carat gold contains 22 parts pure gold out of 24 parts.

Also, 24 carat gold is given to be 100% pure.

$$\begin{aligned} \therefore \text{Percentage of pure gold in 22 carat gold} &= \left(\frac{22}{24} \times 100 \right) \% \\ &= 91 \frac{2}{3} \% \end{aligned}$$

Hence, 22 carat gold contains $91 \frac{2}{3} \%$ of pure gold.

Q23.

Answer :

Let the original salary be Rs 100

Then, after increment of 25% the salary becomes

$$= 100 \left(1 + \frac{25}{100} \right) = 100 \left(\frac{125}{100} \right) = \text{Rs } 125$$

To restore the original salary, let the new salary be decreased by x%.

Thus, we get

$$\begin{aligned} 125 \left(1 - \frac{x}{100} \right) &= 100 \\ \Rightarrow \left(1 - \frac{x}{100} \right) &= \frac{100}{125} = \frac{4}{5} \\ \Rightarrow \frac{x}{100} &= \frac{1}{5} \\ \Rightarrow x &= \frac{100}{5} = 20 \% \end{aligned}$$

Therefore, the new salary must be reduced by 20% to restore the original salary.

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