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

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

$$= \frac{85x}{100}$$

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

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

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

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

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

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

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

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

$\Rightarrow \text{x} = 40000 \times 5 = 200000$

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 $= \{100 - (40 + 32)\}\%$

$= 28\%$

$\therefore$ 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

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

$= 312$ cal

Amount of fat $= 25\%$ of 2600

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

$= 650$ cal

Amount of carbohydrate $= 63\%$ of 2600

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

$= 1638$ 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

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

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

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

$\Rightarrow x = 12$ 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

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

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

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

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

$\Rightarrow x = 25$ 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% of Rs x) + (25% of Rs x) $=$ Rs 7000

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

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

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

Amount of money B gets = (50% of Rs x)

= (50% of Rs 4000)

= Rs $\left(4000 \times \frac{50}{100}\right)$

= Rs 2000

Amount of money A gets = (25% of Rs x)

= (25% of Rs 4000)

= Rs $\left(4000 \times \frac{25}{100}\right)$

= Rs 1000

Q22

Answer :

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

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

$\therefore$ Percentage of pure gold in 22 carat gold = $\left(\frac{22}{24} \times 100\right)\%$

$= 91\frac{2}{3}\%$

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

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

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

Thus, we get

$125\left(1 - \frac{x}{100}\right) = 100$

$\Rightarrow \left(1 - \frac{x}{100}\right) = \frac{100}{125} = \frac{4}{5}$

$\Rightarrow \frac{x}{100} = \frac{1}{5}$

$\Rightarrow x = \frac{100}{5} = 20\%$

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

********** END **********