Q11. Baichung's father is 26 years younger than Baichung's grandfather and 29 years older than Baichung. The sum of the ages of all the three is 135 years. What is the age of each one of them?

Ans: Let Baichung's age be x years, then Baichung's father's age $= (x+29)$ years and Baichung's granddaughter's age $= (x+29+26) = (x+55)$ years.

According to condition, $x + x + 29 + x + 55 = 135$

$\Rightarrow 3x + 84 = 135 \Rightarrow 3x + 84 - 84 = 135 - 84$

[Subtracting 84 from both sides]

$\Rightarrow 3x = 51 \Rightarrow \dfrac{3x}{3} = \dfrac{51}{3}$

[Dividing both sides by 3]

$\Rightarrow x = 17$ years

Hence, Baichung's age = 17 years, Baichung's father's age = 17 + 29

= 46 years

And Baichung's granddaughter's age

= 17 + 29 + 26 = 72 years.

Q12. Fifteen years from now Ravi's age will be four times his present age. What is Ravi's present age?

Ans: Let Ravi's present age be x years.

After fifteen years, Ravi's age = $4x$ years.

Fifteen years from now, Ravi's age = $(x+15)$ years.

According to question, $4x = x+15$

$\Rightarrow 4x-x=15$

[Transposing x to L.H.S.]

$\Rightarrow 3x=15$

$\Rightarrow \dfrac{3x}{3} = \dfrac{15}{3}$

[Dividing both sides by 3]

$\Rightarrow x=5$ years

Hence, Ravi's present age be 5 years.

Q13. A rational number is such that when you multiply it by $\frac{5}{2}$ and add $\frac{2}{3}$ to the product, you get $\frac{-7}{12}$. What is the number?

Ans: Let the rational number be x.

According to the question, $\frac{5}{2}x + \frac{2}{3} = \frac{-7}{12}$

$$\Rightarrow \frac{5}{2}x + \frac{2}{3} - \frac{2}{3} = \frac{-7}{12} - \frac{2}{3}$$

[Subtracting $\frac{2}{3}$ from both sides]

$$\Rightarrow \frac{5x}{2} = \frac{-7-8}{12}$$

$$\Rightarrow \frac{5x}{2} = \frac{-15}{12}$$

$$\Rightarrow 5x \times 12 = -15 \times 2$$

$$\Rightarrow 60x = -30$$

$$\Rightarrow \frac{60x}{60} = \frac{-30}{60}$$

[Dividing both sides by 60]

$$\Rightarrow x = \frac{-1}{2}$$

Hence, the rational number is $\frac{-1}{2}$.

Q14. Lakshmi is a cashier in a bank. She has currency notes of denominations Rs. 100, Rs.50 anRs.10 respectively. The ratio of the number of these notes is 2 : 3 : 5. The total cash with Lakshmi is Rs.4,00,000. How many notes of each denomination does she have?

Ans: Let number of notes be $2x, 3x$ and $5x$.

According to question,
$100 \times 2x + 50 \times 3x + 10 \times 5x = 4,00,000$

$\Rightarrow 200x + 150x + 50x = 4,00,000$

$\Rightarrow 400x = 4,00,000$

$\Rightarrow \dfrac{400x}{400} = \dfrac{4,00,000}{400}$

[Dividing both sides by 400]

$\Rightarrow x = 1000$

Hence, number of denominations of Rs. 100

notes $= 2 \times 1000 = 2000$

Number of denominations of Rs. 50 notes =
$3 \times 1000 = 3000$

Number of denominations of Rs. 10 notes =
$5 \times 1000 = 5000$

Therefore, required denominations of notes of Rs. 100, Rs. 50 and Rs. 10 are 2000, 3000 and 5000 respectively.

Q15. I have a total of Rs.300 in coins of denomination Rs.1, Rs.2 and Rs.5. The number of Rs.2 coins is 3 times the number of Rs.5 coins. The total number of coins is 160. How many coins of each denomination are with me?

Ans: Total sum of money = Rs. 300

Let the number of Rs. 5 coins be x, number of Rs. 2 coins be $3x$ and number of Rs. 1 coins be $160 - (x + 3x) = 160 - 4x$.

According to question,
$5 \times x + 2 \times (3x) + 1 \times (160 - 4x) = 300$

$\Rightarrow 5x + 6x + 160 - 4x = 300$

$\Rightarrow 7x + 160 = 300$

$\Rightarrow 7x + 160 - 160 = 300 - 160$

[Subtracting 160 from both sides]

$\Rightarrow 7x = 140$

$$\Rightarrow \frac{7x}{7} = \frac{140}{7}$$

[Dividing both sides by 7]

$\Rightarrow x = 20$

Hence, the number of coins of Rs. 5 denomination = 20

Number of coins of Rs. 2 denomination = 3×20 = 60

Number of coins of Rs. 1 denomination = $160 - 4 \times 20$ = 160 − 80 = 80

Q16. The organizers of an essay competition decide that a winner in the competition gets a prize of Rs.100 and a participant who does not win, gets a prize of Rs.25. The total prize money distributed is Rs.3,000. Find the number of participants is 63.

Ans: Total sum of money = Rs. 3000

Let the number of winners of Rs. 100 be x.

And those who are not winners = $63 - x$

According to the question,
$$100 \times x + 25 \times (63 - x) = 3000$$

$\Rightarrow 100x + 1575 - 25x = 3000$

$\Rightarrow 75x + 1575 = 3000$

$\Rightarrow 7x + 1575 - 1575 = 3000 - 1575$

[Subtracting 1575 from both sides]

$\Rightarrow 7x = 1425$

$$\Rightarrow \frac{7x}{7} = \frac{1425}{7}$$

[Dividing both sides by 7]

$\Rightarrow x = 19$

Hence the number of winner is 19.

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