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General Science and Ability

NOA Mock Paper
January (- 2022)

Q6: (a) Divide \$370 into three parts such that second part is $\frac{1}{4}$ of the third part and the ratio between the first and the third part is $3:5$. Find each part.

Solution: Let the three parts be x (first part), y (second part) and z (third part)

We are given:

1. The second part is $\frac{1}{4}$ of the third part
i.e. $y = \frac{z}{4}$

2. The ratio between the first part and the third part is $3:5$, i.e. $\frac{x}{z} = \frac{3}{5}$ which gives $x = \frac{3}{5}z$

Now, the sum of all three parts is 370:
 $x + y + z = 370$

Substitute the values of x and y in terms of z :

$$\frac{3}{5}z + \frac{z}{4} + z = 370$$

Date _____

(2)

$$\frac{3}{5}z + \frac{2}{4}z + z = 370$$

To simplify this equation, find the least common denominator (LCD) for the fractions, which is 20:

$$\frac{12}{20}z + \frac{5}{20}z + \frac{20}{20}z = 370$$

$$\frac{37}{20}z = 370$$

Multiply both sides by 20:

$$37z = 7400$$

$$z = \frac{7400}{37}$$

$$z = 200$$

Now, substitute $z = 200$ into the expressions for x and y :

$$x = \frac{3}{5} \times 200 = 120$$

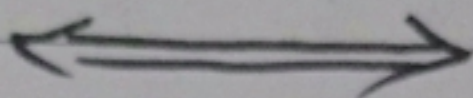
$$y = \frac{200}{4} = 50$$

Thus, the three parts are:

First part: 120

Second part: 50

Third part: 200



- (b) For 9 innings, Rohan has an average of 65 runs. In the tenth inning, he scores 200 runs, thus increasing his average increased by?

Solution:

Step 1: Calculate Rohan's total runs after 9 innings.

Rohan's average for 9 innings is 65 runs. Therefore, the total runs scored in the first 9 innings is:

$$\begin{aligned} \text{Total runs after 9 innings} &= 65 \times 9 \\ &= 585 \end{aligned}$$

Step 2:

In the 10th inning, Rohan scores 200 runs. So, the total runs after 10 innings is

$$\begin{aligned} \text{Total runs after 10 innings} &= 585 + 200 \\ &= 785 \end{aligned}$$

Step 3: Calculate Rohan's new average after 10 innings

The new average is the total runs divided by the number of innings:

$$\text{New average} = \frac{785}{10} \\ = \boxed{78.5}$$

Step 4:

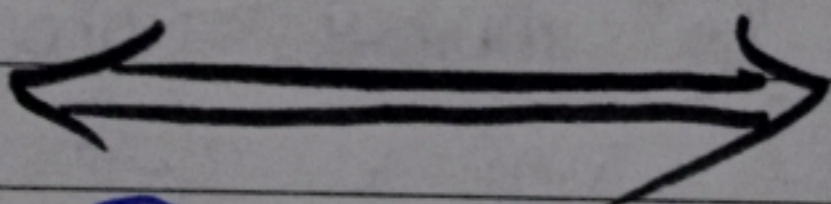
Calculate the increase in average

The original average was 65, and the new average is 78.5

Therefore, the increase in average is:

$$\text{Increase in average} = 78.5 - 65$$

$$= \boxed{13.5} \text{ Ans}$$



THE END