Aptitude Shortcuts and Mind Tricks for Average Related Problems Type-III

AVERAGE

Model Question:

10 years ago, the average of a family of 4 members was 24 years. Two children having been born with an age difference of 2 years, the average of the family is the same. What is the present age of the youngest member of the family?

GIVEN

Average of **4-member** family 10 years ago = **24 years**

Difference of ages between the **2 children** = 2 years

Average of **6** (4+2) member family is same as the average of 4 members 10 years ago = **24 years**

SOLUTION

NORMAL METHOD

Total age of 4 members 10 years ago = (24 × 4) years = **96 years**

Total age of 4 members at present = (96 + 10 × 4) years = **136 years**

Total age of 6 members (after 2 children were born) at present = (24 × 6) = **144 years**

Sum of the ages of 2 children = **Total age of 4 members at present + Total age of 6 members at present**

= (144 – 136) years = 8

Therefore sum of ages of 2 children = **8 years**

Now let the age of the youngest member by **Z** years

Then, age of the elder child = **(Z + 2)** years

So, Sum of ages of 2 children, **Z + Z + 2 = 8 years**

2Z = 6 years

Z = 3 years

Therefore the age of youngest member = **3 years**

ALTERNATE METHOD

Let the 1st child's age be **Z** years

Then the 2nd child's (i.e., youngest child's) age = **(Z – 2)** years

After 10 years, the average of 4 members will be = (24 + 10) = **34 years**

Then the total age of 4 members at present = (34 × 4) = **136 years**

Average age of 6 members at present = Average of 4 members 10 years ago

(136 + Z + [Z – 2]) / 6 = 24

2Z – 134 = 144

2Z = 10

Z = 5 years

Then the youngest child's age = Z – 2 = 5 – 2 = **3 years**