

8. PROBLEMS ON AGES

Ex. 1. Rajeev's age after 15 years will be 5 times his age 5 years back. What is the present age of Rajeev ? (Hotel Management,2002)

Sol. Let Rajeev's present age be x years. Then,
Rajeev's age after 15 years = $(x + 15)$ years.
Rajeev's age 5 years back = $(x - 5)$ years.
 $\therefore x + 15 = 5(x - 5) \Leftrightarrow x + 15 = 5x - 25 \Leftrightarrow 4x = 40 \Leftrightarrow x = 10$.
Hence, Rajeev's present age = 10 years.

Ex. 2. The ages of two persons differ by 16 years. If 6 years ago, the elder one be 3 times as old as the younger one, find their present ages. (A.A.O. Exam,2003)

Sol. Let the age of the younger person be x years.
Then, age of the elder person = $(x + 16)$ years.
 $\therefore 3(x - 6) = (x + 16 - 6) \Leftrightarrow 3x - 18 = x + 10 \Leftrightarrow 2x = 28 \Leftrightarrow x = 14$.
Hence, their present ages are 14 years and 30 years.

Ex. 3. The product of the ages of Ankit and Nikita is 240. If twice the age of Nikita is more than Ankit's age by 4 years, what is Nikita's age? (S.B.I.P.O,1999)

Sol. Let Ankit's age be x years. Then, Nikita's age = $240/x$ years.

$$\therefore 2 \times (240/x) - x = 4 \Leftrightarrow 480 - x^2 = 4x \Leftrightarrow x^2 + 4x - 480 = 0$$
$$\Leftrightarrow (x+24)(x-20) = 0 \Leftrightarrow x = 20.$$

Hence, Nikita's age = (22_0) years = 12 years. 1

Ex. 4. The present age of a father is 3 years more than three times the age of his son. Three years hence, father's age will be 10 years more than twice the age of the son. Find the present age of the father. (S.S.C, 2003)

Sol. Let the son's present age be x years. Then, father's present age = $(3x + 3)$ years
 $\therefore (3x + 3 + 3) = 2(x + 3) + 10 \Leftrightarrow 3x + 6 = 2x + 16 \Leftrightarrow x = 10$.
Hence, father's present age = $(3x + 3) = ((3 \times 10) + 3)$ years = 33 years.

Ex. 5. Rohit was 4 times as old as his son 8 years ago. After 8 years, Rohit will be twice as old as his son. What are their present ages?

Sol. Let son's age 8 years ago be x years. Then, Rohit's age 8 years ago = $4x$ years.
Son's age after 8 years = $(x + 8) + 8 = (x + 16)$ years.
Rohit's age after 8 years = $(4x + 8) + 8 = (4x + 16)$ years.
 $\therefore 2(x + 16) = 4x + 16 \Leftrightarrow 2x = 16 \Leftrightarrow x = 8$.
Hence, son's present age = $(x + 8) = 16$ years.
Rohit's present age = $(4x + 8) = 40$ years.

Ex. 6. One year ago, the ratio of Gaurav's and Sachin's age was 6: 7 respectively. Four years hence, this ratio would become 7: 8. How old is Sachin ?

(NABARD, 2002)

Sol:

Let Gaurav's and Sachin's ages one year ago be $6x$ and $7x$ years respectively. Then, Gaurav's age 4 years hence = $(6x + 1) + 4 = (6x + 5)$ years.

Sachin's age 4 years hence = $(7x + 1) + 4 = (7x + 5)$ years.

$$\frac{6x+5}{7x+5} = \frac{7}{8} \Leftrightarrow 8(6x+5) = 7(7x+5) \Leftrightarrow 48x + 40 = 49x + 35 \Leftrightarrow x = 5.$$

Hence, Sachin's present age = $(7x + 1) = 36$ years.

7. Abhay's age after six years will be three-seventh of his father's age. Ten years ago the ratio of their ages was 1 : 5. What is Abhay's father's age at present?

Sol. Let the ages of Abhay and his father 10 years ago be x and $5x$ years respectively. Then,

Abhay's age after 6 years = $(x + 10) + 6 = (x + 16)$ years.

Father's age after 6 years = $(5x + 10) + 6 = (5x + 16)$ years.

$$(x + 16) = \frac{3}{7}(5x + 16) \Leftrightarrow 7(x + 16) = 3(5x + 16) \Leftrightarrow 7x + 112 = 15x + 48$$

$$\Leftrightarrow 8x = 64 \Leftrightarrow x = 8.$$

Hence, Abhay's father's present age = $(5x + 10) = 50$ years.

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