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.
∴ x + 15 = 5 (x - 5)⇔x + 15 = 5x - 25 ⇔ 4x = 40 ⇔ 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.
∴ 3 (x - 6) = (x + 16 - 6) ⇔ 3x -18 = x + 10 ⇔ 2x = 28⇔ 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/xyears.

∴ $2 \times (240 /x) - x = 4 \Leftrightarrow 480 - x^2 = 4x \Leftrightarrow x^2 + 4x - 480 = 0$

$\Leftrightarrow (x+24)(x-20) = 0 \Leftrightarrow x = 20.$

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
∴ *(3x* + 3 + 3) = 2 (x + 3) + 10 ⇔ 3x + 6 = 2x + 16 ⇔ x = 10.
Hence, father's present age = *(3x* + 3) = ((3 × 10) + 3) years = 33 years.

Ex. 5. R*ohit 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.
∴ 2 (x + 16) = 4x + 16 ⇔ 2x = 16 ⇔ 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 Sa chin* **?**

(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.

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

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

,7. *Abhay's age after six years will be three-seventh* **of** *his fathers 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.

$|x + 16) = \dfrac{3}{7}(5x + 16)$ ⇔ $7(x + 16) = 3(5x + 16)$ ⇔ $7x + 112 = 15x + 48$

⇔ $8x = 64$ ⇔ $x = 8$.

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