Problems on Ages

Past ← Present ← Future

15 yrs ago → $x - 15$

Present → x

15 yrs hence → $x + 15$

n times age $\Rightarrow n \times x$ (present age)

1) Krishnaa age after 15 yr will be 5 times his age 5 yrs back. What is present age of Krishnaa?

Present age $= x$

Past age $= (x - 5)$

Future age $= (x + 15)$

$x + 15 = 5 \times (x - 5)$

$x + 15 = 5x - 25$

$x + 15 = 5x - 25$

$25 + 15 = 5x - x$

$40 = 4x$

$\frac{40}{4} = x$

$10 = x$

2) A is 2 yrs old than B, who is twice as old as C. The Total ages of A, B, C be 27. How old is B?

$A = 2 + B = 2 + 2x$

$B = 2C = 2x$

$C = x$

$A + B + C = 27$

$(2 + 2x) + 2x + x = 27$

$2 + 2x + 2x + x = 27$

$4x + 2 + x = 27$

$5x + 2 = 27$

$5x = 27 - 2$

$5x = 25$

$x = 25/5 = 5$

$A = 10$

3) Present age of Sameer and Anand are in the ratio 5:4 respectively. Three years hence their ratio will become 11:9 respectively. What is Anand present age?

Sameer age $= 5x$

Anand age $= 4x$

$\frac{5x + 3}{4x + 3} = \frac{11}{9}$

$45x + 27 = 44x + 33$

$45x - 44x = 33 - 27$

$x = 6$

$A = 24$

i) Padmini is 40 yrs old & (Krishna is 60 yrs old). How many years ago was in ratio of their age was 3:5?

$$\frac{P}{K} = \frac{40-x}{60-x} = \frac{3}{5}$$

$$\Rightarrow 200 - 5x = 180 - 3x$$

$$5x - 3x = 200 - 180$$

$$2x = 20$$

$$x = \frac{20}{2} \times 10 = 10$$

$P = 30$

$K = 50$

ii) (The sum of present ages of father & his son is 60 yrs). (6 yr ago, the father's age was 5 times age of son). After 6 yrs son's age will be?

Son age = $5x$

f age =]

$x + 4 = 60$

$y = 60 - x$

$(y-6) = 5(x-6)$

$y - 6 = 5x - 30$

~~$5x - 4y = 30$~~

$60 - x - 6 = 5x - 30$

~~$6 - x = 5x - 30$~~

$60 - 6 - x = 5x - 30$

$54 - x = 5x - 30$

$54 + 30 = 5x - x$

$84 = 4x$

$\frac{84}{4} = x$

$x = 21$ yrs

iii) Kanishk present age is $\frac{2}{5}$ of his mother (After 8 yrs he will be one half of age of his mother). How old is the mother at present?

Kanishk → x

Mom → y

$x = \frac{2}{5}y$

$y = \frac{5x}{2} \rightarrow 1$

$y = \frac{5}{2} \times 16$

$= 40$ yrs

$(x+8) = \frac{1}{2}(y+8)$

$2x + 16 = y + 8$

$2x + 16 = \frac{5x}{2} + 8$

$4x + 32 = 5x + 8$

$5x - 4x = 32 - 8$

$x = 16$

$\frac{5}{2} + \frac{8}{1} \times 2$

$\frac{5+16}{2}$

c) (A man has 2 sons) (Presently man age is thrice the sum of the ages of his 2 sons) (Five years hence, the father's age will be twice the sum of the ages of his sons). What is the age of father?

$F \to x$

$S_1 \to y$

$S_2 \to z$

$x = 3(y+z)$

$y+z = x/3$

$(x+5) = 2((y+5)+(z+5))$

$x+5 = 2(y+5+z+5)$

$x+5 = 2(y+z+10)$

$x+5 = 2y+2z+20$

$x+5 = 2(y+z)+20$

$x+5 = 2x/3 + 20$

$2(y+z)+20$

$x = 2(y+z)+20-5$

$x = 2(y+z)+15$

$x = 2x/3 + 15$

$x = \frac{2x+45}{3}$

$3x = 2x+45$

$3x - 2x = 45$

$x = 45$

d) (Consider 5 siblings born apart by 3 yrs each). If sum of all ages of children is 50 yrs. What is age of the youngest child?

$S_1 \xrightarrow{3} S_2 \xrightarrow{3} S_3 \xrightarrow{3} S_4 \xrightarrow{3} S_5$

Eldest — Youngest

$x+12 + x+9 + x+6 + x+3 + x = 50$

$5x + 30 = 50 \Rightarrow 5x = 20 \Rightarrow x = \frac{20}{5} = 4$ yrs

e) Consider 2 siblings (one of them is elder than the other by 20 yrs). 10 yrs ago, the elder one was twice the age of younger one. What is age of elder person?

x y

$x - y = 20 \to (1)$

$(x-10) = 2(y-10)$

$x - 10 = 2y - 20$

$x - 2y = -10 \to (2)$

$x - y = 20$

$x - 2y = -10$

$y = 30$

$x - y = 20$

$x = 50$

A mother said to her daughter "I was as old as you are at time of your birth. If the m.age is 38 yrs now. What is daughter age 5yrs back?

	M	D
Present	38	x
Don	(38-x)	0

$38 - x = x$

$2x = 38$

$x = \frac{38}{2}$ / 2

$x = 19$ yrs

5 yrs

19 - 5

14 yrs

(After)

$x = 19$

In 10 yrs x will be twice as old as y was 10 yrs ago. If x is now 9 yrs older than y then the present age of y is?

$(x+10) = 2(y-10) \Rightarrow x + 10 = 2y - 20$

$x - 2y = -30 \longrightarrow (1)$

$x - y = 9$

$x - 2y = -30$

$x - y = 9$

$-y = -39$

$y = 39$