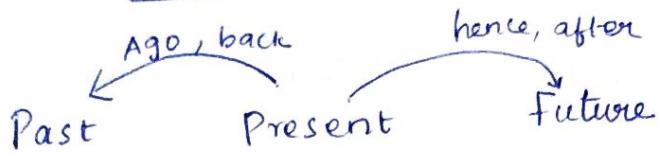Quantitative Ability II.

Problems on Ages:

$$17 \xleftarrow{-10} 27 \longrightarrow 37$$

$$(x-n) \qquad (x) \qquad (x+n)$$

$$\begin{array}{cc} \downarrow & \downarrow \\ Age. \ yrs & ? \end{array}$$

$$\left. \begin{array}{l} a:b \ (or) \ a/b \\ 4:3 \ (or) \ 4/3 \end{array} \right\} \ same.$$

1) The present ages of A and B are in the ratio 4:5 and after 5 yr they will be in the ratio 5:6. The present age of A is

Past	Present	future
	$4:5 \xrightarrow{+5}$	$5:6$

$$4x : 5x$$

$$4x+5 : 5x+5 = 5:6$$

$$\frac{4x+5}{5x+5} = 5/6$$

$$24x+30 = 25x+25$$

$$\boxed{x=5}$$

$$\boxed{Present \ age = 20} \quad \& \quad 4x = \boxed{4 \times 5 = 20}$$

2) The respective ratio of the present ages of Swati and Trupu is 4:5. Six years hence, the respective ratio of their ages will be 6:7. What is the difference between their ages.

Pa   Present   future

$$4:5 \quad\longrightarrow\quad 6:7$$
$$+6$$
$$4x:5x$$
$$4x+6 : 5x+6 : 6:7$$

$$\frac{4x+6}{5x+6} = \frac{6}{7}$$

$$\begin{aligned} 4x+6 &= 6 \\ 4x &= 1 \end{aligned} \qquad \left| \begin{aligned} 5x+6 &= 7 \\ 5x &= 1+6 \\ 5x &= 1 \\ x \end{aligned} \right.$$

$$28x + 42 = 30x + 36$$
$$28x - 30x = 36 - 42$$
$$-2x = -6$$
$$\boxed{x = 3}$$

$$4x \Rightarrow 4 \times 3 \Rightarrow 12$$
$$5x = 5 \times 3 \Rightarrow 15$$

$$12:15 \Rightarrow 3 \text{ years difference.}$$

3) The ratio of present ages of two brothers is 1:2 and 5yr back, the ratio was 1:3. What will be the ratio of their ages after 5 yr?

Pa	Pres	Futur
1:3	1:2	?
$1x : 3x$	$1x : 2x$	
	$1x-5 : 2x-5$	

$$\frac{1x-5}{2x-5} = \frac{1}{3}$$

$$3x - 15 = 2x - 5$$

$$3x - 2x = -5 + 15$$

$$\boxed{x = 10}$$

$1 \times 10 : 2 \times 10$

$10 : 20$

Present Age = $10:20$

$15 : 25$

$\left(\text{Ratio after } 5yrs\right)$ $\boxed{3 : 5}$

4) The

4) The ratio of the present ages of Anju and Sandhya is 13:17, respectively. Four years ago, the respective ratio of their ages was 11:15. What will be the respectively ratio of their ages six years hence?

Pa	Pres	Fut.
11:15	13:17	19:23

$$13x : 17x$$

$$13x-4 : 17x-4 = 11:15$$

$$\frac{13x-4}{17x-4} = \frac{11}{15}$$

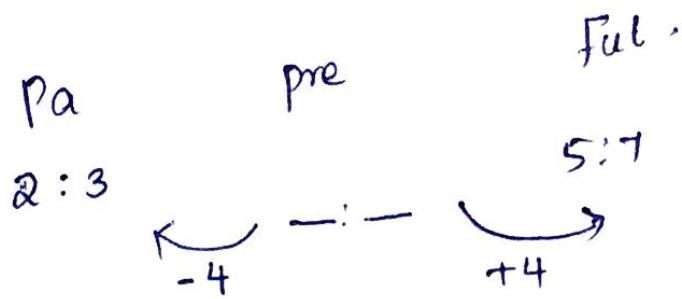$$195x - 60 = 187x - 44$$

$$8x = 16$$

$$\boxed{x = 2}$$

$$\boxed{26 : 34} \Rightarrow 32:40$$

$$\boxed{4 : 5}$$

5) 4 yr ago, the ratio of the ages of A and B was 2:3 and after 4yr, it will become 5:7. Find their present ages.

Pa   pre   Ful.

$2:3$ $5:7$

-4 $-:-$ $+4$

$2x:3x$ $2x+4:3x+4$

$2x+4:3x+4$ (present)

$2x+8:3x+8 = 5:7$

$$\frac{2x+8}{3x+8} = 5/7$$

$14x+56 = 15x+40$

$$\boxed{x = 16}$$

$2x+4$ $\boxed{= 36}$

$3x+$ $\boxed{(=52)}$