

Foundation Batch

MATHS

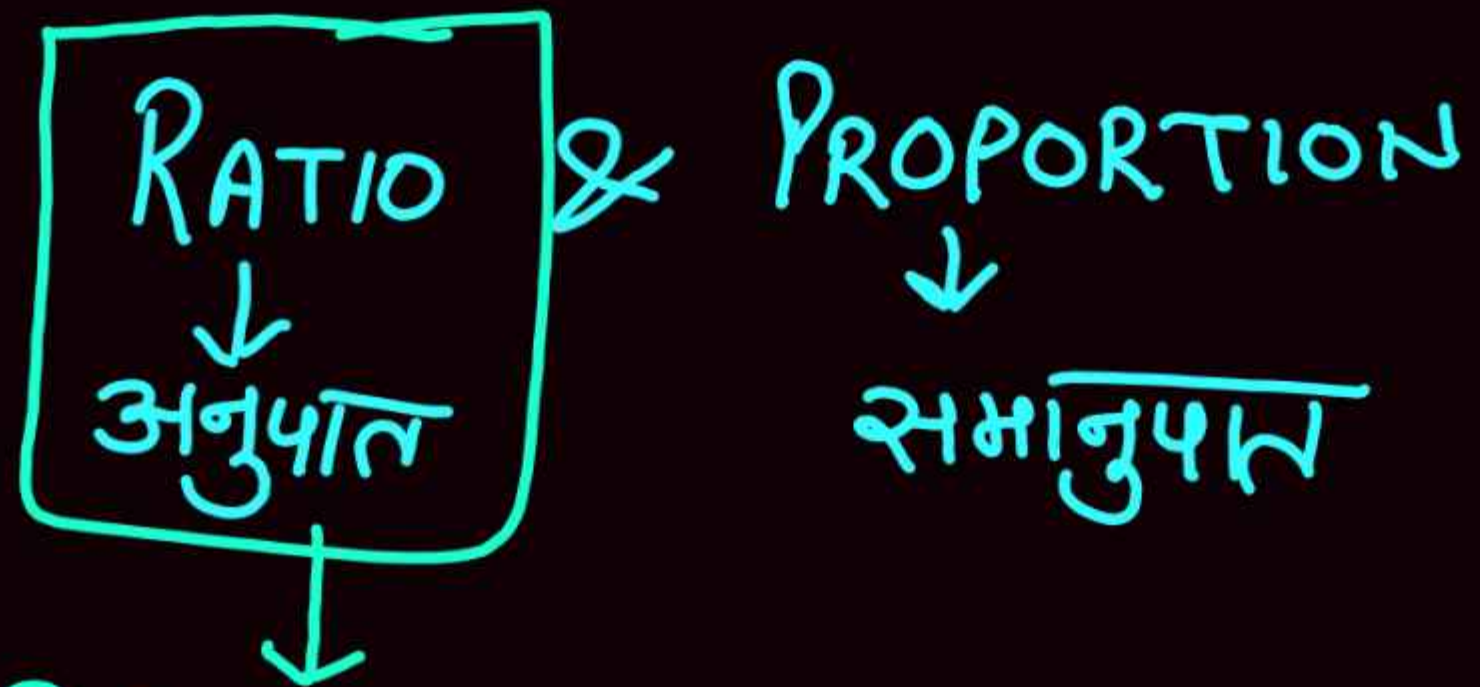


Ratio & Proportion

LIVE 22-04-2024 07:00PM



- ↳ R & P
- ↳ Partnership
- ↳ Mixture & Alligation
- ↳ Average.



A Relation between
two or more Number
को या 3हसे अधिक संख्याओं
के बीच एक संबंध

$$a : b = \frac{a}{b}$$

basic Ratio $\Rightarrow$ $\boxed{\text{Hcf} = 1}$

ex

$$2 : 3 \checkmark$$

$$\begin{array}{c} 6 : 8 \\ \swarrow \quad \searrow \\ \cancel{2} \times 3 : \cancel{2} \times 4 \\ \uparrow \qquad \qquad \uparrow \end{array} \Rightarrow \boxed{3 : 4}$$

$$* \boxed{a : b = ka : kb}$$

$k = \text{any number}$

$$\boxed{2 : 3}$$

$$\boxed{k=2}$$

$$4 : 6$$

$$\boxed{k=5}$$

$$10 : 15$$

$$2 : 3$$

$$\downarrow$$

$$\textcircled{3} \times 2 : \textcircled{4} \times 3 \quad \times$$

$$\text{Ratio } a : b \\ \underline{5} : \underline{6}$$

Original 5K, 6K
Nos.

$\rightarrow$ any $\rightarrow$ Common Number
of 5K & 6K

- (1) (कोई समान संख्या)
- (2) (HCF of 5K & 6K)

$$\begin{array}{cc} \text{A} & \text{B} \\ \text{25 वर्ष} & \text{30 वर्ष} \end{array}$$

Ratio

$$A : B \\ 25 : 30$$

$$\cancel{5} \times 5 : \cancel{5} \times 6$$

$$5 : 6 \rightarrow \text{Base Ratio}$$

Sol

$$A : B$$

$$9 : 10$$

$\Downarrow$

$$9K, 10K$$

$$19K = 380$$

$$K = \frac{380}{19} = 20$$

$$A \rightarrow 9K \rightarrow 9 \times 20 = 180$$

$$B \rightarrow 10K \rightarrow 10 \times 20 = 200$$

Q)

$$A : B$$

$$9 : 10$$

$$A + B = 380$$

$$A = ?$$

$$B = ?$$

सही तरीका

$$A : B$$
$$3 : 4$$

$$3K \quad 4K$$

$$3K \times 4K = 108$$

$$12K^2 = 108$$

$$K = \sqrt{9} = 3$$

$$3 \times 3 = 9$$

$$4 \times 3 = 12$$

$$A : B$$
$$3 : 4$$

$$\text{गुणनफल} = 108$$

$$A = ?$$

$$B = ?$$

गलत तरीका

$$12 \rightarrow 108$$

$$1 \rightarrow 9$$

$$3 \times 9 = 27$$

$$4 \times 9 = 36$$

Combination of Ratio

अनुपात का समावेश

① Two Ratio Combination

$$A : \textcircled{B}$$
$$2 : 3$$

$$\textcircled{B} : C$$
$$3 : 4$$

A	:	B	:	C
2		3	:	4

$$\begin{array}{l} 3 : 7 \\ \times 9 \quad \times 9 \\ \hline 27 : 63 \end{array}$$

$$\begin{array}{l} 9 : 4 \\ \times 7 \quad \times 7 \\ \hline 63 : 28 \end{array}$$

$$\begin{array}{l} A : B \\ 3 : 4 \end{array}$$

$$\begin{array}{l} B : C \\ 2 : 3 \\ \times 2 \quad \times 2 \\ \hline 4 : 6 \end{array}$$

LCM (4, 2)

$$\begin{array}{l} A : C : B \\ 27 : 28 : 63 \checkmark \end{array}$$

$$\begin{array}{l} A : B : C \\ 3 : 4 : 6 \end{array}$$

IInd → Matrix method

$$\begin{array}{lcl} A : & B : & C \\ S : & 7 & : \boxed{7} \\ \boxed{9} & : & 9 : 11 \\ \hline 4S : & 63 : & 77 \end{array}$$

$$\begin{array}{lcl} A : & B & \\ S : & 7 & \end{array} \quad \begin{array}{lcl} B : & C & \\ 9 : & 11 & \end{array}$$

$$\begin{array}{lcl} A : & B : & C \\ S : & 7 & \\ & 9 : & 11 \\ \hline 4S : & 63 : & 77 \end{array}$$

$$\begin{array}{rcl}
 C & : & A : B \\
 8 & : & 7 \leftarrow \boxed{7} \\
 \boxed{2} \rightarrow & 2 & : 3 \\
 \hline
 16 & : & 14 : 21
 \end{array}$$

$$\begin{array}{rcl}
 \downarrow & & \downarrow \\
 A & : & C \\
 7 & : & 8
 \end{array}$$

(Note: The original image has a blue 'X' over this section)

$$\begin{array}{rcl}
 \downarrow & & \downarrow \\
 B & : & A \\
 3 & : & 2
 \end{array}$$

$$\begin{array}{rcl}
 C & : & B : \textcircled{A} = ? \\
 16 & : & 21 : 14 \\
 \hline
 \end{array}$$

Any

$$\begin{array}{rcl}
 \textcircled{21 : 14} & & 14 : 16 \\
 3 : 2 & & 7 : 8
 \end{array}$$

पैसे की बात

↳ Basic Ratio

↓
कभी भी change नहीं होता है

Type-1



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$$A : B : C$$
$$5 : 8 \rightarrow \boxed{8}$$

$$\boxed{4} \rightarrow 4 : 7$$

$$\cancel{20} : \cancel{32} : \cancel{56}$$

$$5 : 8 : 14$$

1. If $A : B = 5 : 8$ and $B : C = 4 : 7$, then find the value of $A : B : C$.

यदि $A : B = 5 : 8$ और $B : C = 4 : 7$, है, तो $A : B : C$ का मान ज्ञात कीजिए

☒ (a) $5 : 8 : 14$

(b) $5 : 8 : 10$

(c) $7 : 8 : 12$

(d) $4 : 9 : 15$

$$\begin{array}{c} 4 : 7 \\ \uparrow \\ A : B : C \\ \downarrow \\ 5 : 8 \end{array}$$



$$\begin{array}{l} A : B : C \\ 7 : 8 \leftarrow \boxed{8} \\ \boxed{7} \rightarrow 7 : 9 \\ \hline 49 : 56 : 72 \end{array}$$

2. If $A : B = 7 : 8$ and $B : C = 7 : 9$, then what is the ratio of $A : B : C$?

यदि $A : B = 7 : 8$ और $B : C = 7 : 9$, तब $A : B : C$ क्या होगा?

- ~~(a) 59:49:72~~
- ☒ (b) 49: 56: 72
- ~~(c) 56: 72: 49~~
- ~~(d) 72: 56: 49~~



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$$a : b : c$$

$$2 : 5 \rightarrow 5$$

$$\boxed{4} \rightarrow 4 : 3$$

$$\hline 8 : 20 : 15$$

3. If $a:b=2:5$, $c:b=3:4$, then $a : b : c$ is equal to?

यदि $a : b = 2 : 5$, $c : b = 3 : 4$ है, तो $a : b : c$ का मान

ज्ञात करें?

~~(a) $6:15:20$~~

~~(b) $8:20:15$~~

~~(c) $2:5:4$~~

~~(d) $2:5:3$~~

$$\begin{array}{c} b : c \\ 4 : 3 \end{array}$$

$$4 : 3$$

$$a : b : c$$

$$\Downarrow \\ 2 : 5$$



$$A : B : C$$

$$11 : 7 \leftarrow \boxed{7}$$

$$\boxed{5} \rightarrow 5 : 19$$

$$55 : 35 : 133$$

4. If $A:B=11:7$ and $B:C=5:19$, then what is $A:B:C$?

यदि $A:B = 11:7$ और $B:C = 5:19$ है, तो $A:B:C$ का मान ज्ञात करें।

$11:7$
(a) ~~$55:35:133$~~

$7:11$
(b) ~~$35:55:133$~~

$5:19$
(c) ~~$35:133:55$~~

(d) ~~$55:133:35$~~

$$\begin{array}{c} A : B : C \\ \hline 11 : 7 \end{array}$$



5. If $l : m = 2 : 7$, $m : n = 3 : 4$ and $n : k = 14 : 5$, then what will be the value of $l : m : n : k$?

यदि $l : m = 2 : 7$, $m : n = 3 : 4$ और $n : k = 14 : 5$ है, तो $l : m : n : k$ का मान क्या होगा?

- (a) 6:21:28:10
- (b) 6:21:7:10
- (c) 6:7:14:10
- (d) 6:21:14: 10

HLW