

Foundation Batch

MATHS



Ratio & Proportion

Part -3

LIVE

24-04-2024 07:00PM





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TYPE - II



$$l = m \times \frac{6}{5}$$

$$\frac{l}{m} = \frac{6}{5} \Rightarrow \begin{matrix} l : m \\ 6 : 5 \end{matrix}$$

$$m = n \times \frac{5}{8}$$

$$\frac{m}{n} = \frac{5}{8} \Rightarrow \begin{matrix} m : n \\ 5 : 8 \end{matrix}$$

$$\begin{matrix} l : m : n \\ 6 : 5 : 8 \end{matrix}$$

11. If $l = \frac{6}{5}$ of m , and $m = \frac{5}{8}$ of n , then the ratio of $l : n$ is-

यदि $l = m$ का $\frac{6}{5}$ और $m = n$ का $\frac{5}{8}$ तो $l : n$ ज्ञात करें।

(a) 1:2

(b) 2:3

(c) 1:3

(d) 3:4

$$\begin{matrix} l : n \\ 6 : 5 \\ 3 : 4 \end{matrix}$$



$l = m \times \frac{6}{5}$ / $m = n \times \frac{5}{8}$ 11. If $l = \frac{6}{5}$ of m , and $m = \frac{5}{8}$ of n , then the ratio of $l : n$ is-

$$l = n \times \frac{6}{5} \times \frac{5}{8} = n \times \frac{3}{4}$$

$$l = n \times \frac{3}{4}$$

$$\frac{l}{n} = \frac{3}{4}$$

यदि $l = m$ का $\frac{6}{5}$ और $m = n$ का $\frac{5}{8}$ तो $l : n$ ज्ञात करें।

(a) 1:2

(b) 2:3

(c) 1:3

(d) 3:4



$$\frac{x}{y} = \frac{1}{3}$$

$$\begin{array}{l} x : y \\ 1 : 3 \end{array}$$

12. If $x = \frac{1}{3}y$ and $y = \frac{1}{2}z$, then $x : y : z$ is equal to

$$\frac{y}{z} = \frac{1}{2}$$

$$\begin{array}{l} y : z \\ 1 : 2 \end{array}$$

यदि $x = \frac{1}{3}y$ और $y = \frac{1}{2}z$, तो $x : y : z$ बराबर है

~~(a)~~ 1:2:6

☒ (b) 1:3:6

~~(c)~~ 2:4:6

~~(d)~~ 3:2:1

$$x : y : z$$

$$1 : 3$$

$$\boxed{3}$$

$$\boxed{1}$$

$$1 : 2$$

$$\hline 1 : 3 : 6$$



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$$A : B = 8 : 6 = 4 : 3$$

$$B : C = 9 : 15 = 3 : 5$$

$$C : D = 20 : 18 = 10 : 9$$

$$A : B : C : D$$

$$\cancel{120} : \cancel{90} : \cancel{180} : \cancel{135}$$

$$8 : 6 : 10 : 9$$

13. If $A : B = \frac{1}{2} : \frac{3}{8}$, $B : C = \frac{1}{3} : \frac{5}{9}$ and $C : D = \frac{5}{6} : \frac{3}{4}$

then the ratio $A : B : C : D$ is

यदि $A : B = \frac{1}{2} \times \frac{3}{8}$, $B : C = \frac{1}{3} \times \frac{5}{9}$ और $C : D = \frac{5}{6} : \frac{3}{4}$ तो

अनुपात $A : B : C : D$ है

(a) $4 : 6 : 8 : 10$

(b) $8 : 6 : 10 : 9$

(c) $6 : 8 : 9 : 10$

(d) $6 : 4 : 8 : 10$



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$$A : B = 5 : 3$$

$$B : C = 8 : 7$$

$$C : D = 21 : 10$$

$$A : B : C : D$$

$$\cancel{840} : \cancel{504} : 441 : 210$$

$$40 : 24 : 21 : 10$$

14. If $A : B = \frac{1}{3} : \frac{1}{5}$, $B : C = \frac{1}{7} : \frac{1}{8}$ and $C : D =$

$\frac{1}{10} : \frac{1}{21}$ then the value of $A : B : C : D$ is ____.

यदि $A : B = \frac{1}{3} : \frac{1}{5}$, $B : C = \frac{1}{7} : \frac{1}{8}$ और $C : D = \frac{1}{10} :$

$\frac{1}{21}$ तो $A : B : C : D$ का मान ____ है।

(a) 40:24:21:10

(b) 48: 23:25:8

(c) 8:3:7:5

(d) 14:24:28:10

$$\frac{1}{10} : \frac{1}{21}$$



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TYPE - III



$$\begin{array}{l} a:b = 3:5 \\ b:c = 7:8 \\ c:d = 2:3 \end{array}$$

$$\begin{array}{l} a:b:c:d \\ 42:120 \end{array}$$

$$\begin{array}{l} a:d \\ 42:120 \\ 7:20 \end{array}$$

15. If $a:b = 3:5$, $b:c = 7:8$ and $c:d = 2:3$, then $2a:3d$ is equal to:

यदि $a:b = 3:5$, $b:c = 7:8$ और $c:d = 2:3$ हो, तो $2a:3d$ का मान ज्ञात करें

(a) 7:15

(b) 7:30

(c) 1:2

(d) 7:20

$$2 \times 7 : 3 \times 20$$

$$14 : 60$$

$$7 : 30$$

$$\begin{pmatrix} a : b \\ 2 : 3 \end{pmatrix}$$
$$(2K), (3K)$$

$$\Rightarrow \frac{2a + 3b}{7a - 2b}$$

$$= \frac{2 \times 2K + 3 \times 3K}{7 \times 2K - 2 \times 3K}$$

$$\frac{4K + 9K}{14K - 6K} = \frac{13K}{8K} = \left(\frac{13}{8} \right)$$

$$2a \times 3b = 1+1 = \textcircled{2}$$

$$\overset{\textcircled{2}}{2a^2} + \overset{\textcircled{2}}{3b^2} = \textcircled{2}$$

degree of equation

↳ हमें 2 Variables की
दोनी हैं

$$\overset{\textcircled{1}}{2a} + \overset{\textcircled{1}}{3b} = \textcircled{1}$$

$$\overset{\textcircled{2}}{2a^2} + \overset{\textcircled{2}}{3b^2} = \textcircled{2}$$

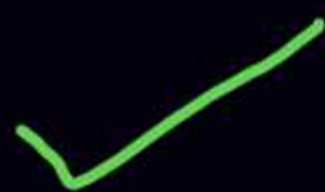
$$\begin{array}{r} 2a + 3b = \textcircled{1} \\ \hline 3a - 2b = \textcircled{1} \end{array}$$

$$\boxed{\begin{matrix} a : b \\ 3 : 2 \end{matrix}}$$

$$(3k)$$

$$(2k)$$

$$\Rightarrow \textcircled{0} \frac{3a+2b}{3a-2b} \quad \begin{matrix} 1 \\ 1 \end{matrix}$$



$$\textcircled{0} \frac{3a+2b}{3a^2-2b^2}$$

$$\textcircled{0} \frac{3a+2b}{3a-2ab} \quad \begin{matrix} 1 \\ 2 \end{matrix}$$



$$\frac{9k+4k}{27k^2-8k^2} = \frac{13k}{19k^2} = \textcircled{\frac{13}{19k}}$$

Cannot be determined



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$$\begin{array}{c|c} P:Q & Q:R \\ \hline 3:4 & 4:7 \end{array}$$

$$\begin{array}{c} P:Q:R \\ 3:4:7 \end{array}$$

$$\begin{array}{c} P+Q:Q+R:R+P \\ 7:11:10 \end{array}$$

16. If $P:Q = 3:4$ and $Q:R = 4:7$, then find the value of $(P+Q):(Q+R):(R+P)$.

यदि $P:Q=3:4$ और $Q:R=4:7$ है, तो $(P+Q):(Q+R):(R+P)$ का मान ज्ञात कीजिए।

~~(a) 3:4:7~~

~~(b) 11:4:7~~

~~(c) 10:3:11~~

~~(d) 7:11:10~~

$$7:11:$$



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$$\begin{array}{cc} \downarrow & \downarrow \\ P:Q & Q:R \\ 10:11 & 11:12 \end{array}$$

$$\boxed{\begin{array}{ccc} P:Q:R \\ 10:11:12 \end{array}}$$

$$\begin{array}{ccc} P+Q & Q+R & R+P \\ 21 & 23 & 22 \end{array}$$

17. If $P:Q=10:11$ and $Q:R=11:12$ then $(P+Q):(Q+R):(R+P)$ is-

यदि $P:Q=10:11$ और $Q:R=11:12$ है तो $(P+Q):(Q+R):(R+P)$ क्या है

(a) 21:23:22

(b) 22:21:23

(c) 11:12:10

(d) 23:22:21



$$\frac{2a+3b}{7a+5b}$$

$$\frac{4+15}{14+25} = \frac{19}{39}$$

18. If $a : b = 2 : 5$, then the value of $(2a + 3b) : (7a + 5b)$ is

यदि $a : b = 2 : 5$, तो $(2a + 3b) : (7a + 5b)$ का मान है

(a) 19: 31

~~(b) 19: 39~~

(c) 31: 19

(d) 99: 13



$$\frac{A}{B} : \frac{B}{C} : \frac{C}{A}$$

19. If $A : B : C = 2 : 3 : 4$, then the ratio $\frac{A}{B} : \frac{B}{C} : \frac{C}{A}$ is equal to

$$\cancel{12}^4 \times \frac{2}{\cancel{3}} : \frac{3}{\cancel{4}} \times \cancel{12}^3 : \frac{4}{\cancel{2}} \times \cancel{12}^6$$

यदि $A : B : C = 2 : 3 : 4$ है, तो अनुपात $\frac{A}{B} : \frac{B}{C} : \frac{C}{A}$ बराबर है

$$\text{Lcm}(3, 4, 2) = 12$$

$$\underline{8 : 9 : 24}$$

(a) 4:9:16

✓ (b) 8:9:24

(c) 8:9:12

(d) 8:9:16



$$\frac{3}{4} + \frac{2-1}{2+1}$$

$$\frac{3}{4} + \frac{1}{3} = \frac{9+4}{12}$$

$$= \frac{13}{12}$$

20. If $\frac{A}{B} = \frac{1}{2}$, then what is the value of

$$\left(\frac{3}{4} + \frac{B-A}{B+A} \right)?$$

यदि $\frac{A}{B} = \frac{1}{2}$, तो $\left(\frac{3}{4} + \frac{B-A}{B+A} \right)$ का मान क्या है?

(a) $15/17$

(b) $13/11$

(c) $13/12$

(d) $10/13$



$$a:b = 3:4$$

$$b:c = 4:7$$

$$a:b:c \\ 3:4:7$$

$$\frac{a+b+c}{c} = \frac{3+4+7}{7}$$

$$= \frac{14}{7} = 2$$

21. If $a:b = 3:4$, $b:c = 4:7$, then $\frac{A+B+C}{C}$ is equal to.

यदि $a:b = 3:4$, $b:c = 4:7$, तो $\frac{A+B+C}{C}$ बराबर है।

(a) 1

~~(b) 2~~

(c) 3

(d) 7



Foundation Batch

MATHS



$$\begin{array}{c|c}
 a:b & b:c \\
 \hline
 4:5 & 15:16 \\
 \times 3 & \times 3 \\
 \hline
 12:15 &
 \end{array}$$

$$\begin{array}{c}
 a, b, c \\
 12:15:16
 \end{array}$$

22. If $\frac{a}{b} = \frac{4}{5}$ and $\frac{b}{c} = \frac{15}{16}$, then $\frac{c^2 - a^2}{c^2 + a^2}$ would be

यदि $\frac{a}{b} = \frac{4}{5}$ और $\frac{b}{c} = \frac{15}{16}$, तो $\frac{c^2 - a^2}{c^2 + a^2}$ होगा

(a) $1/7$

(b) $3/4$

(c) $7/25$

(d) None of these

$$\frac{16^2 - 12^2}{16^2 + 12^2} = \frac{256 - 144}{256 + 144} = \frac{112}{400} = \frac{7}{25} \checkmark$$



$$x : y : z : 2x - 3y + 5z$$

$$2 : 3 : 4 : k$$

23. If $\frac{x}{2} = \frac{y}{3} = \frac{z}{4} = \frac{2x-3y+5z}{k}$, then the value of k is

यदि $\frac{x}{2} = \frac{y}{3} = \frac{z}{4} = \frac{2x-3y+5z}{k}$, तो k का मान है

(a) 12

(b) 15

(c) 16

(d) 18

$$2x - 3y + 5z = k$$

$$4 - 9 + 20 = k$$

$$15 = k$$



$$\frac{5a^3 - 2a^2b}{3ab^2 - b^3}$$

$$\frac{5 \times 8 - 2 \times 4 \times 3}{3 \times 2 \times 9 - 27}$$

$$= \frac{40 - 24}{54 - 27} = \frac{16}{27}$$

29. If $\frac{a}{b} = \frac{2}{3}$ then the value of $(5a^3 - 2a^2b) : (3ab^2 - b^3)$ is:

यदि $\frac{a}{b} = \frac{2}{3}$ तब $(5a^3 - 2a^2b) : (3ab^2 - b^3)$ होगा।

(a) 16:27

(b) 32:29

(c) 34:19

(d) 27:16



Foundation Batch

MATHS



$$\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \frac{2}{5}$$

$$a = c = e = 2$$

$$b = d = f = 5$$

$$\frac{5a + 3c + 2e}{5b + 3d + 2f} = \frac{10 + 6 + 4}{25 + 15 + 10}$$

$$= \frac{20}{30} = \frac{2}{3}$$

30. If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \frac{2}{5}$, then what is $(5a + 3c + 2e) : (5b + 3d + 2f)$?

यदि $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \frac{2}{5}$ है, तो $(5a + 3c + 2e) : (5b + 3d + 2f)$ क्या है?

☒ (a) 2:5

(b) 3:5

(c) 16:25

(d) 20:33



31. If x and y are two numbers having opposite signs and $x^2 : y^2 = 16 : 81$, then what is the value of $\frac{3x+4y}{2x-3y}$.

यदि x और y विपरीत चिन्हों वाली दो संख्याएँ हैं, और

$x^2 : y^2 = 16 : 81$ है, $\frac{3x+4y}{2x-3y}$ का मान ज्ञात करें।

(a) $\frac{12}{25}$
(c) $\frac{-24}{35}$

(b) $\frac{-27}{40}$
(d) $\frac{48}{35}$

H.W.