

15/05/2024

Type-1
(Basic of Ratio)

Ratio (अनुपात)

- ① Comparison
- ② divide
- ③ $\frac{3}{4}$ or 3:4

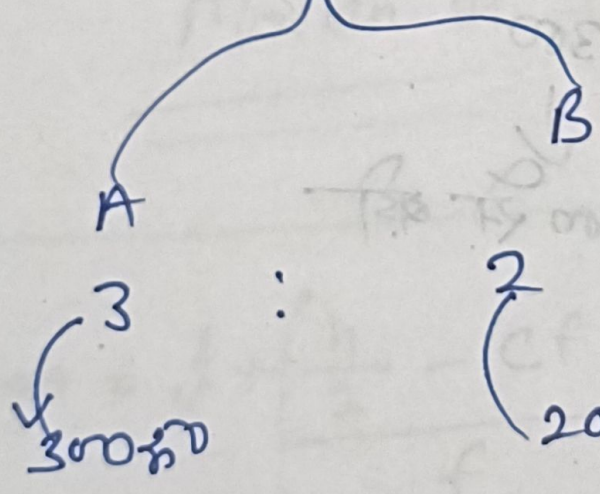
$$\frac{18}{26} = \frac{3}{4}$$

"we can multiply or divide by any No in Ratio"

sol

$$1 = 100\%$$

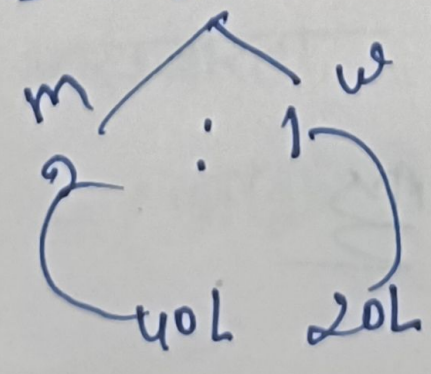
$$5 = 500$$



method

$$1 = 20L$$

$$3 = 60L$$



$$a:b = 3:2$$

$$b:c = 4:5$$

$$a:b:c = 3:4:5$$

method

$$a:b = 3:2$$

$$b:c = 4:5$$

$$a:b:c$$

$$12:8:10$$

$$6:4:5 \text{ Ans}$$

method

$$a \quad b \quad c$$

$$3:2:2$$

$$4:4:5$$

$$12:8:10$$

$$6:4:5$$

① यदि $x:y:z = 3:4:5$ तो $\left(\frac{x}{y}\right) : \left(\frac{y}{z}\right) : \left(\frac{z}{x}\right)$ का मान ज्ञात करें?

Solve

$$\left(\frac{3}{4} : \frac{4}{5} : \frac{5}{3}\right) \times 60$$

$$45 : 48 : 100 \text{ Ans}$$

② यदि $P:Q = 4:5$, $Q:R = 3:4$ और $R:S = 2:3$ तो $P:S$ का मान ज्ञात करें?

Solve

$$\frac{P}{Q} \times \frac{Q}{R} \times \frac{R}{S} = \frac{4}{5} \times \frac{3}{4} \times \frac{2}{3}$$

$$\frac{P}{S} = \frac{6}{25} \quad (6:25)$$

③ यदि $P:Q = 2:3$, $Q:R = 4:5$ और $R:S = 3:4$ तो $P:R:S$ का मान ज्ञात करें?

Solve

P	Q	R	S
2	3	3	3
4	4	5	5
2	2	2	1

$$14:24:30:15 \text{ Ans}$$

(4) यदि $(x-2y+8z):(y-3z+4w):(4x+2z-7w) = 2:3:4$ है तो $6x+2y-17w =$

$$x-y+5z+4w = 4x+5z-7w$$

$$3x+y-11w=0$$

$$6x+2y-22w=0$$

$$= 22w-17w$$

$$= 5w \text{ Ans}$$

(5) यदि $A:B = 2:3$ and $B:C = 5:7$ है तो $A:B:C$ का अनुपात ज्ञात करो।

$$\begin{array}{l} 2:3 \\ 5:7 \end{array}$$

$$10:15:21 \text{ Ans}$$

(6) यदि $A:B = 1:2, B:C = 3:4, C:D = 6:5$ and $D:E = 4:3$ है तो $A:B:C:D:E$ ज्ञात करो।

	A	B	C	D	E
	1	2	2	2	2
		3	4	4	4
				5	5
	3	6	3	6	3
	4	4	4	4	3

$$9:18:24:20:15$$

Ans

Trick

$$\begin{array}{ccc} a & b & c \\ 6 & 8 & 4 \\ \hline 3 & 4 & 2 \end{array}$$

$$\left(\frac{1}{3} : \frac{1}{4} : \frac{1}{2} \right) \times 12$$

$$4 : 3 : 6 \text{ Ans}$$

2) यदि a, b और c तीन ऐसी धनात्मक संख्या हैं कि $(a^2 + b^2) : (b^2 + c^2) : (c^2 + a^2) = 34 : 61 : 45$ हों तो $b-a : c-b : c-a =$

$$a^2 + b^2 = 34K$$

$$b^2 + c^2 = 61K$$

$$c^2 + a^2 = 45K$$

$$\frac{2(a^2 + b^2 + c^2) = 140K}{34K}$$

$$68K + 2c^2 = 140K$$

$$2c^2 =$$

Trick

$$\begin{array}{ccc} a^2 & b^2 & c^2 \\ 18 & 56 & 72 \\ \hline 9 & 28 & 36 \end{array}$$

$$a \quad b \quad c$$

$$3 : 5 : 6 \text{ Ans}$$

यदि $a : b = 3 : \sqrt{5}$ हो तो $(2a+b) : (3a-2b)$ का मान होगा।

$$\frac{6+\sqrt{5}}{9-2\sqrt{3}} \times \frac{9+2\sqrt{5}}{9+2\sqrt{5}}$$

$$= \frac{1}{61} (64 + 21\sqrt{5})$$

If $(x:y:z) = 1:2:3$, तो $\left(\frac{x^2 + 2y^2 + z^2}{3x^2 - 2y^2 + 4z^2} \right)$ का मान क्या होगा?

$$\frac{1+8+9}{3-8+36} = \frac{18}{31} \quad \text{Ans}$$

यदि $3A = 4B = 5C$, तो $A:B:C$ का मान क्या होगा?

$$\text{LCM}$$

$$(3)A = (4)B = (5)C = 60$$

$$20:15:12 \quad \text{Ans}$$

यदि $a/27 = b/29 = c/31$, तो $a:b:c$ का मान क्या होगा?

Solve

$$\frac{a}{27} = \frac{b}{29} = \frac{c}{31} = \text{Let } 1$$

$$a \quad b \quad c$$

$$27 : 29 : 31 \quad \text{Ans}$$

यदि $3a/5 = 7b/9 = 4c/5$, तो $a:b:c$ का मान क्या होगा?

Solve

$$\frac{3a}{5} = \frac{7b}{9} = \frac{4c}{5}$$

$$\frac{3a}{5 \times 3 \times 7 \times 4} = \frac{7b}{9 \times 3 \times 7 \times 4} = \frac{4c}{5 \times 3 \times 7 \times 4}$$

$$= 140 : 108 : 105 \quad \text{Ans}$$

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Ratio b

यदि $a : (b+c) = 1 : 2$ और $b : (a+c) = 1 : 4$ हैं तो $a : b : c$ का मान आएगा।

$$a : (b+c) = 1 : 2 = \textcircled{3} \times 5$$

$$b : (a+c) = 1 : 4 = \textcircled{5} \times 3$$

$$a : b : c$$

$$5 : 3 : 7 \text{ Ans}$$

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यदि $a : (a+b+c) = 1 : 3$ और $b : (a+c) = 1 : 1$ तो $a : b : c = ?$

$$a : (a+b+c) = 1 : 3 = \textcircled{3} \times 2$$

$$b : (a+c) = 1 : 1 = \textcircled{2} \times 3$$

$$a : b : c$$

$$2 : 3 : 1 \text{ Ans}$$

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यदि $a : b = 2 : 1$ और $c : (a+b) = 3 : 1$, तो $a : b : c$ का मान आएगा।

$$a : b = 2 : 1 = \textcircled{3}$$

$$c : (a+b) = 3 : 1 = \textcircled{1} \times 3$$

$$a : b : c$$

$$2 : 1 : 9 \text{ Ans}$$

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यदि $(a+b):(b+c):(c+a) = 5:7:6$ और तो c का मान क्या होगा?

$$\begin{array}{ccc} a & b & c \\ 4 & 6 & 8 \\ 2 & 3 & 4 \end{array}$$

(x6)

24 Ans

$$\begin{array}{l} 4:6:8 \\ 2:3:4 \\ 4:6:8 \\ 2:3:4 \\ 4:6:8 \\ 2:3:4 \end{array}$$

यदि $xy:yz:zx = 3:4:5$, then $x^2:y^2:z^2 = ?$

$$xy = 3k \text{ --- (1)}$$

$$yz = 4k \text{ --- (2)}$$

$$zx = 5k \text{ --- (3)}$$

$$x^2 : y^2 : z^2$$

$$\left(\frac{15}{4} : \frac{12}{5} : \frac{20}{3} \right) \times 60$$

$$= 225 : 144 : 400 \text{ Ans --- (Go by)}$$

24) A, B और C के वेग $\frac{3}{4}, \frac{6}{5}, \frac{4}{3}$ के हैं। A और B का वेग A के वेग से अधिक है? प्रतिशत अधिक है?

A B C

$$\left(\frac{3}{2} : \frac{6}{5} : \frac{4}{3} \right) \times 30$$

$$45 : 36 : 40$$

$$\frac{5}{46} \times 100$$

25) If $P:Q = 3:4$ and $Q:R = 4:7$ find $(P+Q):(Q+R):(R+P)$

$$\begin{array}{r} P:Q = 3:4 \\ Q:R = 4:7 \\ \hline P:Q:R = 3:4:7 \end{array}$$

$$7:11:10 \text{ Ans}$$

26) यदि $P/Q = R/S = T/U = 2/5$ तो $(4P+3R+7T):$

$$\frac{(4Q+3S+7U)}{4Q+3S+7U} \text{ का मान } 8$$

$$\frac{2(4+3+7)}{5(4+3+7)} = \frac{2}{5} \text{ Ans}$$

27) यदि $(10x^3+4y^2):(11x^3-15y^2) = 7:5$ तो

$$(3x+5y):(9x-2y) \text{ का मान} = ?$$

$$\frac{10x^3+4y^2}{11x^3-15y^2} = \frac{7}{5}$$

$$50x^3+20y^2 = 77x^3-105y^2$$

$$\frac{x^3}{y^2} = \frac{125}{27}$$

$$\frac{x}{y} = \frac{5}{3}$$

$$\frac{3x+5y}{9x-2y}$$

$$= \frac{15+15}{45-6}$$

$$\frac{30}{39} = \frac{10}{13}$$

28 If $a-b : b-c : c-d = 2:3:5$, then find $c : (a+d)$?

Solve

Let $d=0$

$$a-b = 2K$$

$$b-c = 3K$$

$$c = 5K$$

$$b = 8K$$

$$a = 10K$$

$$5K : 10K$$

$$1:2 \text{ Ans}$$

Trick

$$a-c = c-d$$

$$a+d = 2c$$

$$\frac{c}{a+d} = \frac{1}{2} \text{ Ans}$$

29 यदि $(a-2b+8c) : (b-3c+4d) : (4a+5c-7d) = 3:4:7$

Solve

$$a-b+5c+4d = 4a+5c-7d$$

$$= 3a+b-11d=0$$

$$\frac{3a+b-11d}{d} = ?$$

$$\frac{3a+b-11d}{d}$$

$$\frac{3a+b-11d}{d}$$

$$-1$$

30 Concept

$$x = aK \text{ --- ①}$$

$$y = bK \text{ --- ②}$$

$$z = cK \text{ --- ③}$$

$$\textcircled{1} - \textcircled{2} - \textcircled{3}$$

$$K = \frac{x-y-z}{a-b-c}$$

$$\textcircled{1} + \textcircled{2} - \textcircled{3}$$

$$K = \frac{x+y-z}{a+b-c}$$

$$\textcircled{1} + \textcircled{2} + \textcircled{3}$$

$$K = \frac{x+y+z}{a+b+c}$$

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$$a : b : c$$

$$(I) \quad II \quad III$$

$$\frac{a}{b} = \frac{b}{c} \quad \left| \quad a = \frac{b^2}{c} \right.$$

$$b^2 = ac \quad \left| \quad b = \sqrt{ac} \right.$$

$$c = \frac{b^2}{a}$$

(32) If $\frac{a+b}{am+bn} = \frac{b+c}{mb+cn} = \frac{c+a}{mc+na}$, then which is correct.

Solve

W $a = b = c = 1$
 $m = n = 1$

Ans = 1

(35) If $\frac{a}{b+c} = \frac{b}{c+a} = \frac{c}{a+b} = k$ let

$$a = k(b+c)$$

$$b = k(c+a)$$

$$c = k(a+b)$$

$$a+b+c = k(a+b+c)$$

Ans
 $k = \frac{1}{2}$

$$\frac{a}{b+c} = \frac{b}{c+a} = \frac{c}{a+b} = -1 \text{ Let}$$

$$a = b = c \quad (\text{Ans} = \frac{1}{2})$$

$$a+b+c = 0 \quad (\text{Ans} = -1)$$

$$a+b+c=0 \text{ (Ans-1)}$$

C Ans

If $\frac{x}{b+c} = \frac{y}{c+a} = \frac{1}{a+b}$, which is correct option

$$x = k(b+c) \text{ --- (1)}$$

$$y = k(c+a) \text{ --- (2)}$$

$$z = k(a+b) \text{ --- (3)}$$

$$\text{(1) - (2)}$$

$$k = \frac{x-y}{b-a}$$

$$\text{(2) - (3)}$$

$$k = \frac{y-z}{c-b}$$

$$\text{(3) - (1)}$$

$$k = \frac{z-x}{a-c}$$

$$\frac{x-y}{b-a} = \frac{y-z}{c-b} = \frac{z-x}{a-c} \text{ Ans}$$

$$(38) (x+y+z) \neq 0 \quad \frac{x}{3x+y+z} = \frac{y}{x+3y+z} = \frac{z}{x+y+3z} =$$

$$x=y=z=1$$

$$\frac{1}{5} = \frac{1}{5} = \frac{1}{5}$$

$$a = \frac{1}{5} \text{ Ans}$$

$$(38) \text{ If } \frac{4a+7b}{4a-7b} = \frac{4c+7d}{4c-7d}$$

$$\frac{4a}{7b} = \frac{4c}{7d} = \text{(a) Ans}$$

(1-800) 000 000
 If $(5x^2 - 3y^2) : xy = 11 : 2$ then the Positive value of $\frac{x}{y}$ is

$$\frac{5x^2 - 3y^2}{xy} = \frac{11}{2}$$

$$\frac{x}{y} = \frac{3}{2} \quad \text{--- go by option ---}$$

$$5x^2 - 3y^2 = 11k \quad \text{--- (1) ---}$$

$$xy = 2k$$

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

$$5x^2 - 3 \times \frac{4k^2}{x^2} = 11k$$

$$\frac{5x^2 - 3y^2}{xy} = \frac{11}{2}$$

$$10x^2 - 6y^2 = 11xy$$

$$\frac{10x^2}{y^2} - 6 = 11 \frac{x}{y}$$

$$\frac{x}{y} = p$$

$$10p^2 - 11p - 6 = 0$$

$$-60$$

$$-15 \quad 4$$

$$\frac{x}{y} = \frac{3}{2} \quad \text{Ans}$$

$$(x^3 - y^3) : (x^2 + xy + y^2) = 5 : 1$$

$$= 7 : 1 \quad \text{or} \quad 2x : 3y$$

सही कीजिए ।

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$$x^3 - y^3 = (x - y)(x^2 + y^2 + xy)$$

$$x - y = 5 \quad \text{--- ①}$$

$$x + y = 7 \quad \text{--- ②}$$

$$\begin{array}{r} x = 6 \\ y = 1 \end{array}$$

1) यदि $a + b + c = 4\sqrt{3}$ और $a^2 + b^2 + c^2 = 16$ तो

Solve

$$a : b : c$$

$$\begin{array}{l} \textcircled{16} \\ a^2 + b^2 + c^2 = ab + bc + ca \end{array}$$

$$a = b = c$$

$$16 + 2(ab + bc + ca) = 48$$

$$2(ab + bc + ca) = \cancel{32} \textcircled{16}$$

$$= \boxed{1:1:1} \text{ Ans}$$

Type - 2

(Basic of Proportion)

$$\begin{array}{ccc} a & : & b & : & c \\ \text{I} & & \text{II} & & \text{III} \end{array}$$

$$d = x$$

$$1 = b$$

$$\begin{array}{l} \frac{a}{b} = \frac{b}{c} \\ a = \frac{b^2}{c} \\ b = \sqrt{ac} \\ c = \frac{b^2}{a} \end{array}$$

① $2\sqrt{3}$ और $6\sqrt{5}$ का तृतीय समानुपाती क्या है?

solve

$$\begin{array}{cc} a & b \\ 2\sqrt{3} & 6\sqrt{5} \end{array}$$

$$1 : 10 =$$

$$c = \frac{36 \times 5}{2\sqrt{3}} = \frac{18 \times 5}{\sqrt{3}}$$

$$= \frac{3 \times 6 \times 5}{\sqrt{3}}$$

$$= 30\sqrt{3} \text{ Ans}$$

② 41 और 1681 का माध्यानुपाती क्या है?

solve

$$b = \sqrt{41 \times 1681}$$

$$\frac{\sqrt{84 \times 681}}{10000}$$

$$\frac{29 \times 41}{100} = 11.89$$

3) 16 और 40 के तृतीयानुपाती तथा 10 और 40 के बीच मध्यानुपाती का अनुपात क्या है?

Solve

$$100:20$$

$$5:1$$

(a)

4) यदि 0.4 और 0.8 का तृतीयानुपाती है और b का मध्यानुपाती है तो 13.5 और 0.24 का मध्यानुपाती है तो मान ज्ञात कीजिए।

$$a+b$$

$$a = \frac{.8 \times .8}{.4} = 1.6$$

$$b = \sqrt{13.5 \times .24} = 1.8 \text{ A}$$

$$\sqrt{\frac{315 \times 9 \times 12 \times 2}{1000}} = 3.4 \text{ A}$$

5) 12, 16, 6 के अनुपात और 4, 6 के तृतीयानुपात के मध्य का अनुपात ज्ञात करें।

$$12 \quad 16 \quad 6 \quad d$$

$$12d = 96$$

$$d = 8$$

$$4, 6, C$$

$$C = \frac{36}{4} = 9$$

$$= 8:9 \text{ Ans}$$

6) संख्या 54, 49, 22 और 21 में से प्रत्येक से x का घटाने पर प्राप्त संख्याओं का अनुपात $(8x-25)$ और $(7x-26)$ का अनुपात बाला को।

Basic

$$\boxed{54 \quad 49 \quad 22 \quad 21}$$

$$\frac{54-x}{49-x} = \frac{22-x}{21-x}$$

$$\frac{54-x}{49-x} \cdot 1 = \frac{22-x}{21-x} \cdot 1 \quad \times 8$$

$$\frac{103-2x}{49-x}$$

$$103-2x = 49-x \cdot 8$$

$$5x-21x+21x=0$$

$$54 \quad 49 \quad 22 \quad 21$$

$$(5)$$

$$(110)$$

$$(1)$$

$$(54)$$

$$x = \frac{56}{4} = 14$$

$$= 29:24$$

7) किस संख्या के 8, 13, 26 और 40 में जोड़ा जाना चाहिए ताकि इस क्रम में प्राप्त संख्याओं का अनुपात में हो।

$$8 \quad 13 \quad 26 \quad 40$$

$$\begin{matrix} (5) & (14) \\ (30) & (112) \end{matrix}$$

$$x = \frac{18}{9} = 2 \text{ Ans}$$

8) जब x को 21, 31, 30 और प्रत्येक में जोड़ा जाये तो प्राप्त संख्याओं का अनुपात में होती है। बताये $(x+1)$ और $(x-2)$ का मध्यमान।

यदि 8 और 18 का हीसरा समानुपात 2 81
 समानुपात है और $x^2 + 2x + 2$ के चौथे समानुपात के
 मान मान ज्ञात करें।

$$2: 81, x^2 + 2x + 2: d$$

$$2d = 81(x^2 + 2x + 2)$$

$$1 = x^2 + 2x + 2 \quad (-1)$$

by option

$$8, 18, C$$

$$C = \frac{324}{8} = \frac{81}{2}$$

$$C = 9$$

यदि चार सं० 39, 117, 117 और y समानुपात
 मान ज्ञात कीजिए।

$$39y = 117 \times 117$$

$$y = 5$$

Ans

Type - 3

Cross Product

7K
9K : 16K

Trick

①

1-

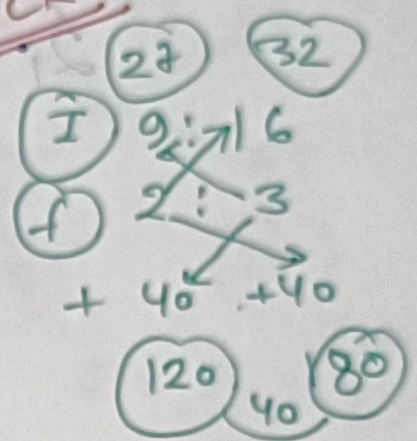
$$\frac{9K + 40}{16K + 40} = \frac{2}{3}$$

$$27K + 120 = 32K + 80$$

$$5K = 40$$

$$K = 8$$

$$7 \times 8 = \underline{\underline{56}} \text{ Ans}$$



$$1 = 8 \times 7$$

$$p = \underline{\underline{56}} \text{ Ans}$$

87 Total 100 fail

$$29 \rightarrow 4$$

$$25 \rightarrow 3$$

$$+1 \rightarrow -3$$

$$\frac{+3}{-75} = \frac{78}{78}$$

$$1 = 6 \times 21$$

$$= \underline{\underline{126}} \text{ Ans}$$

③

A B

$$\frac{7K}{4K} = \frac{7K}{4K}$$

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

$$\frac{4800}{4800} = \frac{4800}{4800}$$

$$\frac{7K - 4800}{4K - 4800} = \frac{3}{1}$$

$$7K - 4800 = 12K$$

$$5K = 9600$$

$$K = 1920$$

$$11 \times 1920$$

$$= 21120$$

4

A B

(I) 2 < : > 1

(E) 5 < : > 3

4000 1000

(12K) (5K)

(7K)

$1 = 7K$ Ans

5

A B

(I) 5 < : > 7

(E) 2 < : > 3

(S) 4K < : > 5K

(12K) (10K)

2K

$1 = 2K \times 12 = 24000$ Ans

6

Total Select

(I) 3 < : > 2

(f) 13 < : > 9

f 50 < : > f 25

(450) (325)

125

$1 = 125 \times 3 = 375$ Ans

Total -50

Selected -25

7

(10) 5 (5)

Total Select

5 < : > 3

5 < : > 2

(+26) (-50)

140 -250

390

$S = 390$ Ans

Selected Un

3 2

3 3

Total = (+)

Selected =

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7 $\frac{2}{5} \times \frac{5}{11} \times \frac{33}{84}$

$\frac{3}{4}$ Ans

8 $\frac{yz}{x} \times \frac{zx}{y} \times \frac{xy}{z} = (xyz) : 1$ Ans

9 $\frac{3}{4} \times \frac{6}{7} = \frac{36}{x}$

$x = 56$ Ans

8 $\frac{25}{B} \times \frac{21}{6}$

$48x = 48 \times 20$

$= 960$ Ans

(I) $5 \leftarrow : \rightarrow 3 = 8 \times 6x$

(f) $7 \leftarrow : \rightarrow 5$
 $5x \leftarrow \rightarrow 7x$

$\frac{25x}{24x} \times \frac{49x}{24x}$

$1 = 6x$

$48x + 5x + 7x = 1200$

$60x = 1200$

$x = 20$ Ans

Type - 4

Money Distribution

(2)

$$4^{x13} : 3^{x13} : 2^{x13} = 9^{x13}$$
$$3^{x9} : 4^{x9} : 6^{x9} = 13^{x9}$$

$$\begin{array}{ccc} 52 & 39 & 26 \\ 27 & 36 & 54 \end{array} \rightarrow +28$$

$$\frac{702}{117} \times 28 = 168 \text{ Ans}$$

(3)

$$B + D = \frac{14}{11} (A + C)$$

$$D = \frac{1}{2} A$$

$$C = \frac{6}{5} A$$

$$A : D = 2^{x5} : 1^{x5}$$

$$A : C = 5^{x2} : 6^{x2}$$

$$\begin{array}{cccc} 23K & 10K & 12K & 5K \\ B & A & C & D \end{array}$$

$$50K = 1250 \text{ ₹}$$

$$K = 250, ₹ 575, ₹ 300, 125$$

(4)

A	B
x	y

$$\frac{x+1}{y-1} = \frac{2}{1}$$

$$x - y = 2 \quad \text{--- (1)}$$

$$x - 2y = -3 \quad \text{--- (2)}$$

$$\underline{\hspace{1cm}} y = 5 \quad x = 7$$

$$= 12 \quad \underline{\text{Ans}}$$

(5)

A	B	C	D
---	---	---	---

8	:	9	:	9	:	9
---	---	---	---	---	---	---

2	:	2	:	3	:	3
---	---	---	---	---	---	---

9	:	9	:	9	:	13
---	---	---	---	---	---	----

$$\underline{\hspace{1cm}} \frac{16 : 18 : 27 : 39}{21} = 100$$

$$1 = 120 \times 21$$

$$= 2520 \quad \underline{\text{Ans}}$$

(6)

⑥

$$\begin{array}{ccc}
 A & B & C \\
 2 & : & 3 : 5 \\
 +1 & & +1 \\
 \hline
 3 & & 6 \\
 +1.5 & & \frac{1}{4} \\
 \hline
 4.5 & = & 18000 \text{ Ans}
 \end{array}$$

$$1 = 4000$$

$$\times 10$$

$$= 40,000 \text{ Ans}$$

⑦

$$A : (B+C) = 1 : 2^{x5} = 3^{x5}$$

$$B : (A+C) = 1^{x3} : 4^{x3} = 5^{x3}$$

$$5 : 3 : 7$$

$$15 = \frac{5625}{3} \text{ Ans}$$

$$1875 \text{ Ans}$$

⑧

$$\begin{array}{ccc}
 A & B & C \\
 +3 & +7 & +9
 \end{array}$$

$$6 = 600$$

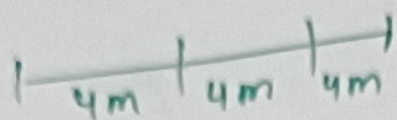
$$1 = 115 \text{ Ans}$$

$$(671) + 19 = 690 \text{ Ans}$$

$$\begin{array}{ccc}
 1 & : & 2 : 3 \\
 \hline
 115 & & 230 \\
 -3 & & -7 \\
 \hline
 112 & & 273
 \end{array}$$

$$A = 112 \text{ Ans}$$

9



$$\text{Saving} = 363 \times 3$$

$$= \frac{1089}{11} = 99 \times 6$$

$$I : II = 2^{\times 3} : 1^{\times 3}$$

$$I : III = 3 : 1 \times 2$$

$$6 : 3 : 2$$

59400 Ans

10

$$A : B = 3 : 2$$

$$B : C = 3 : 2$$

$$9 : 6 : 4$$

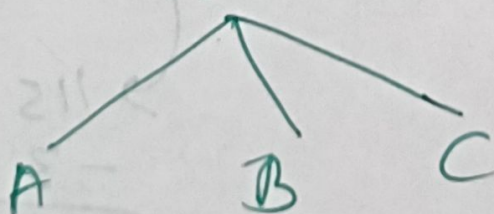
$$\begin{array}{c} \left| \times \frac{1}{3} \right| \left| \times \frac{1}{4} \right| \\ 3 \quad \quad 1 \end{array}$$

$$2 = 10007^{\times 3}$$

$$= 3000250 \text{ Ans}$$

11

$$1500$$



$$\frac{1}{5} A - 20 = \frac{18}{10} + 50 = \frac{15}{5} + 20 = 11$$

$$\frac{1}{5} A - 20 - 11$$

$$A = 5K + 100$$

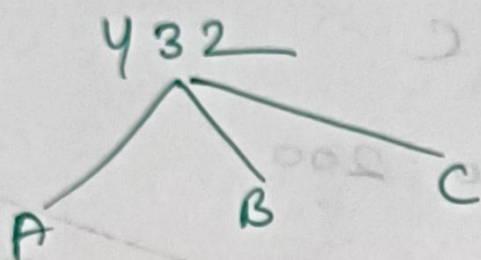
$$B = 10K - 500$$

$$C = 5K - 100$$

$$1500 = 20K - 500$$

$$K = 100$$

$$A = 600 \quad \underline{\text{Ans}}$$



$$\frac{2}{3}A + 6 = \frac{1}{3}B + 27 = \frac{5}{9}C - 10K$$

$$\frac{1}{3}B + 27 = 10K$$

$$A = \frac{30K - 18}{2} = 15K - 9$$

$$B = \frac{30K - 81}{1} = 30K - 81$$

$$C = \frac{90K + 90}{5} = 18K + 18$$

$$432 = 63K - 72$$

$$63K = 504$$

$$K = 8$$

13

	M	W	C
Total	12	: 15	: 16
each	6	: 5	: 4
No of Person	$(2 \times 5) : 3 \times 5 : 4 \times 5$		

→ Ans 1 $\frac{120}{10} = 12 \text{ 250/min}$

14

A	B	C
$\frac{1}{2}x + 40$	$\frac{3}{8}x - 120$	200

$\frac{7}{8}x + 120 = x$

$\frac{1}{8}x = 120$

$x = 960 \text{ 250}$ Ans

Trick
money $\div 8$
5121

15

R	M	P
9	15	24
+ 8	+ 1	- 8
17	16	16
716		

$1 = 9617$
 $\downarrow \times 9$

86417 Ans

16

$$\frac{A+B}{A-B} = \frac{11}{1}$$

$$\frac{B+C}{B-C} = \frac{11}{1}$$

$$\begin{array}{l} A : B = 6 : 5 \\ B : C = 6 : 5 \\ \hline 36 : 30 : 25 \end{array}$$

$$91 = 182K$$

$$1 = 2K$$

$$| \times 30$$

$$\underline{60000} \text{ Ans}$$

17

$$100\% = 150000$$

$$1\% = 1500$$

$$A = 30000$$

$$B = 45000$$

$$C = 75000$$

$$A = 30K$$

$$\begin{array}{l} 100\% = 601000 \\ | \times 30\% \\ 180000 \end{array}$$

$$= 631000 \text{ Ans}$$

Imp

Type - 5

RATIO BALANCING

①

$$A : (B+C) = 1:2 = (3)^{\times 5}$$

$$B : (A+C) = 12:4 = (5)^{\times 3}$$

$$5 : 3 : 7$$

$$15 = 5625 \text{ ₹}$$

$$5 = 1875 \text{ ₹} \quad \underline{\text{Ans}}$$

②

2020

2021

(A)

$$(4)^{\times 25}$$

$$5 \times 5 = (25)$$

(B)

$$(2)^{\times 2 \times 4}$$

$$3 \times 2 \times 4 = (24)$$

$$\frac{49}{7} = \frac{705600}{100800}$$

$$1 = 14400 \times 24$$

$$= 345600 \text{ Ans}$$

4

2020

2021

$$A \quad 4 \times 5 : 5 \times 5 = 25$$

$$2 \times 2 \times 4 : 3 \times 2 \times 4 = 24$$

$$\frac{785600}{49} \times 24$$

$$= 3,451,600 \text{ Ans}$$

3

AD

CU

5

11

$$= 16$$

3×6

5×6

$$= 8$$

$$\left[\begin{array}{l} \times 1 \\ \times 2 \times 3 \end{array} \right]$$

$$23 : 41$$

$$\frac{23}{41} \times 100$$

$$= 56.1 \text{ Ans}$$

5

Last

Parent

(A)

$$(4) \times 3 \times 3$$

$$: 5 \times 3 \times 3 = 45$$

(B)

$$2 \times 6 \times 4$$

$$: 3 \times 6 \times 4 = 72$$

(C)

$$3 \times 4 \times 5$$

$$: 4 \times 4 \times 5 = 80$$

$$197$$

$$197 = 98500 \text{ Ans}$$

$$1 = 500 \text{ Ans} \times 72 = 36000$$

28/05/2024

6

$$\begin{array}{l} L: 1 \times 2 \\ W: 2 \times 10 \\ \hline 2 \times 3 : 3 \times 3 = 3 \times 5 \times 2 \\ \hline 4 : 11 \quad \text{Ans} \end{array}$$

7

$$\begin{array}{l} \text{Red} \quad 2 \times 18 : 3 \times 18 = 5 \times 9 \times 2 \\ \text{Green} \quad 4 \times 5 : 5 \times 5 = 9 \times 5 \\ \hline 16 : 29 \quad \text{Ans} \end{array}$$

8

$$\begin{array}{l} A: 7 \times 3 \times 4 \\ B: 6 \times 3 \times 4 \\ C: 5 \times 3 \times 4 \\ \hline 7 \times 3 : 2 \times 1 \\ \hline 7 \times 1 : 2 \times 5 : 3 \times 13 \\ \hline 7 : 10 : 13 \quad \text{Ans} \end{array}$$

9

$$\begin{array}{l} A: 7 \times 3 \times 4 \\ B: 5 \times 3 \times 4 \\ \hline 7 \times 5 : 2 \times 5 \times 5 \\ \hline 84 : 9 : 10 \quad \text{Ans} \\ \hline 75 \end{array}$$

10

$$\begin{array}{l} A: 3 \times 2 \times 3 \\ B: 5 \times 2 \times 3 \\ \hline 3 \times 5 : 3 \times 5 \times 1 \\ \hline 8 : 15 \quad \text{Ans} \end{array}$$

$$3(I) = 3A(S)$$

$$A(S) : B(I) = 1 : 3$$

Type - 6

Coins

① $\frac{1}{4}$ $\frac{1}{2}$ 2 5
No: 5 4 3 ①

value $\frac{5}{4} + 2 + 6 + 5$
 $\frac{57}{4} = 285$

$1 = 20 \times 4 = 80$ Ans

②

$\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{5}$
2 3 5

no-value ① : $\frac{3}{4}$: ①

diff = 0. Ans

③

$\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{10}$
3 4 8

value 11 : 13 : 6
No: 11 : 26 : 24

$61 = 610$
 $1 = 10$

260 Ans

④ $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$
2 3 5

$2 + \frac{3}{2} + \frac{5}{4}$

① $\frac{19}{4}$

$\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{10}$
3 4 8
 $\frac{3}{2}$ $\frac{x}{4}$ $\frac{4}{5}$

$30 + 5x + 16$
20

B $\frac{46 + 5x}{20} \div \frac{19}{4}$

$\frac{19}{4} \times \frac{20}{46 + 5x} = \frac{5}{4}$

$$46 + 5x = 76$$

$$5x = 30$$

$$x = 6$$

Ans

Type — 7

Proportion Formula

① यदि x, y अनुक्रमानुपाती हैं और $x = 45$
 जब $y = 9$, $y = 50$ हो तो $x = ?$

$$x \propto y$$

$$x = ky$$

$$45 = k \cdot 9$$

$$k = 5$$

$$x = 5 \times 50$$

$$= 250 \text{ Ans}$$

② P, q के वर्गों के अनुक्रमानुपाती होती हैं
 $q = 2.4, P = 1.5, P = 6$ हो तो $q = ?$

$$P_1 = \frac{k}{q^2} \text{ — (1)}$$

$$P_2 = \frac{k}{q^2} \text{ — (2)}$$

$$\frac{1.5}{6} = \frac{q^2}{2.4 \times 2.4}$$

$$= \frac{q^2}{2.4 \times 2.4}$$

$$q^2 = 2.4 \times 6$$

$$q^2 = \frac{144}{100} = 1.44$$

29/05/2024

③

$$A \propto \frac{\sqrt{B}}{C^2}$$

$$A = \frac{K\sqrt{B}}{C^3}$$

$$\frac{15}{9} = \frac{\sqrt{27}}{\sqrt{B_2}}$$

$$\frac{225}{81} = \frac{27^3}{B}$$

$$A_1 = \frac{K\sqrt{B_1}}{C_1^3}$$

$$A_2 = \frac{\sqrt{B_2}}{C_2^3}$$

$$B_2 = 243/25$$

④

$$E \propto \sqrt{D} \cdot V$$

$$E = K\sqrt{D} \cdot V$$

$$1 = \frac{\sqrt{D_1} V_1}{\sqrt{D_2} V_2}$$

$$\frac{V_2}{V_1} = \sqrt{\frac{D_1}{D_2}} = \frac{1}{2}$$

⑤

$$l \propto \frac{1}{r^2}$$

Trick

$$r^2 \propto 1$$

$$(r^2) 81 : 64 \xrightarrow{\times 2} 162 \text{ cm} \quad 128 \text{ cm}$$

⑥

$$\text{Price} \propto w^2$$

$$(5:9) = 196 \rightarrow 25+81=106$$

$$\frac{90}{196} \times 100 =$$

$$\frac{4500}{98}$$

$$= 45.92 \text{ Percent}$$

Ans

(7)

$$\text{Price} \propto w^2$$

$$48 \times 48 \times 800 = 200$$

$$(3 \times 4) : (4 \times 4) : 5 \times 4 = 12 \times 4$$

$$(9 \times 3) : 5 \times 3 : 2 \times 3 = 16 \times 3$$

$$\begin{array}{r} 729 \\ 225 \\ 36 \\ \hline 990 \end{array}$$

$$190 = 15200 \div 80$$

$$1 = 800$$

Type - 8

Ratio with percentage

(1)

Eng

math

500

400

30%

50%

$$\frac{500 \times 30}{100} + \frac{400 \times 50}{100}$$

$$150 + 200$$

$$\frac{350}{900} \times 100$$

38.8% Ans

30/05/2024

2

Eng
5
30%
math
4
50%

Let $(40\%) + \left(\frac{-10\%}{9}\right)$
38.8% Ans

2

A B C
S - $\frac{1 \times 8}{5 \times 8}$
I - $\frac{3 \times 3}{20 \times 3}$ $\frac{1 \times 20}{4 \times 20}$
15% =

$\frac{40}{2} : \frac{60}{3} : \frac{80}{4}$
9 = 7200 $\frac{100}{100}$
1 = 800 $\frac{100}{100}$

1600 $\frac{100}{100}$ Ans

M E C
600 : 400 : 700
+20% +40% +60%
720 560 1120
600 $\times \frac{100}{100}$

$9 : 7 : 14$ Ans

3

E $\leftarrow \frac{4 \times 4}{5 \times 4} \frac{3 \times 4}{4 \times 4} \frac{3 \times 3}{5 \times 3}$

20 : 16 : 15

51 = 1530 F
1 = 30 F

$\times 16$
480 $\frac{100}{100}$ Ans

4

5

I E
800 : 500 = 300
+20% +30%
960 650 = 310
 $\frac{10}{300} \times 100$
 $= 3\frac{1}{3}\%$

⑥

$$\begin{array}{cc} B & G \\ 500 : & 200 \\ | & | \\ 13\% & 20\% \\ 65 + & 40 \end{array}$$

$$\frac{105}{700} \times 100 = 15\% \text{ Ans}$$

⑦

$$\begin{array}{cc} G \\ 300 : & 400 \\ | & | \\ +10\% & +15\% \\ 330 & 460 \end{array}$$

$$\frac{300 \times 110}{100} = 330$$

$$33 : 46 \text{ Ans}$$

⑧

①

$$\begin{array}{cccc} M & E & Ph & Ch \\ 135\% & 120\% & 90\% & 56\% \\ 9 : & 12 : 8 : 6 & & 5 \\ 78\% & 102\% & 73\% & 56\% \end{array}$$

$$\frac{102}{120} \times 100$$

$$70\% + \left(\frac{+72\% + 120\% + 18\% - 70\%}{28} \right)$$

$$70\% + 5\%$$

$$75\% \text{ Ans}$$

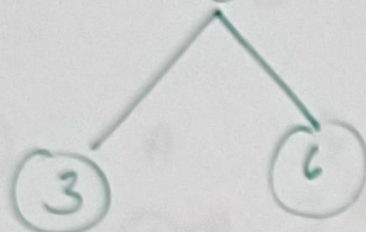
Type - 9

mixed Questions

G

3x3

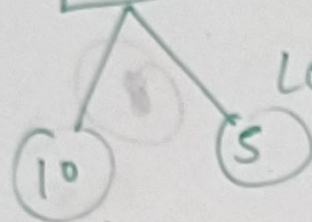
9



B

5x3

15



Less Jo yr

$$13 = 260$$

$$1 = 20 \times 15$$

$$= 300 \text{ Ans}$$

M

E

S

3 : 2 : 1

$$6 = 126$$

$$1 = 21 \times 2$$

$$= 42 \text{ Ans}$$

4

$$\times \begin{pmatrix} 8 : 11 \\ 23 : 21 \end{pmatrix}$$

$$\hline 184 : 231$$

Renu / x200

$$36800 \text{ Rs}$$

$$47 \times 200$$

$$9400 \text{ Rs}$$

$$22 = 660$$

B

G

13

9

$$\times 30$$

$$\times 30$$

$$390$$

$$x$$

$$270 + 300$$

$$60$$

$$= \frac{6}{5}$$

$$1 = 30$$

$$390 - x = 360$$

$$x = 30 \text{ Ans}$$

6

Worker 5 : 4
10 : 15

$$\begin{array}{r} 50 : 60 \\ \swarrow \quad \searrow \\ \times 50 \quad \times 50 \\ 2500 \quad 3000 \end{array}$$

Ans

7

m
2x40

f
1x40

80

$$| \times \frac{5}{8}$$

40

$$| \times \frac{3}{5}$$

$$50 + 24 = 74 = 740$$

$$1 = 10 \times 40 = 400 \text{ Ans}$$

$$\frac{126 \times 7}{15}$$

$$40 \times \frac{2}{5}$$

$$\begin{array}{r} 56 + 16 \\ \hline 72 \end{array}$$

8

m

f

$$\begin{array}{r} 5 \\ \times \frac{3}{5} \\ \hline 3 \end{array} + \begin{array}{r} 3 \\ \times \frac{2}{3} \\ \hline 2 \end{array}$$

$$\frac{5}{8} \text{ Ans}$$

(2)

$$10 \times \frac{5}{4} \times 4 : 7 : \frac{9}{8} \times 9 : \frac{9}{10} \times \frac{9}{5} \times 17$$

$$\left(50 : \frac{567}{8} : \frac{153}{5} \right) \times 40$$

$$2000 : 2835 : 1224 \times 10 \text{ Ans}$$

$$6059 = 6059020$$

$$1 = 10^0$$

Type - (1)

(34)

$$\frac{a+b+c}{c} = ? \quad \frac{37}{12} \text{ Ans}$$

$$\frac{c}{a-2b} = \frac{2c+a}{2b} = \frac{29}{c} = 3$$

$$\begin{array}{l} b \quad a:c = 3:2 \\ \left(\frac{7}{6} \quad 3:2 \right) \times 6 \\ 7:18:12 \end{array}$$

$$2c+a=6b$$

$$4+3=6b$$

$$\frac{7}{6} = b$$