



DELHI POLICE 2025
CONSTABLE HCM AWO/TPO DRIVER

यकीन बैच

MATHS



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Ratio and Proportion
(अनुपात और समानुपात)

Part -3



LIVE
streaming

04-03-2025 11:00 AM



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$$\begin{array}{c} 2:3:5 \\ \hline 3 \quad 5 \quad 2 \\ \hline 2 \times 3^0 : 3 \times 3^6 : 5 \times 3^{15} \\ \hline 2 : 18 : 75 \end{array}$$

17. If $A:B:C = 2:3:5$, then the ratio $\frac{A}{B}:\frac{B}{C}:\frac{C}{A}$ is equal to:

यदि $A:B:C = 2:3:5$, तो अनुपात $\frac{A}{B}:\frac{B}{C}:\frac{C}{A}$ बराबर है :

[DP Const., 16/11/2023, Shift-2]

(a) 75:20:29

(b) 20:25:39

(c) 18:20:79

(d) 20:18:75



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$$\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \frac{g}{h} = \frac{1}{3}$$

$$\frac{pa + qc + re + sg}{pb + qd + rf + sh}$$

$$= \frac{p + q + r + s}{p \times 3 + q \times 3 + r \times 3 + s \times 3}$$

$$= \frac{p + q + r + s}{3[p + q + r + s]}$$

18. If $a:b = c:d = e:f = g:h = 1:3$, then what is the value of the following: $(pa + qc + re + sg):(pb + qd + rf + sh)$

यदि $a:b = c:d = e:f = g:h = 1:3$, तो निम्नलिखित का मान क्या होगा: $(pa + qc + re + sg):(pb + qd + rf + sh)$

(a) 1:5

(b) 1:2

☒ (c) 1:3

(d) 1:4



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19. 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

$$\frac{10+6+4}{25+15+10} = \frac{20}{50} = \frac{2}{5}$$



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20. If $4A = 6B = 5C$; So $A:B:C$ is

यदि $4A = 6B = 5C$; तो $A:B:C$ है -

(a) 20:15:24

☒ (b) 15:10:12

(c) 15:20:24

(d) 24:20:15

30:20:24
15 10 12



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21. If $3A = 5B$ and $4B = 6C$, then $A : C$ is equal to

यदि $3A = 5B$ और $4B = 6C$ है, तो $A : C$ बराबर है

(a) 2:5

(b) 3:5

(c) 4:5

~~(d)~~ 5:2

$$\boxed{\frac{A}{B} = \frac{5}{3}}$$

$$\frac{B}{C} = \frac{6}{4} \times \frac{3}{2}$$

$$\begin{array}{cc} A & C \\ \frac{5}{3} & \frac{6}{2} \end{array}$$



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Imp

22. If $(a + b) : (b + c) : (c + a) = 8 : 7 : 5$ and $a + b + c = 60$. Then $a : b : c$ is:

यदि $(a + b) : (b + c) : (c + a) = 8 : 7 : 5$ और ~~$a + b + c = 60$~~ है, तो $a : b : c$ क्या होगा?

(a) 5 : 7 : 8

☒ (b) 3 : 5 : 2

(c) 5 : 6 : 7

(d) 4 : 5 : 6

2nd ∴ ~~$2(a + b + c) = 2 \times 10$~~

$c = 2$

$a = 3$

$b = 5$



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$$\frac{x^2}{y^2} = \sqrt{\frac{9}{25}} = \frac{3}{5}$$

$$\frac{2}{x} = \frac{5}{15}$$
$$\boxed{x = 6}$$

$$\frac{6}{y} = \frac{3}{5}$$
$$y = 10$$

23. If $x^2 : y^2 = 9 : 25$ and $2 : x = 5 : 15$, then what will be the value of y ?

यदि $x^2 : y^2 = 9 : 25$ और $2 : x = 5 : 15$ है, तो y का मान क्या होगा?

- (a) 15
- ☒ (b) 10
- (c) 12
- (d) 17



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Ist method $\frac{m+n}{m-n} = \frac{7}{5}$ $\frac{m^3+n^3}{m^3-n^3}$

$5m+5n=7m-7n$

$12n=2m$
 $\frac{n}{m} = \frac{2}{12} = \frac{1}{6}$

IInd Using C&D

$\frac{2m}{2n} = \frac{126}{21}$
 $\frac{216+1}{216-1} = \frac{217}{215}$

24. If $(m+n):(m-n) = 7:5$, then find the ratio between $(m^3+n^3):(m^3-n^3)$.

यदि $(m+n):(m-n) = 7:5$ है, तो $(m^3+n^3):(m^3-n^3)$ के बीच अनुपात ज्ञात कीजिए।

[DP Const., 15/12/2020, Shift-2]

- (a) 217:215
- (b) 114:151
- (c) 215:217
- (d) 151:114

IIIrd: $\frac{m+n}{m-n} = \frac{7}{5}$

$\frac{m^3+n^3}{m^3-n^3} = \frac{(m+n)(m^2+n^2-mn)}{(m-n)(m^2+n^2+mn)}$



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25. If $P:Q = 5:3$ then find the value of $(P^4 - Q^4): (P^4 + Q^4)$.

यदि $P:Q = 5:3$ है तो $(P^4 - Q^4): (P^4 + Q^4)$ का मान ज्ञात करें।

[DP Const., 23/11/2023, Shift-1]

(a) $-272:353$

(b) $-227:353$

(c) $227:226$

☒ (d) $272:353$

$$\frac{5^4 - 3^4}{5^4 + 3^4} = \frac{625 - 81}{625 + 81} = \frac{544}{706} = \frac{272}{353}$$



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26. If $a = (5/4)b$ and $b = (2/10)c$, then $a:b:c$ is?

यदि $a = (5/4)b$ तथा $b = (2/10)c$ हो, तो $a:b:c$ क्या है?

[DP Const., 05/12/2017, Shift-1]

(a) 15:12:20

(b) 1:1:2

(c) 5:2:10

(d) 5:4:20

$$\frac{a}{b} = \frac{5}{4}$$

$$\frac{b}{c} = \frac{2}{10}$$

$$\begin{array}{ccc} a & : & b & : & c \\ 5 & 4 & 4 & & \\ 1 & 1 & 5 & & \\ \hline 5 & : & 4 & : & 20 \end{array}$$



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$$\frac{P}{Q+R} = \frac{2}{5} \Rightarrow \frac{26}{91+42} = \frac{2}{5}$$

amp

27. If $P: (Q + R) = 2: 5$ and $R: (P + Q) = 6: 7$ then find the value of $Q: (P + R)$.

$$\frac{R}{P+Q} = \frac{6}{7} \Rightarrow \frac{42}{26+91} = \frac{6}{7}$$

यदि $P: (Q + R) = 2: 5$ और $R: (P + Q) = 6: 7$ है तो $Q: (P + R)$ का मान ज्ञात करें।

[DP Const., 22/11/2023, Shift-3]

$$P=26, R=42, Q=91$$

$$\frac{23}{68}$$

Best Approach

(a) 23: 59

(b) 23: 68

(c) 23: 29

(d) 23: 37

$$\frac{Q}{P+R}$$

8th





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9m

28. If $(a + b - c) : (b + c - a) : (a + c - b) = 4 : 5 : 9$,
 then what will be the value of $a : b : c$?

$$\boxed{\frac{13}{2} : \frac{9}{2} : \frac{14}{2}}$$

यदि $(a + \cancel{b} - \cancel{c}) : (\cancel{b} + c - a) : (\cancel{a} + \cancel{c} - b) = 4 : 5 : 9$ है,
 तो $a : b : c$ का मान क्या होगा?

[DP Const., 10/12/2020, Shift-1]

- (a) 14:13:9 $\cancel{b} = 9/2$,
 (b) 14:9:13 $\cancel{c} = 14/2$
 (c) 13:14:9 $\cancel{a} = 13/2$
~~(d)~~ 13:9:14



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29. If $(x + y - z) : (y - z + 2w) : (2x + z - w) = 2 : 3 : 1$,
 then what will be the ratio of $(5w - 3x - z) : 3w$?

यदि $(x + y - z) : (y - z + 2w) : (2x + z - w) = 2 : 3 : 1$
 है, तो $(5w - 3x - z) : 3w$ का अनुपात क्या होगा?

[DP Const., 27/11/2020, Shift-1]

(a) 5:2 $3x + y - w = y - z + 2w$

(b) 5:3

☒ (c) 2:3

(d) 4:3

$$\boxed{-3w = -z - 3x}$$

$$\frac{5w - 3w}{3w} = \frac{2w}{3w}$$



30. If a, b and c positive numbers are such that
 $(a^2 + b^2) : (b^2 + c^2) : (c^2 + a^2) = 34 : 61 : 45$, then
 $a : b : c = ?$

यदि a, b और c धनात्मक संख्याएँ इस प्रकार हैं कि
 $(a^2 + b^2) : (b^2 + c^2) : (c^2 + a^2) = 34 : 61 : 45$, तो
 $a : b : c = ?$

[DP Const., 08/12/2020, Shift-3]

(a) 6 : 3 : 5

(b) 3 : 5 : 6

(c) 5 : 3 : 6

(d) 3 : 6 : 5