IMP MCQs Lecture 7

Chp1 Ratio Proportion Indices Logarithm

CA. Pranav Popat

Schedule

Telegram Channel
@learnwithpranav

Date	Day	Chapter to be Covered
05-Aug-25	Tue	Chp4 Math for Finance
07-Aug-25	Thu	Chp13 Statistical Description of Data
09-Aug-25	Sat	Chp14 Central Tendency & Dispersion
11-Aug-25	Mon	Chp17 Correlation and Regression
13-Aug-25	Wed	Chp12 Blood Relations and Chp10 Direction Test
15-Aug-25	Fri	Chp11 Seating Arrangements & Chp9 Number Series...
17-Aug-25	Sun	Chp1 Ratio Proportion Indices Logarithm
19-Aug-25	Tue	Chp18 Index Numbers and Chp6 Sequence and Series
21-Aug-25	Thu	Chp2 Equations & Chp3 Linear Inequalities
23-Aug-25	Sat	Chp5 Permutations & Combinations
25-Aug-25	Mon	Chp7 Set Relation Functions
27-Aug-25	Wed	Chp15 Probability and Chp16 Theoretical Distribution

24 Days Challenge

24 DAYS QA CHALLENGE

QA (Math, LR and Stats) **BY CA. PRANAV POPAT**

CA FOUNDATION SEP 2025

Day Numbe	Date	Day	Title	Video Link	PDF Link	Duration (Hours)
1	4-Aug-25	Mon	Revision of Chp4 Math for Finance (Self/ One Shot)	Play	PDF	3:02:00
2	5-Aug-25	Tue	IMP MCQs of Chp4 Math for Finance (Live on YT)	coming soon	coming soon	
3	6-Aug-25	Wed	Revision of Chp13 Statistical Description of Data (Self/ One Shot)	Play	PDF	3:06:00
4	7-Aug-25	Thu	IMP MCQS of Chp13 Statistical Description of Data (Live on YT)	coming soon	coming soon	
5	8-Aug-25	Fri	Revision of Chp14 Central Tendency & Dispersion (Self/ One Shot)	Play	PDF	3:02:00
6	9-Aug-25	Sat	IMP MCQs of Chp14 Central Tendency & Dispersion (Live on YT)	coming soon	coming soon	
7	10-Aug-25	Sun	Revision of Chp17 Correlation Regression (Self/ One Shot)	Play	PDF	2:43:58
8	11-Aug-25	Mon	IMP MCQs of Chp17 (Live on YT)	coming soon	coming soon	
9	12-Aug-25	Tue	Revision of Chp12 Blood Relations (Self/ One Shot)	Play	PDF	1:24:49
			Revision of Chp10 Direction Test (Self/ One Shot)	Play	PDF	1:01:11
10	13-Aug-25	Wed	IMP MCQs of Chp12 and Chp10 (Live on YT)	coming soon	coming soon	
11	14-Aug-25	Thu	Revision of Chp11 Seating Arrangements (Self/ One Shot)	Play	PDF	1:48:40

let’s get started.

Chp1 Ratio Proportion Indices Logarithm

PYQ May 2025

PYQ May 2025

(78) If $\log\frac{a+b}{4}=\frac{1}{2}(\log a+\log b)$ then the value of $\frac{a}{b}+\frac{b}{a}$ will be

$\frac{a}{b}+\frac{b}{a}=\frac{a^2+b^2}{ab}$

a. 12 ✓ b. 14

c. 16 d. 8

$\log\left(\frac{a+b}{4}\right)=\frac{1}{2}(\log a+\log b)$

$\log\left(\frac{a+b}{4}\right)=\log(ab)^{1/2}$

$\frac{a+b}{4}=(ab)^{1/2}$

sq. both sides,

$\left(\frac{a+b}{4}\right)^2=\left[(ab)^{1/2}\right]^2$

$\frac{a^2+b^2+2ab}{16}=ab$

$a^2+b^2+2ab=16ab$

$a^2+b^2=14ab$

$\frac{a^2+b^2}{ab}=14$

PYQ May 2025

PYQ May 2025

(78) If $\log\frac{a+b}{4}=\frac{1}{2}(\log a+\log b)$ then the value of $\frac{a}{b}+\frac{b}{a}$ will be

a. 12 b. 14 ✓

c. 16 d. 8

Requirement: $\frac{a}{b}+\frac{b}{a}=\frac{a^2+b^2}{ab}$

$\log\left(\frac{a+b}{4}\right)=\frac{1}{2}\log a+\log b$

$\log\frac{(a+b)}{4}=\log(ab)^{1/2}$

$\frac{a+b}{4}=\sqrt{ab}$

square both sides,

$\frac{a^2+b^2+2ab}{16}=ab$

$a^2+b^2+2ab=16ab$

$a^2+b^2=14ab$

$\frac{a^2+b^2}{ab}=14$

$\frac{a}{b}+\frac{b}{a}=14$

PYQ May 2025

PYQ May 2025

(81) *A startup business was initiated by an entrepreneur by investing ₹1,40,000. His friend joined him after six months with an amount of ₹2,10,000. Thereafter an angel investor joined them with ₹2,80,000 after another six months. What should be the ratio of distribution of total earnings, three years since beginning of business among entrepreneur, his friend and angel investor?*

a. 7 : 6 : 10 ✗ b. 12 : 15 : 16 ✓

c. 42 : 45 : 56 ✗ d. 2 : 3 : 4 ✗

Effective capital

E 140,000 X 36m = 5040k

F 210,000 X 30m = 6300k

A 280,000 X 24m = 6720k

E : F : A = 5040 : 6300 : 6720

$\frac{E}{F} = \frac{5040}{6300} = 0.8$

$\frac{F}{A} = \frac{6300}{6720} = 0.9375$

a) 7/6 = 1.16 ✗

b) 12/15 = 0.8, 15/16 = 0.9375

PYQ May 2025

PYQ May 2025

(81) *A startup business was initiated by an entrepreneur by investing ₹1,40,000. His friend joined him after six months with an amount of ₹2,10,000. Thereafter an angel investor joined them with ₹2,80,000 after another six months. What should be the ratio of distribution of total earnings, three years since beginning of business among entrepreneur, his friend and angel investor?*

a. 7 : 6 : 10 b. ✓ 12 : 15 : 16

c. 42 : 45 : 56 d. 2 : 3 : 4

E : 140,000 X 36m = 504k

F : 210,000 X 30m = 630k

A : 280,000 X 24m = 672k

$\frac{E}{F} = \frac{504}{630} = 0.8$

PYQ May 2025

PYQ May 2025

(4) *The sum of three numbers is 98. If the ratio of the first to second number is 2:3 and that of second to third is 5:8, then the second number is*

a. 20 *b.* 30

c. 48 *d.* 58

$A+B+C=98$

$\frac{A}{B}=\frac{2}{3}$ $\frac{B}{C}=\frac{5}{8}$

$\frac{A}{B}=\frac{10}{15}$ $\frac{B}{C}=\frac{15}{24}$

$A:B:C=10:15:24$

$10x+15x+24x=98$

$x=\frac{98}{49}=2$

$B=15x=15\times2=30$

20, 30, 48

PYQ May 2025

PYQ May 2025

(4) *The sum of three numbers is 98. If the ratio of the first to second number is 2:3 and that of second to third is 5:8, then the second number is*

a. 20 ✓ *b.* 30

c. 48 *d.* 58

$\frac{A}{B} = \frac{2}{3}$ $\frac{B}{C} = \frac{5}{8}$

$\frac{A}{B} = \frac{10}{15}$ $\frac{B}{C} = \frac{15}{24}$

10 : 15 : 24

$10x + 15x + 24x = 98$

$x = 2$, $15x = 30$

MTP 1 – May 2025

MTP 1 – May 2025

(3) If $x^3 - 1 = 1330$ and $y^3 - 1 = 1727$, then the value of $x^2 - y^2 =$ [redacted] is

a. 265 b. -265

c. -23 d. 23

$x^3 - 1 = 1330 \Rightarrow x^3 = 1331 \Rightarrow x = 11$

$y^3 - 1 = 1727 \Rightarrow y^3 = 1728 \Rightarrow y = 12$

$x^2 - y^2 = 11^2 - 12^2 = 121 - 144$

$= -23$

MTP 1 – May 2025

MTP 1 – May 2025

(3) If $x^3 - 1 = 1330$ and $y^3 - 1 = 1727$, then the value of $x^2 - y^2 =$ [redacted] is

a. 265 b. -265

c. -23 d. 23

$x^3 = 1331, \quad x = 11$

$y^3 = 1728, \quad y = 12$

$x^2 - y^2 = 11^2 - 12^2 = 121 - 144 = -23$

PYQ Jan 2025

PYQ Jan 2025

(55) *Three employees A, B and C of a firm receive variable incentive money in the ratio 3 : 4 : 5. Then the Management also gave a fixed incentive of ₹4000 to each of them. As a result now the total incentive amount of A, B and C becomes in the ratio 5 : 6 : 7. How much amount did B get as variable incentive?*

a. ₹2000 b. ₹4000 ✓

c. ₹6000 d. ₹8000

let variable incentive be

$3x, 4x, 5x$

Total incentive be

$3x + 4000$

$4x + 4000$ } 5 : 6 : 7

$5x + 4000$

$$\frac{3x + 4000}{4x + 4000} = \frac{5}{6}$$

$18x + 24000 = 20x + 20,000$

$2x = 4000$

$x = 2000$

var inc of B $= 4x$

$= 4(2000) = 8000$

PYQ Jan 2025

PYQ Jan 2025

(55) *Three employees A, B and C of a firm receive variable incentive money in the ratio 3 : 4 : 5. Then the Management also gave a fixed incentive of ₹4000 to each of them. As a result now the total incentive amount of A, B and C becomes in the ratio 5 : 6 : 7. How much amount did B get as variable incentive?*

a. ₹2000 b. ₹4000

c. ₹6000 d. ₹8000 ✓

let variable incentive be

$3x, 4x, 5x$

$$\frac{3x+4000}{4x+4000} = \frac{5}{6}$$

$$18x + 24000 = 20x + 20{,}000$$

$$x = 2000$$

var of B, $4x = 4(2000)$

$= 8000$

PYQ Jan 2025

PYQ Jan 2025

(47) *The ratio of age of two sisters is 5:7. One is elder to the other by 8 years. Then the ratio of their age after 4 years between older to younger is*

a. 2 : 5 b. 4 : 3 ✓

c. 4 : 5 d. 3 : 5

let current age be $5x, 7x$ → elder

$7x - 5x = 8$

$x = 4$

current age: $5x, 7x$

$5\times4, 7\times4$

$20, 28$

4 years later:

24, 32

ratio

$\frac{24}{32} = \frac{3}{4}$

$\frac{\text{older}}{\text{younger}} = \frac{4}{3}$

PYQ Jan 2025

PYQ Jan 2025

(47) *The ratio of age of two sisters is 5:7. One is elder to the other by 8 years. Then the ratio of their age after 4 years between older to younger is*

a. 2 : 5 ✓ *b.* 4 : 3

c. 4 : 5 *d.* 3 : 5

let ages be $5x, 7x$

$7x - 5x = 8, \quad x = 4$

current ages $5(4) = 20, \ 7(4) = 28$

after 4 years, ages will be 24, 32

older : younger = 32:24

= 4:3

MTP 1 – Jan 2025

(10) If $u^{5x} = v^{5y} = w^{5z}$ and $u^2 = vw$ then $xy + zx - 2yz$

a. 0 ✓ b. 1

c. 2 d. None

let, $u^{5x} = v^{5y} = w^{5z} = k$

$u = k^{1/5x}$, $v = k^{1/5y}$, $w = k^{1/5z}$

$u^2 = vw$

$(k^{1/5x})^2 = k^{1/5y} \times k^{1/5z}$

$k^{2/5x} = k^{1/5y + 1/5z}$

$\frac{2}{5x} = \frac{1}{5y} + \frac{1}{5z}$

$\frac{1}{5}\left(\frac{2}{x}\right) = \frac{1}{5}\left(\frac{1}{y} + \frac{1}{z}\right)$

$\frac{2}{x} = \frac{y+z}{yz}$

$2yz = xy + zx$

$0 = xy + zx - 2yz$

MTP 1 – Jan 2025

(10) If $u^{5x} = v^{5y} = w^{5z}$ and $u^2 = vw$ then $xy + zx - 2yz$

a. 0 ✓ b. 1

c. 2 d. None

$u^{5x} = v^{5y} = w^{5z} = k$

$u = k^{1/5x}, \; v = k^{1/5y}, \; w = k^{1/5z}$

$u^2 = vw$

$(k^{1/5x})^2 = (k^{1/5y} \times k^{1/5z})$

$k^{2/5x} = k^{1/5y + 1/5z}$

$\frac{2}{5x} = \frac{1}{5y} + \frac{1}{5z}$

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

$\frac{2}{x} = \frac{z+y}{yz}$

$2yz = xz + yx$

$0 = xz + xy - 2xz$

MTP Sep 2024 – II

2. On Simplification $\frac{1}{1+z^{a-b}+z^{a-c}} + \frac{1}{1+z^{b-c}+z^{b-a}} + \frac{1}{1+z^{c-a}+z^{c-b}}$ would reduces to

(a) $\frac{1}{z^{2(a+b+c)}}$

(b) $\frac{1}{z^{(a+b+c)}}$

(c) 1

(d) 0

MTP Sep 2024 – II

2. On Simplification $\frac{1}{1+z^{a-b}+z^{a-c}}+\frac{1}{1+z^{b-c}+z^{b-a}}+\frac{1}{1+z^{c-a}+z^{c-b}}$ would reduces to

(a) $\frac{1}{z^{2(a+b+c)}}$

(b) $\frac{1}{z^{(a+b+c)}}$

(c) ✓ 1

(d) 0

$$\frac{1}{z^{a-a}+z^{a-b}+z^{a-c}}+\frac{1}{z^{b-b}+z^{b-c}+z^{b-a}}+\frac{1}{z^{c-c}+z^{c-a}+z^{c-b}}$$

$$\frac{1}{z^{a}z^{-a}+z^{a}z^{-b}+z^{a}z^{-c}}+\frac{1}{z^{b}z^{-b}+z^{b}z^{-c}+z^{b}.z^{-a}}+\frac{1}{z^{c}z^{-c}+z^{c}z^{-a}+z^{c}z^{-b}}$$

$$\frac{1}{z^{a}(z^{-a}+z^{-b}+z^{-c})}+\frac{1}{z^{b}(z^{-b}+z^{-c}+z^{-a})}+\frac{1}{z^{c}(z^{-c}+z^{-a}+z^{-b})}$$

$$\frac{1}{z^{-a}+z^{-b}+z^{-c}}\left(\frac{1}{z^{a}}+\frac{1}{z^{b}}+\frac{1}{z^{c}}\right)$$

$$\frac{1}{z^{-a}+z^{-b}+z^{-c}}\times(z^{-a}+z^{-b}+z^{-c})=1$$

MTP Sep 2024 – II

3. $(18)^{3.5} \div (27)^{3.5} \times 6^{3.5} = 2^x$, then the value of x is:

(a) 3.5

(b) 4.5

(c) 6

(d) 7

MTP Sep 2024 – II

3. $(18)^{3.5} \div (27)^{3.5} \times 6^{3.5} = 2^x$, then the value of x is:

(a) 3.5

(b) 4.5

(c) 6

(d) 7 ✓

Law 4 of indices:

$$(a^n \times b^n) = (ab)^n$$

$$\left(\frac{18}{27} \times 6\right)^{3.5} = 2^x$$

$$4^{3.5} = 2^x$$

$$(2^2)^{3.5} = 2^x$$

$$2^7 = 2^x$$

$$x = 7$$

MTP Sep 2024 – II

4. The value of $\frac{(243)^{0.13}\times(243)^{0.07}}{(7)^{0.25}\times(49)^{0.075}\times(343)^{0.2}}$ is:

(a) $\frac{3}{7}$

(b) $\frac{7}{3}$

(c) $1\frac{3}{7}$

(d) $2\frac{2}{7}$

MTP Sep 2024 – II

4. The value of $\frac{(243)^{0.13}\times(243)^{0.07}}{(7)^{0.25}\times(49)^{0.075}\times(343)^{0.2}}$ is:

(a) $\frac{3}{7}$

(b) $\frac{7}{3}$

(c) $1\frac{3}{7}$

(d) $2\frac{2}{7}$

$$\frac{(3^5)^{0.13}\times(3^5)^{0.07}}{7^{0.25}\times(7^2)^{0.075}\times(7^3)^{0.2}} = \frac{3^{0.65}\times 3^{0.35}}{7^{0.25}\times 7^{0.15}\times 7^{0.6}}$$

$$= \frac{3}{7}$$

5. The number of prime factors in $\frac{6^{12}\times(35)^{28}\times(15)^{16}}{(14)^{12}\times(21)^{11}}$ is :

(a) 56

(b) 66

(c) 112

(d) none of these

MTP Sep 2024 – II

5. The number of prime factors in $\frac{6^{12}\times(35)^{28}\times(15)^{16}}{(14)^{12}\times(21)^{11}}$ is :

(a) 56

(b) 66 ✓

(c) 112

(d) none of these

no. of prime factors = add power of prime factorization

$$\frac{(2\times3)^{12}\times(5\times7)^{28}\times(3\times5)^{16}}{(2\times7)^{12}\times(3\times7)^{11}}$$

$$\frac{2^{12}3^{12}5^{28}7^{28}3^{16}5^{16}}{2^{12}7^{12}3^{11}7^{11}} = 3^{17}5^{44}7^{5}$$

no. of prime factors = 17+44+5

= 66

MTP Sep 2024 – II

6. $\log\frac{a^2}{bc} - \log\frac{ca}{b^2} + \log\frac{c^2}{ab} =$

(a) 0

(b) 1

(c) log a

(d) none of these.

MTP Sep 2024 – II

6. $\log\frac{a^2}{bc} - \log\frac{ca}{b^2} + \log\frac{c^2}{ab} =$

(a) 0

(b) 1

(c) log a

(d) none of these.

$\log m - \log n = \log \frac{m}{n}$

$\log m + \log n = \log (mn)$

$\log \left(\frac{a^2}{bc} \div \frac{ca}{b^2} \div \frac{c^2}{ab} \right)$

$\log 1 = 0$

MTP Sep 2024 – II

7. $\frac{1}{\log_{xy}(xyz)} + \log_{xyz} yz + \frac{1}{\log_{xz}(xyz)} = ?$

(a) 1

(b) 2

(c) 3

(d) None of these

MTP Sep 2024 – II

7. $\frac{1}{\log_{xy}(xyz)} + \log_{xyz} yz + \frac{1}{\log_{xz}(xyz)} = ?$

(a) 1

(b) 2

(c) 3

(d) None of these

$\log_b a = \frac{\log a}{\log b}$ $\log_b a = \frac{1}{\log_a b}$

$\frac{1}{\log_{xy}(xyz)} + \log_{xyz} yz + \frac{1}{\log_{xz}(xyz)}$

$\log_{xyz} xy + \log_{xyz} yz + \log_{xyz} xz$

$\log_{xyz}(xy \times yz \times xz)$

$\log_{xyz}(xyz)^2 = 2 \log_{xyz} xyz = 2 \times 1 = 2$

MTP Sep 2024 – II

9. If $n = m!$ where ('m' is a positive integer > 2) then the value of:

$$\frac{1}{\log_{2^n}} + \frac{1}{\log_3^n} + \frac{1}{\log_{4^n}} + \cdots \ldots + \frac{1}{\log_m^n}$$

(a) 1

(b) 0

(c) -1

(d) 2

MTP Sep 2024 – II

9. If n = m! where (' m' is a positive integer > 2) then the value of:

$$\frac{1}{\log_{2^n}} + \frac{1}{\log_3^n} + \frac{1}{\log_{4^n}} + \cdots \ldots + \frac{1}{\log_m^n}$$

(a) 1 ✓

(b) 0

(c) -1

(d) 2

$$\frac{1}{\log_2 n} + \frac{1}{\log_3 n} + \frac{1}{\log_4 n} + \cdots + \frac{1}{\log_m n}$$

$$\log_n 2 + \log_n 3 + \log_n 4 + \cdots + \log_n m$$

$$\log_n (2 \times 3 \times 4 \times \cdots \times m)$$

$$\log_n (1 \times 2 \times 3 \times 4 \times \cdots \times m)$$

$$\log_n (m!) = \log_n n = 1$$

MTP Sep 2024 – II

10. Aman walks a certain distance with certain speed. If he walks 1/2 km an hour faster, he takes 1 hour less. But, if he walks 1 km an hour slower, he takes 3 more hours. Find the distance covered by the man and his original rate of walking.

(a) 36 km, 4 km/hr

(b) 40 km, 10 km/hr

(c) 50 km, 20 km/hr

(d) None of these

10. Aman walks a certain distance with certain speed. If he walks 1/2 km an hour faster, he takes 1 hour less. But, if he walks 1 km an hour slower, he takes 3 more hours. Find the distance covered by the man and his original rate of walking.

(a) 36 km, 4 km/hr

(b) 40 km, 10 km/hr

(c) 50 km, 20 km/hr

(d) None of these

$\text{speed} = \frac{\text{distance}}{\text{time}}$ $\quad s = \frac{D}{t} \Rightarrow D = s \times t$

let speed be y, time be x $\quad D = xy$

distance will remain same in both cases

$D = (y + 0.5) \times (x - 1)$

$D = (y - 1) \times (x + 3)$

a) 36km, 4 km/hr

$(t = \frac{36}{4} = 9 \text{hours})$

case A	case B
$S = 4.5/hr$	$S = 3/hr$
$t = 8 hr$	$t = 12 hrs$
$D = 4.5 \times 8$	$D = 3 \times 12$
$= 36 km$	$= 36 km$

PYQ Jun 2024

PYQ June 24

A fraction becomes 1, when 3 are added to the numerator and 1 is added to the denominator, but when the numerator and denominator are decreased by 2 and 1, respectively, it becomes 1/2. The denominator of the fraction is:

a. 5 b. 6

c. 7 d. 8

PYQ Jun 2024

PYQ June 24

A fraction becomes 1, when 3 are added to the numerator and 1 is added to the denominator, but when the numerator and denominator are decreased by 2 and 1, respectively, it becomes 1/2. The denominator of the fraction is:

a. 5 b. 6

c. 7 d. 8

let fraction be a/b

$\frac{a+3}{b+1} = 1 \Rightarrow a+3 = b+1$

$\Rightarrow a-b = -2$ —— (i)

$\frac{a-2}{b-1} = \frac{1}{2} \Rightarrow 2a-4 = b-1$

$\Rightarrow 2a-b = 3$ —— (ii)

Solve eq(i) and eq(ii),

$a = 5$

$b = 7$

PYQ Jun 2024

PYQ Jun 24

If $\log_a b = 3$ and $\log_b c = 2$, then $\log_a c$ is:

a. 5 b. 6

c. 9 d. 1

PYQ Jun 2024

PYQ Jun 24

If $\log_a b = 3$ and $\log_b c = 2$, then $\log_a c$ is:

a. 5 b. 6

c. 9 d. 1

$\log_a b = 3$ $\log_b c = 2$ $\log_a c$

$\frac{\log b}{\log a} = 3$ ——(i) $\frac{\log c}{\log b} = 2$ ——(ii)

eq (i) × eq (ii)

$\frac{\log b}{\log a} \times \frac{\log c}{\log b} = 3 \times 2 \Rightarrow \frac{\log c}{\log a} = 6$ $\log_a c = 6$

MTP June 24 Series II

MTP June 24 Series II

The expenditues and savings of a person are in the ratio 4:1. If his savings are increased by 25% of his income , then what is the new ratio of his expenditure and savings ?

a. 11:9 b. 8:5

c. 7:5 d. 7:4

MTP June 24 Series II

MTP June 24 Series II

The expenditues and savings of a person are in the ratio 4:1. If his savings are increased by 25% of his income , then what is the new ratio of his expenditure and savings ?

a. 11:9 ✓ b. 8:5

c. 7:5 d. 7:4

expenditure = 4x

savings = x

Income = 4x + x = 5x

new savings = x + (5x × 25%) = 2.25x

new expend = 5x − 2.25x = 2.75x

$$\frac{\text{exp.}}{\text{savings}} = \frac{2.75x}{2.25x} = \frac{11}{9} = 11:9$$

MTP June 24 Series I

MTP June 24 Series I

A box contains ₹ 56 in the form of coins of one rupee, 50 paise and 25 paise. The number of 50 paise coin is double the number of 25 paise coins and four times the numbers of one rupee coins. The numbers of 50 paise coins in the box is

a. 64 *b.* 32

c. 16 *d.* 14

MTP June 24 Series I

MTP June 24 Series I

A box contains ₹ 56 in the form of coins of one rupee, 50 paise and 25 paise. The number of 50 paise coin is double the number of 25 paise coins and four times the numbers of one rupee coins. The numbers of 50 paise coins in the box is

a. 64 ✓
b. 32
c. 16
d. 14

let x, y, z be no. of coins of one rupee, 50p, 25p

$y = 2z \quad y = 4x \quad x = \frac{y}{4} \quad z = \frac{y}{2}$

$x \times 1 + y \times 0.5 + z \times 0.25 = 56$

$\frac{y}{4} \times 1 + y \times \frac{1}{2} + \frac{y}{2} \times 0.25 = 56$

$y\,(0.25 + 0.5 + 0.125) = 56$

$y = 64$ coins

MTP June 23 Series II

MTP Jun 23 – Series II

Two vessels containing water and milk in the ratio 2 : 3 and 4 : 5 are mixed in the ratio 1 : 2. The ratio of milk and water in the resulting mixture.

a. 58 : 77
b. 77 : 58
c. 68 : 77
d. None of these

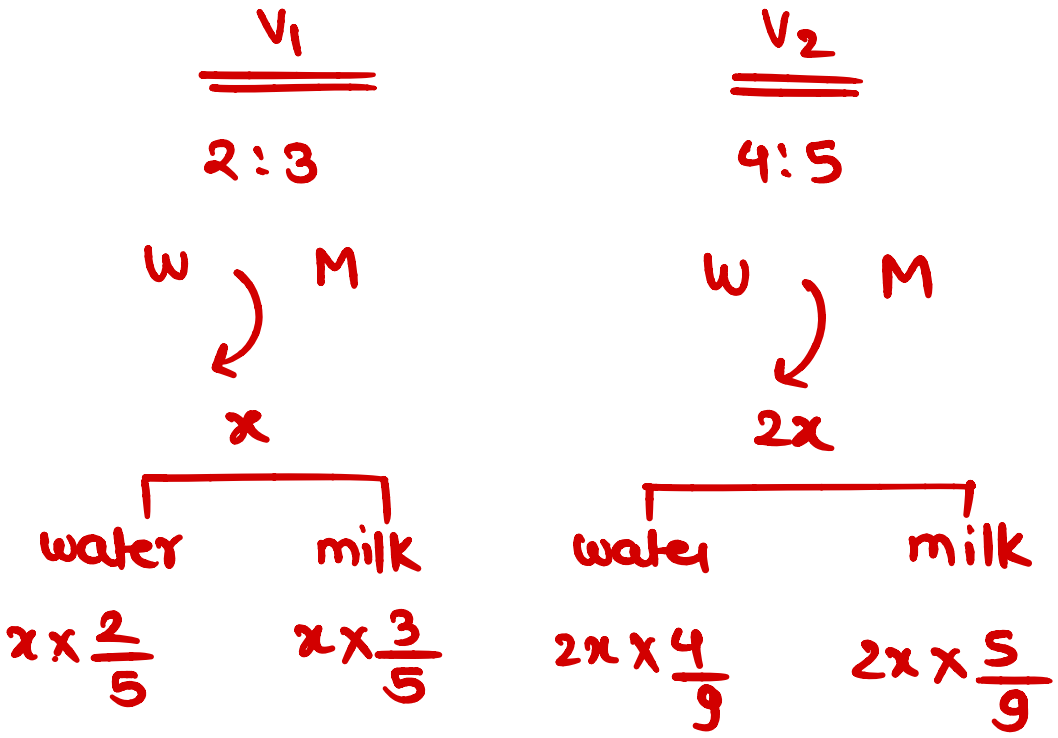
MTP June 23 Series II

MTP Jun 23 – Series II

Two vessels containing water and milk in the ratio 2 : 3 and 4 : 5 are mixed in the ratio 1 : 2. The ratio of milk and water in the resulting mixture.

a. 58 : 77 b. ✓ 77 : 58

c. 68 : 77 d. None of these



In resulting mixture,

$$\text{Milk} = \frac{3x}{5} + \frac{10x}{9} = \frac{(27+50)x}{45}$$

$$\text{water} = \frac{2x}{5} + \frac{8x}{9} = \frac{(18+40)x}{45}$$

$$\frac{77x}{58x} = 77:58$$

MTP Nov 18

For p, q, r, s > 0 the value of each ratio is

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

a. 1/2 b. 1/3

c. 1/4 d. 1

MTP Nov 18

For $p, q, r, s > 0$ the value of each ratio is

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

a. 1/2 ✓ b. 1/3

c. 1/4 d. 1

using addendo,

$$\frac{p+q+r+s}{q+r+r+s+s+p+p+q} = k$$

$$\frac{p+q+r+s}{2(p+q+r+s)} = k$$

$k = 1/2$

MTP Nov 18

Let x, y and z are three positive numbers and $P = \frac{x+y+z}{2}$; if $(p-x):(p-y):(p-z) = 3:5:7$ then the ratio of $x:y:z$ is

a. 4:5:6 b. 6:5:4

c. 3:5:7 d. 7:5:3

MTP Nov 18

Let x, y and z are three positive numbers and

$$P = \frac{x+y+z}{2}$$; if (p-x): (p-y): (p-z) = 3:5:7

then the ratio of x:y:z is

a.	4:5:6	b. ✓	6:5:4
c.	3:5:7	d.	7:5:3

$p - x = 3k$, $x = p - 3k$

$p - y = 5k$, $y = p - 5k$

$p - z = 7k$, $z = p - 7k$

$$p = \frac{(p-3k)+(p-5k)+(p-7k)}{2}$$

$2p = 3p - 15k$

$15k = p$

$x : y : z = 12k : 10k : 8k$

$= 12 : 10 : 8$

$= 6 : 5 : 4$

PYQ May 18

The value of the expression :

$a^{\log_a b.\log_b c.\log_c d.\log_d t}$

a. t

b. $abcdt$

c. $(a + b + c + d + t)$

d. None of these

PYQ May 18

The value of the expression :

$a^{\log_a b.\log_b c.\log_c d.\log_d t}$

a. ✓ t

b. $abcdt$

c. $(a+b+c+d+t)$

d. None of these

let, $a^{\log_a b \log_b c \log_c d \log_d t} = x$

$a^{\frac{\log b}{\log a}\frac{\log c}{\log b}\frac{\log d}{\log c}\frac{\log t}{\log d}} = x$

$a^{\log t/\log a} = x$

$a^{\log_a t} = x$

$\log_a x = \log_a t$

$x = t$

MTP Nov 18

If $\log_7 \log_5(\sqrt{x+5}+\sqrt{x})=0$, the value of x is

a. 0 b. 1

c. 1/4 d. 4

MTP Nov 18

If $\log_7 \log_5(\sqrt{x+5}+\sqrt{x})=0$, the value of x is

a. 0 b. 1

c. 1/4 d. 4 ✓

$\log_7[\log_5(\sqrt{x+5}+\sqrt{x})] = 0$

$\log_5[\sqrt{x+5}+\sqrt{x}] = 7^0$

$5^1 = \sqrt{x+5}+\sqrt{x}$

check by option

(d) $x=4$