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Sahi Prep Hai Toh Life Set Hai

Ratio & Proportion

Practice Questions

Partnership → 12Q (9 discussed)

3 left ✓

Ratio → 26Q → 10

Mixture → 10Q

(3-4) ✓

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PARTNERSHIP

PRACTICE QUESTIONS

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Q10. A, B and C have respectively invested Rs. 20, Rs. 18 and Rs. 12 (all in thousands) jointly in a business. A and B receive respectively, 12% and 8% of the annual profit for services, and remaining profit being divided among A, B and C in proportion to their capitals. If at the end of the year A receives altogether Rs. 648 more than that of B then C's share is :

(a) Rs. 3960 (b) Rs. 3312
(c) Rs. 1728 (d) Rs. 2400

9 → 648
72
$\frac{648}{9} \times 24$

A	B	C
~~20~~	~~18~~	~~12~~
10	9	6

A & B → 12% & 8%

80% → 10 : 9 : 6

$\frac{3}{12} \cdot 100 = 25$ $\frac{2}{8} \cdot 100 = 25$

Let Total Profit = 125

$\frac{10}{25} \cdot 100 = 40$ A → $\frac{3}{25} \cdot 125$ → 15

$\frac{9}{25} \cdot 100 = 36$ B → $\frac{2}{25} \cdot 125$ → 10

$\frac{6}{25} \cdot 100 = 24$ C

55 46 24

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Ans. (c)

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V-Imp

Q11. A and B enter into partnership. A supplies whole of the capital amounting to Rs. 45000 with the condition that the profit should be divided equally and that B pays A interest on half of the capital at 10% per annum, but receives, Rs. 120 per month for carrying on the concern. When B's income is half of A's income then their total yearly profit is :

~~(a)~~ Rs. 9180 (b) Rs. 7150
(c) Rs. 3060 (d) Rs. 6300

I II

I st

Detailed App

2:3870
+1440

Total profit = 2X+1440

120×12 = 1440 B

10% of 22500 = 225

A	B
X	1440
	X
+2250	−2250
X+2250	X−810

$$\frac{X+2250}{X-810} = \frac{2}{1}$$

$$X = 3870$$

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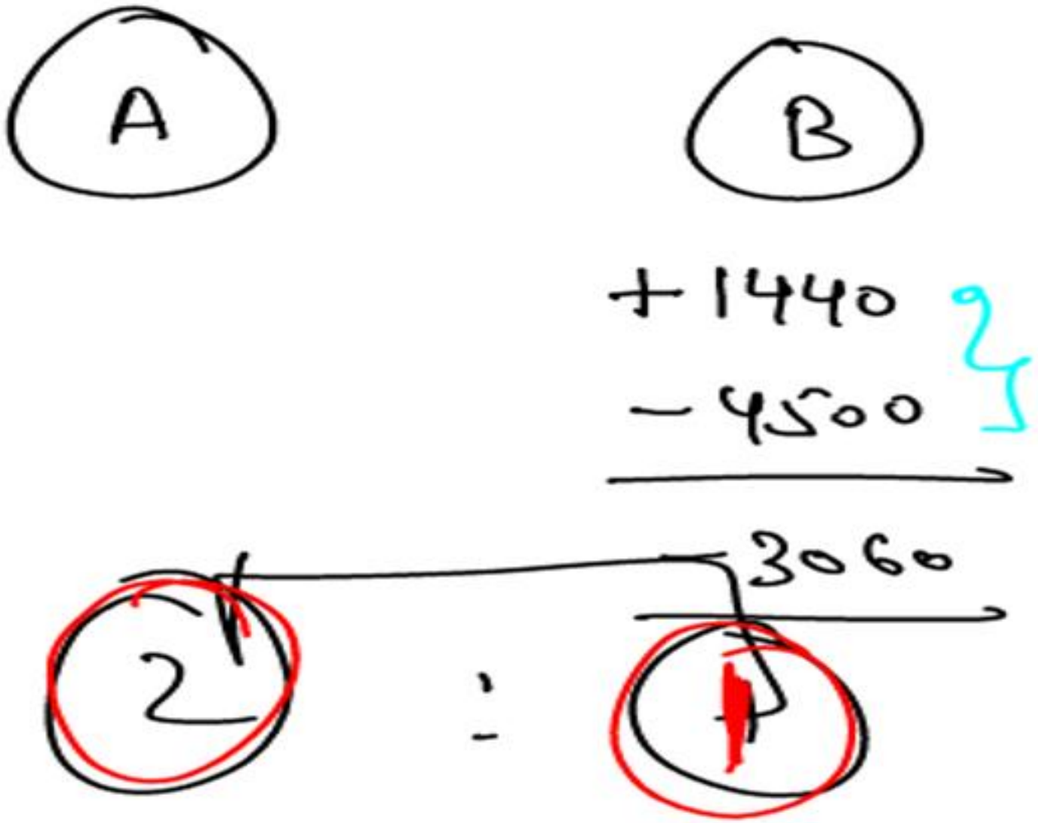
Ans. (d)

II nd

Logical Approach

B → 120 Rs/math

2250 Rs



1 → 3060

3 → 9180

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V. Imp

Q12. A, B and C are partners. A receives 5/8 of the profit, B and C share the remaining profit equally. A's income is increased by Rs. 450 when the profit rises from 4% to 9%. Find the capital invested by B.

(a) Rs. 3366 (b) Rs. 1687.5

(c) Rs. 3475 (d) Rs. 2700

	A	B	C
	$\frac{5}{8}$:	$\frac{3}{16}$:	$\frac{3}{16}$
Profits	10	3 :	3
Invest	10x :	3x :	3x

$$\frac{10}{16}(5\% \text{ of } 16x) = 450$$

$$x = 900$$

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Ans. (d)

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PRACTICE QUESTIONS

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Q1. In an examination, the number of those who passed and the number of those who failed were in the ratio 25:4. If five more had appeared and the number of failures was 2 less than earlier, the ratio of passers to failures would have been 22:3. The number who appeared at the examination, is:

(a) 145 (b) 150

(c) 155 (d) 180

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Ans. (a)

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Q2. The smallest integer, which subtracted from both the terms of 6:7 gives a ratio less than 16:21, is:

(a) 5 (b) 4

(c) 3 (d) 2

$$\frac{6-x}{7-x} < \frac{16}{21}$$

$$126 - 21x < 112 - 16x$$

PYQ of SSC

$$14 < 5x$$

min $x \longrightarrow 3$

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Ans. (c)

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Q3. If there is a reduction in the number of workers in a factory in the ratio 15:11 and an increment in their wages in the ratio 22:25, then the ratio by which the total wages of the workers should be decreased is

(a) 6:5 → ✗
(b) 5:6 ✗
(c) 3:7 ✗
(d) 3:5 ✗

No. of Workers | Wages | Total ⟹

$$\frac{15 \times 22}{11 \times 25} = \frac{6}{5}$$

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Ans. (a)

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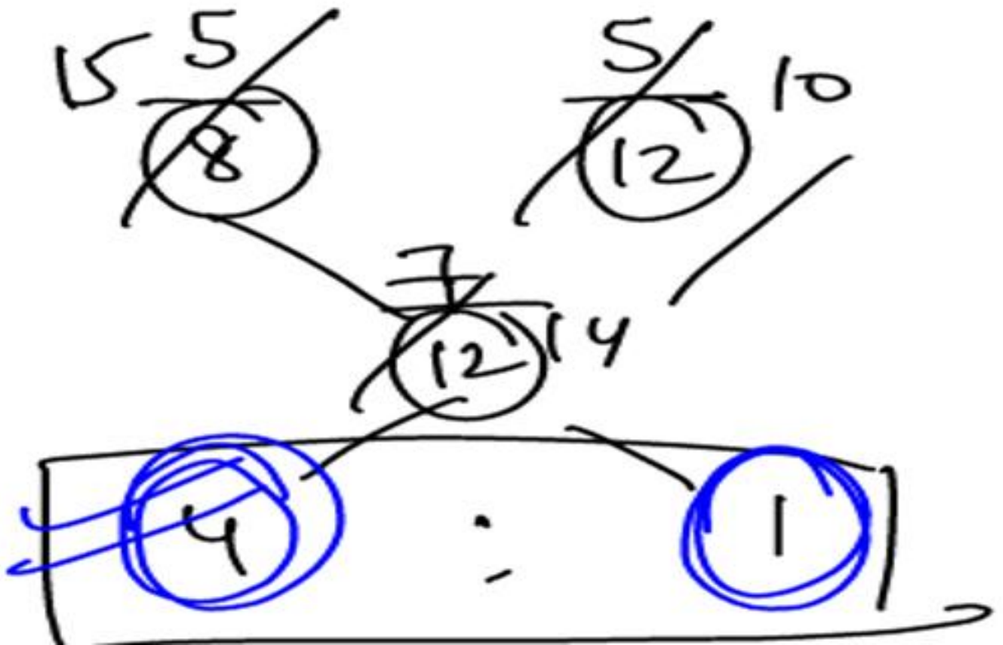
B : G = 5 : 3

New

B : G = 5 : 7

1200

B : G = 7 : 5



Q4. The ratio of the number of boys and girls in a school was 5:3. Some new boys and girls were admitted to the school, in the ratio 5:7. At this, the total number of students in the school become 1200, and the ratio of boys to girls changed to 7:5. The number of students in the school before new admission was

(a) 700 (b) 720

(c) 900 (d) 960

240

$\frac{4}{5} \times 1200$

960

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Ans. (d)

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Q5. If $(x^3 - y^3):(x^2 + xy + y^2) = 5$ and $(x^2 - y^2) : (x - y) = 7 : 1$, then the ratio of $2x : 3y$ is equals to :

(a) 3 : 2
(b) 2 : 3
(c) 4 : 3
(d) 4 : 1

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Ans. (d)

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Time → constant

	Tom	Jerry
Jumps	8	6
Distance	7	5

Q6. Tom is chasing jerry. In the same interval of time Tom jumps 8 times while Jerry jumps 6 times. But the distance covered by Tom in 7 jumps in equal to the distance covered by Jerry in 5 jumps. The ratio of speed to Tom and Jerry is

(a) 48:35 (b) 28:15

(c) 24:20 (d) 20:21

Detailed

$7T = 5J$

$\frac{T}{J} = \frac{5M}{7M}$

$D = S \cdot T$

$D \propto S$

Tom → 40m Jerry → 42m

20 : 21

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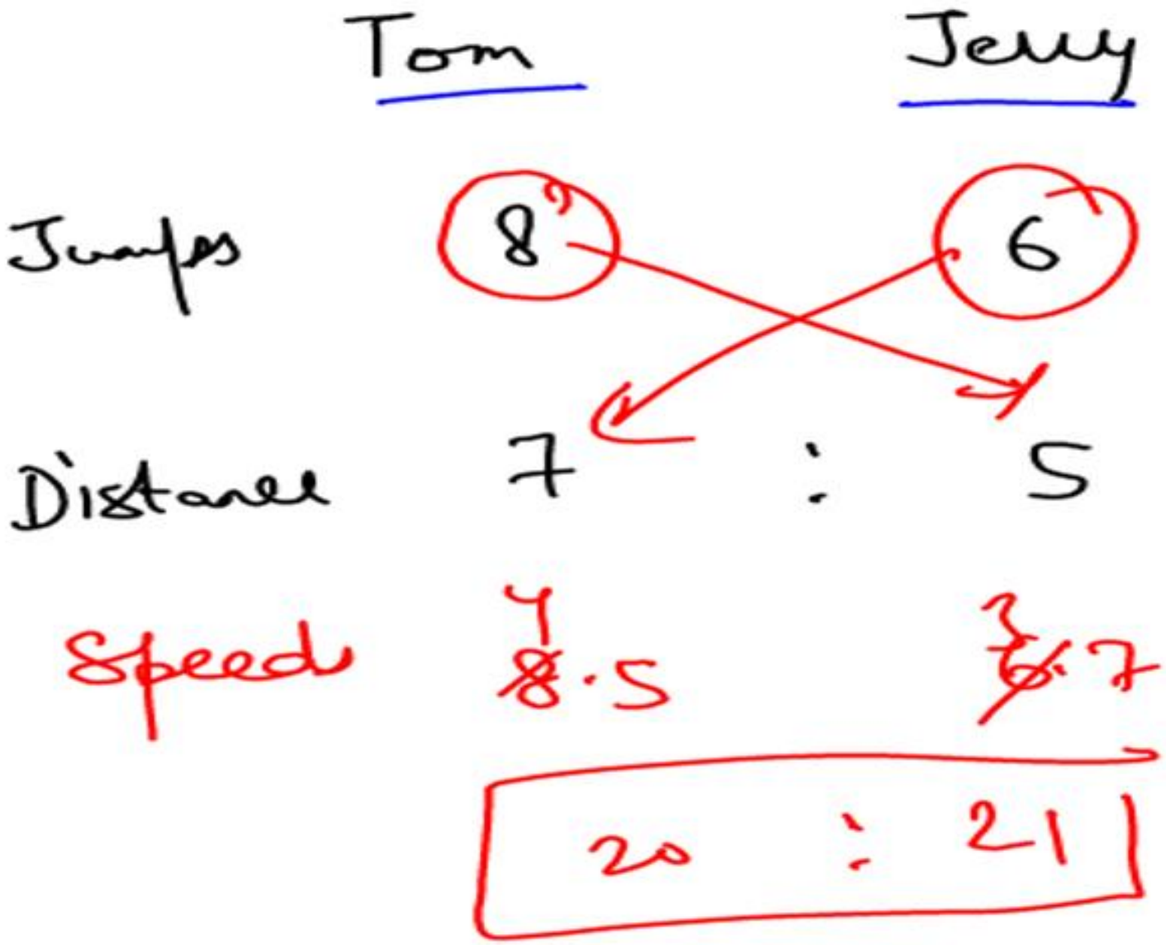
Ans. (d)



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Q7. A person distributes his pens among four friends A, B, C and D in the ratio $\frac{1}{3}:\frac{1}{4}:\frac{1}{5}:\frac{1}{6}$. What is the minimum number of pens that the person should have?

(a) 57
(b) 65
(c) 75
(d) 45

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Ans. (a)

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Q8. If a:b = c:d = e:f = 1:2,
then (pa + qc + re): (pb + qd + rf) is equal to:

(a) p:(q + r)
(b) (p + q):r
(c) 2:3
(d) 1:2

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Ans. (d)

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Q9. If a:b = c:d then $\frac{ma+nc}{mb+nd}$ is not equal to:

$\frac{a}{b} = \frac{c}{d} = K$

$\frac{ma+nc}{mb+nd} \neq$

(a) $\frac{a}{b}$

(b) $\frac{c}{d}$

(c) $\frac{a+c}{b+d}$

(d) $\frac{c-a}{b-d}$

PYQ

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Ans. (d)

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Q10. The numerator and denominator of a fraction are in the ratio of 2:3. If 6 is subtracted from the numerator, The result is a fraction that has a value 2/3 of the original fraction. The numerator of the original fraction is:

(a) 6
(b) 18
(c) 27
(d) 36

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Ans. (b)

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DON

Q11. The smallest integer, which subtracted from both the terms of 6:7 gives a ratio less than 16 : 21, is:

(a) 5 (b) 4

(c) 3 (d) 2

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Ans. (c)

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Q12. If $(a+b) : \sqrt{ab} = 4:1$, where a > b > 0, then a : b is

a. $2+\sqrt{3} : 2-\sqrt{3}$

b. $2-\sqrt{3} : 2+\sqrt{3}$ ✗

c. $3+\sqrt{2} : 3-\sqrt{2}$

d. $3-\sqrt{2} : 3+\sqrt{2}$ ✗

$$\frac{a+b}{\sqrt{ab}} = \frac{4}{1}$$

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

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

$$a^2-14ab+b^2=0$$

$$a^2-14ab+b^2=0$$

$$\frac{a^2}{b^2}-\frac{14a}{b}+1=0$$

Let $\frac{a}{b}=k$

$$k^2-14k+1=0$$

$$k=\frac{14\pm\sqrt{192}}{2}$$

$$=7\pm\sqrt{48}$$

$$7\pm4\sqrt{3}$$

$$\frac{a}{b} = 7+4\sqrt{3} \rightarrow (2+\sqrt{3})^2 \rightarrow \frac{(2+\sqrt{3})}{2-\sqrt{3}}$$

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Ans. (a)

$(a+b)^2 = (a-b)^2 + 4ab$

Given $\frac{a+b}{\sqrt{ab}} = \frac{4}{1}$

$a+b = 4\sqrt{ab}$ — (3)

$a-b = 2\sqrt{3}\sqrt{ab}$ — (4)

$(a+b) = 4\sqrt{ab}$

$(a+b)^2 = 16ab$ — (1)

$(a-b)^2 = 12ab$ — (2)

$a = (2+\sqrt{3})\sqrt{ab}$

$b = (2-\sqrt{3})\sqrt{ab}$

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

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Q13. If $a - b : b - c : c - d = 1 : 2 : 3$, then what is the ratio of $(a + d) : c$?

(a) 1 : 2
(b) 2 : 1
(c) 3 : 1
(d) None of these

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Ans. (b)

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Q14. If $\frac{a}{b}=\frac{2}{3}, \frac{b}{c}=\frac{3}{5}$ and $\frac{c}{d}=\frac{5}{6}$ then,

what is the value of $\frac{3a+2b+4c+d}{3d+4c}$?

(a) 19
(b) 38
(c) 1
(d) 2

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Ans. (c)

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Q15. Monthly incomes of X and Y are in the ratio 1:3 and their expenses are in the ratio 19:40. X saves Rs.18,860 less than that Y and in total they save Rs.36,020. Income of X and Y respectively are:

(a) Rs. 10,480 and Rs. 31,440
(b) Rs. 40,000 and Rs. 25,420
(c) Rs. 42,500 and Rs. 36,200
(d) Rs. 12,000 and Rs. 29,400

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Ans. (a)

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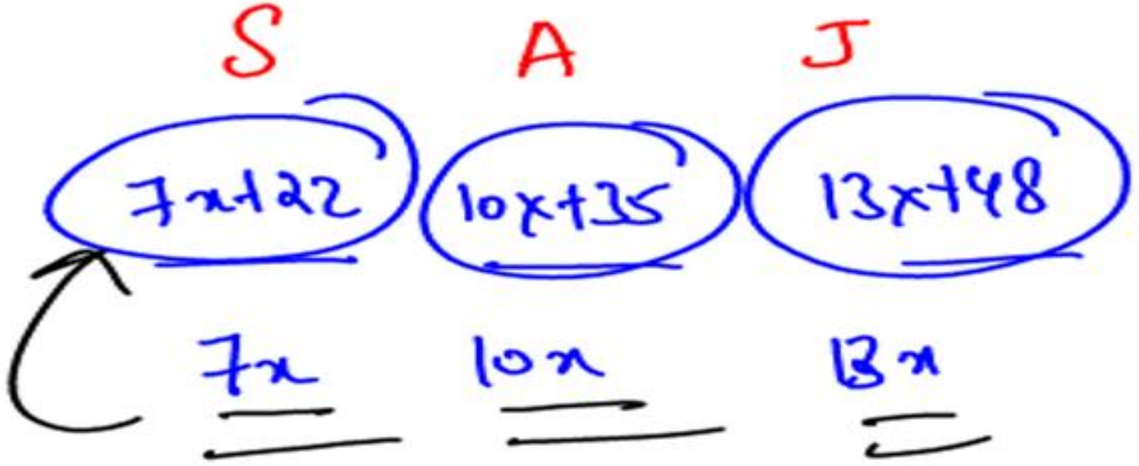

$30x + 105 = 15525$

$x = 514$

Q16. A sum of Rs.15525 is divided among Sunil, Anil and Jamil such that if Rs.22, Rs.35 and Rs.48 be diminished from their shares respectively, their remaining sums shall be in the ratio 7:10:13. What would have been the ratio of their sums if Rs.16, Rs.77 and Rs.37 respectively were added to their original shares?

(a) 9:13:17
(b) 18:26:35
(c) 36:52:67
(d) None of these

3620 5175 6730

~~3636~~ : ~~5252~~ : ~~6767~~

36 52 67

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Ans. (c)

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Q17. A bag contains Rs.600 in the form of one rupee, 50 paisa and 25 paisa coins in the ratio of 3:4:12. Find the total value (in Rs.) of the 25 paisa coins present in the bag.

(a) 210
(b) 215
(c) 225
(d) 230

1Rs 50p 25p

No. of coins 3 : 4 : 12

3Rs 2Rs 3Rs

3 : 2 : 3

$\frac{3}{8} \times 600 = 225$

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Ans. (c)

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Q18. The present ages of a father and his son are in the ratio 9:4. The ratio of the father's age after 8 years from now to the age of the son 2 years ago is 8:3. Find the present age (in years) of the son.

(a) 28
(b) 32
(c) 36
(d) 24

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Ans. (b)

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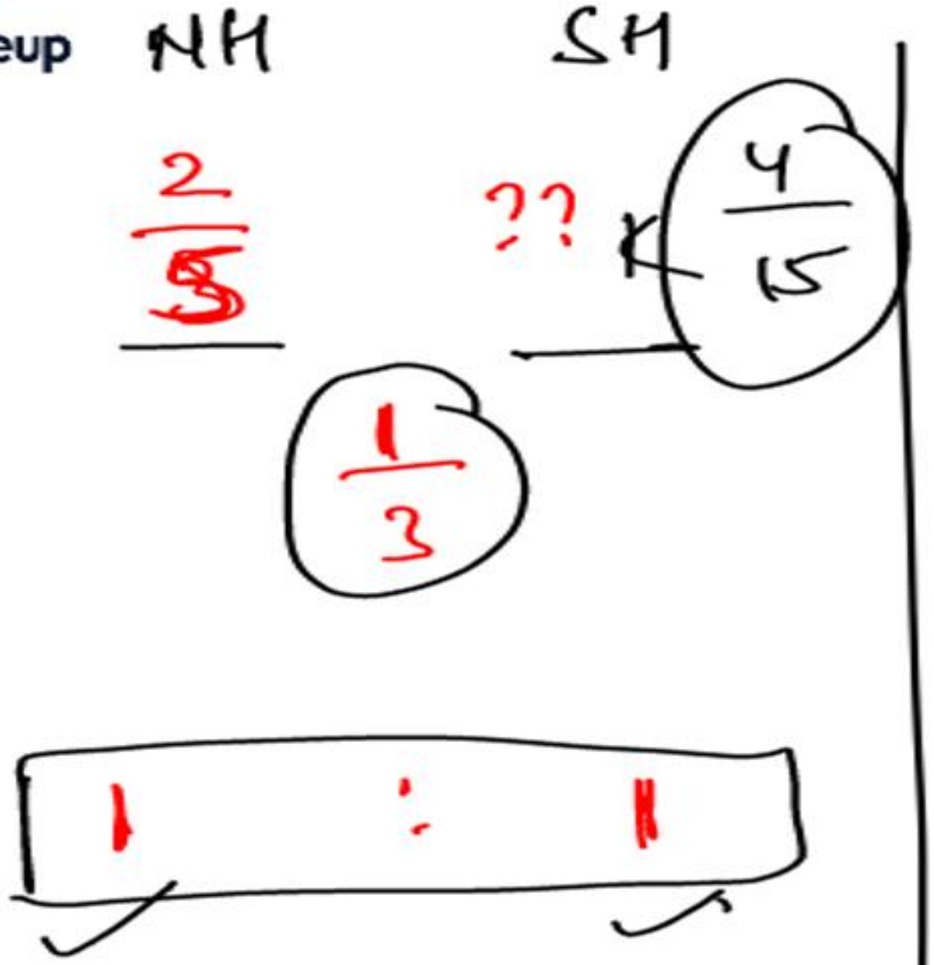

V. Imp

Q19. Ratio of land and water on earth is 1:2 and ratio of land and water in northern hemisphere is 2:3. Find the ratio of land and water in southern hemisphere.

PYQ of SSC

South L : W 1 : 2

NH L : W 2 : 3

SH L : W 4 : 11

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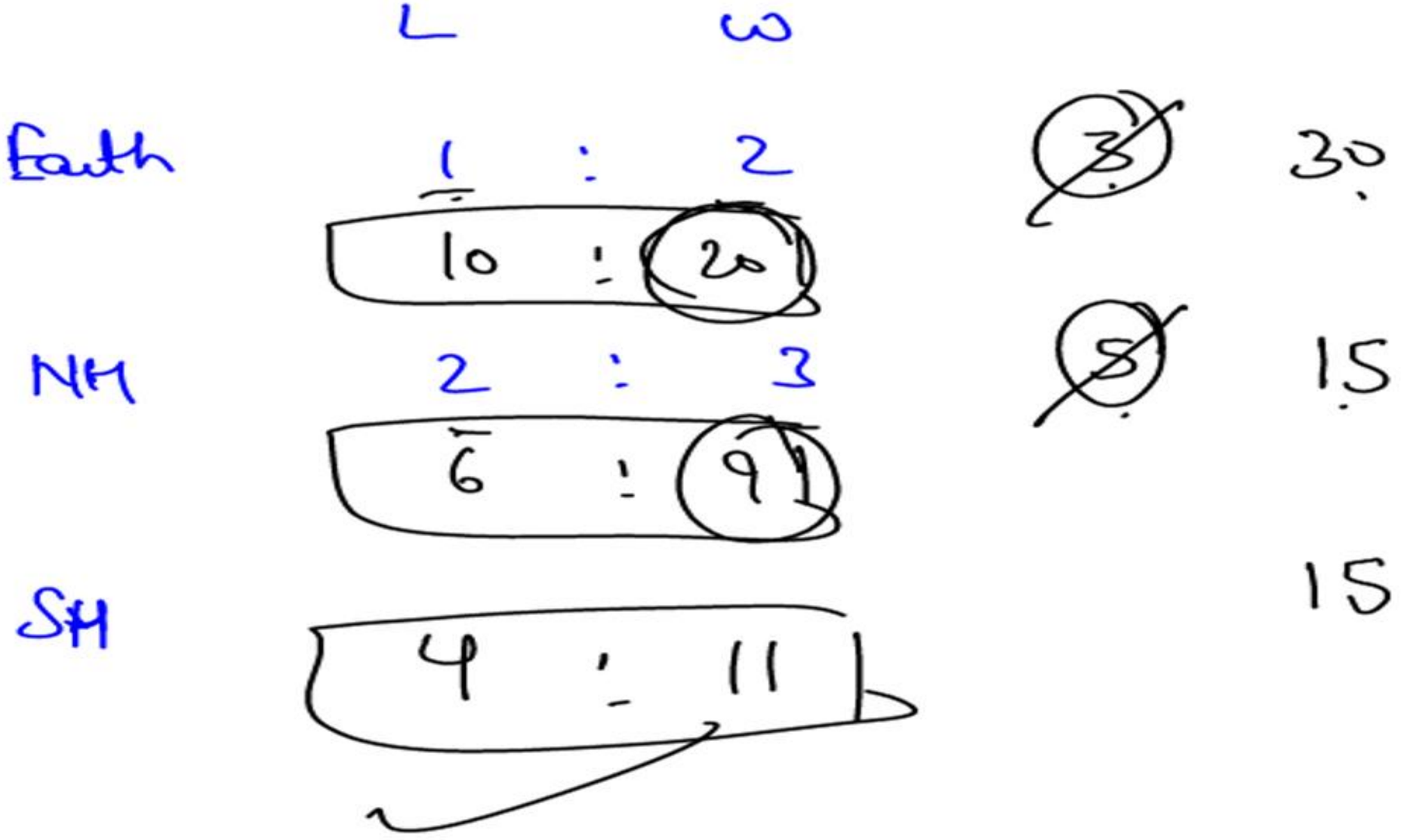
Ans. ()



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$A+B+C=600$

$\frac{2}{5}A+40=\frac{2}{7}B+20=\frac{9}{17}C+10=K$

$A=\frac{5}{2}(K-40)$ → 150

$B=\frac{7}{2}(K-20)$

$C=\frac{17}{9}(K+10)$

Q20. The sum of Rs.600 is divided in A, B and C such that Rs.40 is more than 2/5 of A's, Rs.20 is more than 2/7 of B's and Rs.10 is more than 9/17 of C's share, they are equal. Then what is the share of A,B,C respectively?

(a) 140, 240, 190
(b) 170, 260, 170
(c) 150, 280, 170
(d) 100, 330, 170

$\frac{5}{2}K-100+\frac{7}{2}K-70+\frac{17}{9}K-\frac{170}{9}=600$

$\frac{71}{9}K=\frac{7100}{9}$

$K=100$

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Ans. (c)

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Q21. Three friends A, B and C went on a picnic. A brought 5 apples and B brought 3 apples and C had Rs.80. They divided the apples equally among themselves and C gave all his money to A and B for their contributions. What are the respectively shares of A and B from that money?

(a) Rs.50, Rs.30
(b) Rs.70, Rs.10
(c) Rs.40, Rs.40
(d) Rs.33.33, Rs.66.66

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Ans. (b)

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Q22. Total expenses of a boarding house are partly fixed and partly varying linearly with the number of boarders. The average expense per boarder is Rs.700 when there are 25 boarders and Rs.600 when there are 50 boarders. What is the average expense per boarder when there are 100 boarders?

(a) 550
(b) 580
(c) 540
(d) 570

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Ans. (a)

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Q23. My grandfather was 8 times older than me 16 years ago. He would be 3 times of my age, 8 years from now. 8 years ago, what was the ratio of my age to that of my grandfather?

(a) 3:8
(b) 1:5
(c) 1:2
(d) None of these

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Ans. (b)

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Q24. Ratio of the fares of First, Second and Third class category of a train between two stations is 10 : 7 : 2 and the ratio of passenger travelling in these category is 4 : 9 : 17 respectively. If the fare is increased by 1/4 in First class, 1/8 in Second class and decreased by 10% in Third class so that the ratio of number of passenger in the category remains same. If the new collection is received of Rs. 60590, then find the total amount received from third class category.

(a) 13280
(b) 15400
(c) 12240
(d) 12000

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Ans. (c)

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Q25. Rs. 180 are to be divided among 66 persons (men and women). The ratio of total amount of money received by men and women is 5:4. But the ratio of the money received by each man and women is 3:2. Then number of men are :

(a) 20 (b) 24

(c) 30 (d) 36

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Ans. (c)

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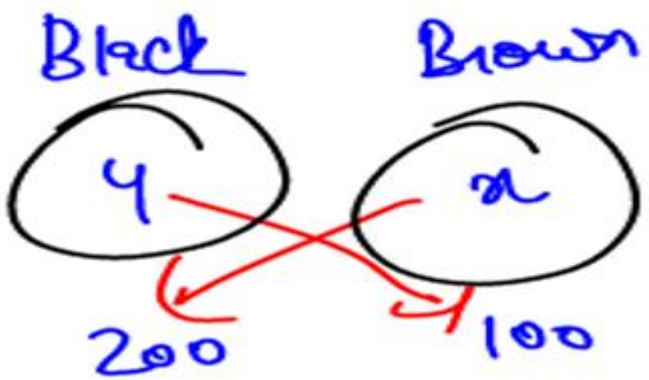
Q26. A man ordered 4 pairs of black socks and some pairs of brown socks. The price of a pair of black socks is double than that of a brown pair. While preparing the bill the clerk interchanged the number black and brown pairs by mistake which increased the bill by 50%. The ratio of the number of black and brown pairs of socks in the original order was:

(a) 2 : 1 (b) 1 : 4

(c) 1 : 2 (d) 4 : 1



Price

Original → $800 + 100x$

New Bill → $400 + 200x$

$$\frac{400 + 200x}{800 + 100x} = \frac{3}{2}$$

$$800 + 300x = 2400 + 300x$$

$$x = 16$$

$4 : 16 = 1 : 4$

	Dog		Cat		Fox
Jumps	5	:	4	:	2
Distance	6	:	9	:	11
Speeds	$5 \cdot 6^{3} \cdot 11$		$4 \cdot 6^{2} \cdot 11$		$2 \cdot 6^{2} \cdot 9$

165 : 88 : 36

Today at 1pm → 2pm

Maximum & Minimum value of Trigonometric Func^N

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