



RATIO & PROPORTION_EXPLANATION

Answer 1: (D)

Revenue = price \times No. of tickets

Before : After

8×26 : 13×21

16 : 21

16 units = 48320

1 unit = 3020

\therefore 5 unit = Rs 15100 .

Answer 2: (C)

Collection Before : After
 5×17 : 7×19

85 : 133

85 units = 102000

1 unit = 1200

133 units = 133×1200

= Rs. 159600

Answer 3: (B)

A : B

Income 3 : 2

Expenses 5 : 3

Saving 1000 : 1000

\therefore Income - Saving = Expenditure

$$\therefore \frac{3x - 1000}{2x - 1000} = \frac{5}{3}$$

$$9x - 3000 = 10x - 5000$$

$$x = 2000$$

Annual income of A = $3x$

$$= 3 \times 2000$$

$$= \text{Rs. } 6000$$

Answer 4: (A)

Let the monthly income of Rahul and kamal is $8x$ and $5x$.

According to the question ,

$$\frac{8x - 12000}{5x - 10000} = \frac{5}{3}$$

\therefore Income - saving = Expenditure

$$\Rightarrow 24x - 36000 = 25x - 50000$$

$$x = 14000$$

Difference in monthly income = $8x - 5x = 3x$

$$= 3 \times 14000$$

$$= \text{Rs. } 42000$$

Answer 5: (C)

The tanks and the planes in an army is $7x$ and $5x$

A.T.Q

$$\frac{7x - 1000}{5x - 800} = \frac{5}{3}$$

$$21x - 3000 = 25x - 4000$$

$$4x = 1000$$

$$x = 250$$

Number of tanks after the war

$$= 7 \times 250 - 1000$$

$$= 1750 - 1000$$

$$= 750$$

**Alternate**

T : P

7 : 5

5 : 3

-1000 : -800

$$(25 - 21) \text{ unit} = (4000 - 3000)$$

$$4 \text{ unit} = 1000$$

$$7 \text{ unit} = 1750$$

$$\text{Tank after war} = 1750 - 1000$$

$$= 750$$

Answer 6: (B)

$$\text{Total applicants} = 19x + 17x$$

$$= 36x$$

$$\text{Selected candidates} = 19x$$

A.T.Q

$$\frac{36x - 1200}{19x - 800} = \frac{2}{1}$$

$$36x - 1200 = 38x - 1600$$

$$400 = 2x$$

$$x = 200$$

$$\text{Total Applicants} = 36x$$

$$= 36 \times 200$$

$$= 7200$$

Alternate

Total : Selected

36 : 19

2 : 1

-1200 : -800

$$2 \text{ unit} \rightarrow 400$$

$$36 \text{ unit} \rightarrow 7200$$

Answer 7: (D)

Rs 1 : 50 P : 20 P

Values 13x : 11x : 7x

$$\text{No. of coins} \frac{13x \times 1}{13x} : \frac{11x \times 2}{22x} : \frac{7x \times 5}{35x}$$

$$\text{Total coins} = 13x + 22x + 35x$$

$$70x = 420$$

$$x = 6$$

$$\text{No. of 50 paise coins} = 22x$$

$$= 22 \times 6$$

$$= 132$$

Answer 8: (A)

Rs 1 : 50 P : 25 P

Values x : x : x

$$\text{No. of coins} x : 2x : 4x$$

$$\text{Total coins} = x + 2x + 4x$$

$$7x = 175$$

$$x = \frac{175}{7}$$

$$x = 25$$

$$\text{Value of total amount} = 3x$$

$$= 3 \times 25$$

$$= \text{Rs. } 75$$

Answer 9: (C)

Let the ratio of coins be

3x : 2x : 5x

Rs.1 : 50 P : 25P

$$\text{No. of coins} 3x : 2x : 5x$$

$$3x \times 1 : 2x \times \frac{1}{2} : 5x \times \frac{1}{4}$$



$$\text{Total Amount} = 3x + x + 1.25x = 252$$

$$5.25x = 252$$

$$x = \frac{252}{5.25} \times 100$$

$$xX = 48$$

So,

The number of coins of 25p = 5x

$$= 48 \times 5$$

$$= 240$$

Answer 10: (C)

50 P : 25 P : 10P

Coins 5x : 9x : 4x

Rupees $\frac{1}{2}$: $\frac{1}{4}$: $\frac{1}{10}$

$$\frac{5x}{2} + \frac{9x}{4} + \frac{4x}{10} = 206$$

$$\frac{103x}{20} = 206$$

$$X = 40$$

Coins=

$$50p = 5x = 5 \times 40 = 200$$

$$25 P = 9x = 9 \times 40 = 360$$

$$10p = 4x = 4 \times 40 = 160$$

Answer 11: (A)

Ratio of A and B + C is

$$\frac{A}{B+C} = \frac{4}{5}$$

Ratio of B and C + A is

$$\frac{B}{C+A} = \frac{2}{11}$$

Make (A + B + C) is same

$$\frac{A}{B+C} = \frac{4}{5} \times \frac{13}{13} = \frac{52}{65} \quad (\therefore 52 + 65 = 117)$$

$$\frac{B}{A+C} = \frac{2}{11} \times \frac{9}{9} = \frac{18}{99}$$

$$(\therefore B + A + C = 18 + 99 = 117)$$

$$C \text{ Amount} = (A + B + C) - (A + B)$$

$$= 117 - (18 + 52)$$

$$= 47$$

$$C = \frac{47}{117} \times 70200$$

$$C = \text{Rs. } 28200 \text{ Rs.}$$

Answer 12: (C)

A : B : C

3 : 4

5 : 7

15 : 20 : 28

$$B \text{ amount} = \frac{20}{15+20+28} \times 31500$$

$$= \frac{20}{63} \times 31500$$

$$= \text{Rs. } 10000$$

Answer 13: (B)

A : B : C : D

1 : 2

2 : 3

3 : 4

1 : 2 : 3 : 4

Amount received by A and C =

$$\frac{A+C}{A+B+C+D} \times \text{Total Amount}$$

$$= \frac{1+3}{1+2+3+4} \times 9520$$

$$= \frac{4}{10} \times 9520$$

$$= \text{Rs. } 3808$$



Answer 14: (B)

Land :	Water
Whole earth	(3 : 5 = 8) × 2 × 2
North hemisphere	7 : 9 = 16
	<u>12 : 20</u>
	7 : 9
South hemisphere	<u>5 : 11</u>

Answer 15: (A)

Let

Total student = x

$$\text{Contribution} = x \text{ Rs.} + \frac{x}{100} \text{ Rs.}$$

$$= \frac{101x}{100} \text{ Rs.}$$

$$\text{Total contribution} = \frac{101x}{100} \times x = 3636$$

$$x^2 = 3600$$

$$x = 60$$

Answer 16: (C)

	Gold	Copper	lcm
A	(5 : 3)		8 × 2 = 16
B	5 : 11		16 = 16
	Gold	Copper	
A	10 : 6		
B	5 : 11		
	<u>15 : 17</u>		

Answer 17: (B)

	Milk	:	Water	lcm
A	(3 : 8)			= 11 × 12
B	(5 : 7)			= 12 × 11
	Milk	:	Water	

$$A \quad 36 : 96$$

$$B \quad 55 : 77$$

$$\underline{91 : 173}$$

Answer 18: (D)

Acid : Water

$$A \quad 3 : 4 = 7 \times 8$$

$$B \quad 5 : 3 = 8 \times 7$$

Make quantities of A and B equal

Acid : Water

$$A \quad 24 : 32$$

$$B \quad 35 : 21$$

$$\underline{59 : 53}$$

So, the ratio of acid and water in the new mixture is 59 : 53.

Answer 19: (C)

Let the weight of four pieces of diamond =

$$x, 2x, 3x, 4x$$

$$\therefore \text{Total weight of original diamond} = x + 2x + 3x + 4x = 10x$$

The price of original diamond $\propto (\text{weight})^2$

$$\text{Price} = k (\text{weight})^2$$

(\because K is the constant)

$$\text{Cost of four pieces} = k (x^2 + 4x^2 + 9x^2 + 16x^2)$$

$$= k (30x^2)$$

$$\text{Loss in total value of the diamond} = k(100x^2) - k(30x^2) = 70000$$

$$= k (70x^2) = 70000$$

$$= kx^2 = 1000$$

$$\text{Price of the original diamond} = k (100 x^2)$$

$$= 1000 \times 100$$

$$= \text{Rs.} 1,00,000$$

Alternate

$$\text{Price} \propto (\text{weight})^2$$

$$\text{Price} = k (w)^2$$

$$\text{Weight} = 1 : 2 : 3 : 4 = (10)^2 = 100$$

$$\text{Price} = 1 : 4 : 9 : 16 = 30$$

$$(100 - 30) \text{ unit} = 70000$$

$$70 \text{ unit} = 70000$$

$$1 \text{ unit} = 1000$$

$$\text{Original price} = 1000 \times 100$$

$$= 1,00,000$$

Answer 20: (C)

$$\text{Price} \propto (\text{weight})^2$$

$$\text{Price} = k \times (w)^2$$

$$\text{Weight} = 3 : 4 : 5 = (12)^2 = 144$$

$$\text{Price} = 9 : 16 : 25 = 50$$

$$(144 - 50) \text{ units} = \text{Rs. } 9400$$

$$94 \text{ units} = 9400$$

$$1 \text{ unit} = \text{Rs } 100$$

$$\text{Starting price} = 144 \times 100$$

$$= \text{Rs. } 14400$$

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