Ratio and Proportion

Solution

1. **Answer: (B)**
Savings of X = 25 % of 6000 = Rs. 1500
Savings of Y = 40 % of 8000 = Rs. 3200
Therefore, Required ratio = 15:32

2. **Answer: (C)**
Let the age of Sagar and Praneeti be 2x and 3x respectively.
According to the question, 3x – 2x = 7
Therefore, x = 7
Sagar's age = 14 years and Praneeti's age = 21 years.
After 10 years, Sagar's age = 24 years And Praneeti's age = 31 years
Therefore, Ratio of their ages after 10 years = 24:31.

3. **Answer: (D)**
Total students = 100 total boys = 60 total girls = 40
Total no. Of students passed = 70 ; failed = 30
No. Of girls who passed = 5/8 x 40 = 25 ; failed = 15
No. Of boys who passed = 70-25 = 45
No. Of boys who failed = 15
Ratio = 45:15 = 3:1.

4. **Answer: (A)**
Monthly expenditure of A = 8400 x 5/12 = Rs. 3500
Monthly expenditure of B = 8400 x 7/12 = Rs. 4900
Let the monthly salaries of A and B be 8x and 9x respectively.
Now, (8x - 3500)/(9x - 4900) = 9/7
x = Rs. 784
=> Monthly salary of B = 9 x 784 = Rs. 7056
=> Yearly salary of B = 7056 x 12 = Rs. 84672

5. **Answer: (E)**
Weight of an apple = 200 gm.
Weight of an orange = 160.

Ratio by weight = 20:16:3.
Ratio by number = 5:1:6
Therefore, the combined ratio = 100:16:18 = 50:8:9

6. **Answer: (B)**
let number of male and female participants at the start of competition be 2x and 1x respectively.
then, (2x-10)/(x + 4) = 3/2
4x-20 = 3x + 12 ,x = 32
Hence, total number of participants at the start
= 2x + x = 3x32 = 96

7. **Answer: (A)**
Let the number of 25P, 50P and 1 Re. coins be 2n, n and 3n, respectively.
0.25 × 2n + 0.5 × n + 3n = 100
=> 4n = 100
Or n = 25
Now number of 25P coins = 2n = 2 × 25 = 50
Number of 50P coins = n = 25
Number of 1 Re. coins = 3n = 3 n 25 = 75

8. **Answer: (B)**
L.C.M of (3, 5, 2, 4) = 60
Hence we will convert the given ratio in the proper ratio.
So the given ratios will be; 20 : 12 : 30 : 15.
So the minimum number of sweets that teacher should have = 20 + 12 + 30 + 15 = 77

9. **Answer: (A)**
Let the no. of 1 rupee, 50 paise and 20 paise coins be 2n, 4n and 5n.
Now,
2n + 4n/2 + 5n/5 = 225
=> n = 45
The required no. = 9 × 45 = 405.

10. **Answer: (E)**
Number of coins ratio = 4 : 5 : 6
Value in paise ratio = 100 : 50 : 25

Amount ratio in rupees = 400 : 250 : 150
= 8:5:3.
Total 16 parts(8 + 5 + 3) = 160/-
=> 1 part = 10 rupees.
=> total rupees of 25p coins = 30/-
=> total number of 25 paise coins
= 30 × 4 = 120.

11. **Answer: (C)**
Given:
Total amount = Rs. 3000
Amount which man kept with himself
= Rs. 250
Ratio of amount between A and B = 5 : 6
Ratio of amount between B and C = 3 : 4
Ratio of amount between C and D = 4 : 3
Calculation:
Amount which is for distribution
= Rs. (3000 – 250)
⇒ Rs. 2750
According to the question,
A : B = (5 : 6) × 1 = 5 : 6
B : C = (3 : 4) × 2 = 6 : 8
C : D = (4 : 3) × 2 = 8 : 6
So, A : B : C : D = 5 : 6 : 8 : 6
Now, share of C = (8/25) × Rs. 2750
⇒ Rs. 880
∴ **The amount what C got is Rs. 880**

12. **Answer: (E)**
Weight of a Chemistry book = 50 gm
Weight of a Biology book = 75 gm
Weight of a Physics book = 4/3 × 75 = 100 gm
Let the number of Physics, Chemistry and Biology books in the library be 4x, 6x and 7x respectively.
Then,
Weight of all Physics books
= 4x × 100 gm = 400x gm
Weight of all Chemistry books
= 6x × 50 gm = 300x gm
Weight of all Biology books
= 7x × 75 gm = 525x gm
Required ratio = 400:300:525 = 16:12:21.

13. **Answer: (C)**

Let the present ages of son and daughter be 5x and 6x years respectively.
The age of the lady = 5x + 6x = 11x
(5x+5) / (6x-8) = 5 : 4
Hence, x = 6
Present age of lady = 66 years
Age of her son after 3 years
= 5x + 3 = 33 years
Required ratio = 66 : 33 = 2 : 1

14. **Answer: (E)**
Literate male population = (64 x 5/8) = 40 %
Literate female population = 24%
Now, illiterate population = (100 - 64)% = 36%
Illiterate males = (36 x 4/9) = 16%
Illiterate females = 20%
Required percentage = ((16/24) x 100)
= 66.67%

15. **Answer: (D)**
Let P received 6x and R received 7x sweets.
Then, Q = 6x + 26 ………(i)
S = 7x + 32
According to the questions,
Q received 18 more sweets than R
Q = 7x + 18 ……………….(ii)
From (i) and (ii) we get,
7x + 18 = 6x + 26
or, x = 8
Then, Number of sweets received by S
= 7 × 8 + 32 = 88

16. **Answer: (D)**
Let the present age of Sita be 5x years and that of Geeta be 7x years.
Now, 6 years ago,
3(5x - 6):3(7x - 6) = 2:3
or, 15x – 18 = 14x – 12
or, x = 6
Sita's age after 6 years = 36 years
Geeta's age after 6 years = 48 years
Ratio = 36 : 48 = 3 : 4

17. **Answer: (D)**
Let the present ages of Rahul and Deepa be 5x and 6x.
The age of lady = 11x
Now, 5x + 3/6x – 6 = 3/2

x = 3
Rahul's age = 15 yrs
Deepa's age = 18 yrs
Age of lady = 33 yrs
Required ratio = 33/18 + 4 = 33/22 = 3 : 2

18.   Answer: (A)
Ratio of number of men, women and children = 18/6 : 10/5 : 12/3 = 3 : 2 : 4
we can write,
3x + 2x + 4x = 18
9x = 18
x = 2
Number of women = 4
Share of all women
= (10/40×8000) = Rs. 2000
Share of each women = 2000/4 = Rs. 500

19.   Answer: (C)

The ratio of banana and orange = 6 : 7
weight of orange = 140 gram
we can write, (7/13 × total weight) = 140
total weight = 260 gram
weight of banana = 260 – 140 = 120 gram
Ratio of weight of bananas : oranges : mangoes
= (4 × 120) : (3 × 140) : (5 × 36)
= 480 : 420 : 180 = 8 : 7 : 3

20.   Answer: (B)
A = 6R and N = R+27
According to question, 5(R+27-5) – 4(6R – 5) = 35
19R = 95
R = 5
Thus, A = 30 and N = 32
Required Ratio = 42:48 = 7:8