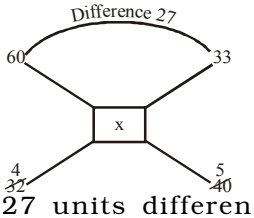
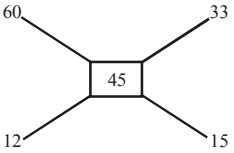
AVERAGE

1. (b) **Note :** Detail solution of this type of question given earlier now choose allegation method to save the valuable time. (इस प्रकार के प्रश्नों का विस्तृत समय की बचत के लिए मिश्रण नियम का प्रयोग करें।)

According to question



27 units difference divides in 4 : 5 (12, 15)



Average marks are (औसत अंक)
= 45

Alternate :
According to question

$$= \frac{32\times60+40\times33}{72}$$

$$= \frac{1920+1320}{72} = \frac{1320}{72} = 45$$

2. (b) According to question

$$\text{Average} = \frac{13\times70+15\times60+12\times65}{40}$$

$$\text{Average} = \frac{910+900+780}{40} = \frac{2590}{40}$$

= 64, 75

3. (c) According to question

	Big	Medium	Small
Price	15	10	5
	×	×	×
Quantity	3	2	5

$$\frac{3}{45} + \frac{2}{20} + \frac{5}{25} = 90$$

$$\therefore \text{Average cost} = \frac{90}{10} = 9$$

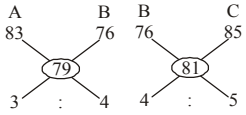
4. (b) According to question

$$= \frac{7\times800+8\times1000+5\times1200}{20}$$

$$= \frac{5600+8000+6000}{20} = \frac{19600}{20}$$

Average = Rs. 980

5. (d)

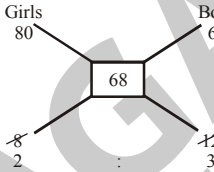


$\Rightarrow$ A : B : C = 3 : 4 : 5

$$\text{Average} = \frac{(83\times3)+(76\times4)+(85\times5)}{12}$$

$$\Rightarrow \frac{249+304+425}{12} = \frac{978}{12} = 81.5 \text{ Ans.}$$

6. (b) Use alligation and mixture :



Percentage of boys in the class

$$= \frac{35}{5}\times100 = 60\%$$

7. (d) Let the weight of 1 student = x kg.
The weight of 15 student = 15 × x kg
The weight of new comer = y kg.
According to question
15x – 40 + y = 15 (x = 1.5)
15x – 40 + y = 15x + 22.5
y = 62.5 kg

Alternate : If increase in weight of 1 student = 1.5 kg.
$\therefore$ Increase in weight of 15 students = 15 × 1.5 = 22.5 kg.
Weight of replaced student = 40 kg.
$\therefore$ Weight of new = Weight of replaced student + increase in weight of 15 students = 40 + 22.5 = 62.5 kg

8. (c) According to question
The average weight of 50 students was = 45 kg
When one student leaves the class the average reduced by 100 gm
Total weight reduce of 49 students
= 49 × 100 = 4900 gm = 4.9 kg
The weight of student who left
= 45 + 4.9 = 49.9 kg

9. (b) According to question
New comer the age of 45 persons is decreased by = $\frac{1}{9}$

i.e. = $\frac{1}{9}$ × 45 = 5 years

Replaced person age = 60 years

New comer age = 60 – 5 = 55 years

Alternate :

Let the age of new women = x

$$\frac{60-x}{45} = \frac{1}{9} = 60 - x = 5$$

x = 60 – 5 = 55 years

10. (b) According to question

Average weight of the 8 boatsmen increased by = $1\frac{1}{2}$ kg

Total increased in weight

$= 8\frac{3}{2} = 12$ kg

Weight of old man = 60 kg

Weight of new man = 60 + 12 = 72 kg.

11. (b) According to question

Average weight of the 12 crewmen increased by = $\frac{1}{3}$ kg

Total increased in weight

$= 120 \times \frac{1}{3} = 4$ kg

Weight of old man = 55 kg

Weight of new man = 55 + 4 = 59 kg.

12. (c) According to question

Total increase in age = 3 × 8 = 24 yrs.

Sum of the age of persons

= 30 + 34 = 64 yrs

If the age of new person same as replaced person then there would have been no change in average. But average age of 8 persons increased by 2 years

Average age of new person

$= \frac{64+24}{2} = 44$ yrs

13. (b) Weight of new sailor = 42 + 15 × (1.6)

= 42 + 24 = 66 kg.

14. (a) Age of retired teacher = 25 + (10 × 3) = 25 + 30 = 55 years

15. (d) Let the weight of the new student = x kg

According to question = $\frac{x-35}{20} = 0.75$

= x – 35 = 15, x = 50 kg

16. (a) Sum of age of 40 boys = 16 × 40 = 640

New age of 40 boys

= 15.875 × 40 = 635

Difference = 640 – 635 = 5 yrs

17 – x = 5

x = 17 – 5 = 12 yrs

Alternate : Average is decreased it means the boy who joined the class is younger than the boy who leaves the class.

Let the age of boy who join = x

17 – x = difference in average

$\frac{x-35}{20} = 0.125$

17 – x = 5, x = 12

17. (b) Let the sum of age of 8 persons = 8x

According to question

= 8x – 24 + y = 8 (x + 2)

8x – 24 + y = 8x + 16

y = 16 + 24

y = 40 Ans.

y is the age of new person.

Alternate : Let the age of new person = x yrs

$\frac{x-24}{8} = 2$, x – 24 + 16 = 40 yrs

18. (d) Let the sum of age of 8 men = 8x

then the age of two new nem = y yrs

According to question

8x – 21 – 23 + y = 8(x + 2)

8x – 44 + y = 8x + 16

y = 16 + 44

y = 60 yrs

Average age of new men

$= \frac{y}{2} = \frac{60}{2} = 30$ yrs

Alternate :

$$\frac{(\text{Sum of new men}) - (\text{sum of old men})}{8} = 2$$

$$\frac{(\text{Sum of new men}) - 44}{8} = 2$$

sum of new men = 16 + 44 = 60

Average of new men = 30 years

19. (b) Let the age of younger boy = x yrs.

then the age of elder boy = (x + 5)

According to question =

(30 × 15) – 20 + x + x + 5 = 31 × 15

430 + 2X + 5 = 465, 2x = 30

x = 15 yrs.

20. (c) Let the weight of new parcel = x kg

According to question =

12 × 1.8 + x = 12 × 1.75

21.6 + x = 22.75

x = 1.15 kg

21. (b) Sum of age of teacher = 10x yrs.

and retired teacher age = y yrs.

According to question =

10x – y + 25 = 10(x – 3)

10x – y + 25 = 10x – 30

y = 55 years

Alternate : Let the age of retired teacher = x yrs

$\frac{x-25}{10} = 3$, x = 55 yrs.

22. (c) Let the weight of 25 person = 25x kg

and the new person weight = y kg

According to question :

$25x - 60 + y = 25(x - 1)$
$25x - 60 + y = 25x + 25$
$y = 85$ yrs.

23. (c) Let the weight of 50 students = 50x kg
and the new student weight = y kg
According to question :
$50x - 50 + y = 50\left(x + \frac{1}{2}\right)$
$50x - 50 + y = 50x + 25$
$y = 75$ kg.

24. (c) Total age of 2 players
= 18 + 20 = 38 yrs
Increased years = 2 × 11 = 22 months
Age of new players
= 38 yrs + 22 months = 39 yrs 10 month
Average = 19 yrs 11 months

25. (d) According to question,
required average
$\frac{6\times50+51\times2+55\times2}{10} = \frac{300+212}{10}$
$\frac{512}{10} = 51.2$ kg

26. (c) Age of decreased = 24 × 1 = 24 month = 2 years
New comer = 18 – 2 = 16 years
Alternate : Let the new comer = x yrs
$\frac{18-x}{24} = \frac{1}{12}, \frac{18-x}{2} = 1$
$18 - x = 2$
$x = 16$ years

27. (c) Let the age of new boys is x years
then the age of class is 24 years
According to question
$25y - 10 + x = 24\left(y + \frac{1}{6}\right)$
$24y - 10 + x = 24 + 4$
$x = 14$ years

28. (c) According to question
Average marks of 100 students = 40
marks of 100 students
= 40 × 100 = 4000
It was discovered that a score of 53 was misread 83
difference in marks = 83 – 52 = 30
Actual marks of 100 students was
= 4000 – 30 = 3970
average marks of 100 students was
= 39.7
Alternate : By misread
The difference of number = 30
total number of student = 100
then average = s = 0.3
Now the new average = 40 – 0.3 = 39.7

29. (a) According to question
Required average = $\frac{500+46-64}{10}$
= 48.2

30. (c) According to question
The average of 10 number is = 50
Sum of 10 numbers are
= 15 × 10 = 150
He mistaken writes one number 26 instead of 36.
Difference = 36 – 26 = 10
Actual sum of 10 numbers
= 150 + 10 = 160
Actual average = $\frac{160}{10}$ = 16

31. (a) According to question let us consider by mistake he writes 10th number with its digits interchanged.
$\frac{10x+y-(10y+y)}{10} = 1.8$
(In this remaining nine numbers are same and they cancel out)
$10x + y - 10y - x = 18$
$9x - 9y = 18$
$x - y = 2$

32. (a) Let the number of students = x
According to question
$\frac{50x-100\times30}{x} = 45$
$40x - 3000 = 45x, \quad 5x = 3000$
$x = 600$

33. (d) According to the question
Average weight of a 20 boys = 89.4 kg
Sum of a weight of 20 boys
= 89.4 × 20 = 1788 kg
It was later discovered that one weight was misread as 78 kg instead of 87 kg
Difference = 87 – 78 = 9 kg
Actual sum of a weight of 20 boys
= 1788 + 9 = 1797
Actual average = $\frac{1797}{20}$ = 89.85

34. (b) According to the question
Average of 18 observations is = 124
Sum of 18 observations are
= 124 × 18 = 2232
Later it was found that two observations with values 64and 28 were wrongly entered as 46 and 82
Difference = [(82 + 46) – (64 + 28)] = [128 – 92] = 36
Actual sum of 18 observations
= 2232 – 36 = 2196
Average pf 18 ovservations
= $\frac{2196}{18}$ = 122

35. (c) According to the question
The mean of 50 numbers is = 30
Sum of 50 number is = 50 × 30 = 1500
Later is was discovered that two entries were wrongly entered as 82 and 13 instead of 28 and 31.
Difference = (82 + 13) – (28 + 31)

= 95 – 59 = 36 (extra)
Actual sum of 50 number is
= 1500 – 36 = 1464

Actual average = $\frac{1464}{50}$ = 29.28

36. (b) According to the question
Average of 25 observations = 13
Sum of 25 observations
= 13 × 25 = 325
One observation entered wrongly 48 instead of 73
Difference = 73 – 48 = 25 (less)
Actual sum of 25 observations
= 325 + 25 = 350

Actual average = $\frac{350}{25}$ = 14

37. (a) According to the question
Mean of 10 numbers is = 30
Sum of 10 numbers is = 300
It was observed that numbers 15, 23 are wrongly taken as 51, 32.
Difference = (51 + 32) – (15 + 23)
= 83 – 38 = 45 (more)
Actual sum of 10 numbers
= 300 – 45 = 255
Actual average of numbers

= $\frac{255}{10}$ = 25.5

38. (b) According to the question
Correct number = 28
Changed number = 82
Difference = 82 – 28 = 54
The difference of 54 effect on 27 number

= $\frac{54}{27}$ = 2

Given average = 60
New average = 60 – 2 = 58

39. (a) According to the question
Wrong marks = 68
Correct marks = 86
Difference = 86 – 68 = 18
Difference '18' effect the 100 students

= $\frac{18}{100}$ = 0.18

Wrong average = 58
Correct average = 58 + 0.18 = 58.18

40. (a) According to the question
Wrong number = 26
Correct number = 62
Difference = 62 – 26 = 36
Difference '36' effect the 20 items

= $\frac{36}{20}$ = 1.8

Wrong average = 47
Correct average = 47 + 1.8 = 48.8

41. (c) According to the question
Wrong average = 79
Correct average = 97
Difference = 97 – 79 = 18
Difference '18' effect the 20 observation

= $\frac{18}{20}$ = 0.9

Wrong average = 75
Correct average = 75 + 0.9 = 75.9

42. (b) According to the question
Mean of 100 item are = 46
Sum of 100 items are
= 46 × 100 = 4600
Misread 61 instead of 16 and 34 instead of 43
Difference = (61 + 34) – (16 + 43)
= 95 – 59 = 36 (more)
Actual sum = 4600 – 36 = 4564
Now total observation are = 90

Actual average = $\frac{4564}{90}$ = 50.7

43. (c) According to the question
Actual number = 17
New number = 31
Difference = 14
Difference '14' effect the seven numbers

= $\frac{14}{7}$ = 2

Present average = 18
New average = 18 + 2 = 20

44. (a) According to the question
Let the number of students = x

$\frac{60x - (60 \times 100) + (30 \times 100)}{x}$ = 45

60x – 3000 = 45x
15x = 3000, x = 200

45. (c) According to the question
Incorrect number = 60
Correct number = 50
Difference = 60 – 50 = 10 (more)
Difference '10' effect the all 10 items

= $\frac{10}{10}$ = 1

Old average = 80
New average = 80 – 1 = 79

46. (c) According to the question
Incorrect number = 32
Correct number = 23
Difference = 32 – 23 = 9 (more)
Difference '9' effect the all 9 integers

= $\frac{9}{9}$ = 1

Old average = 11
New average = 11 – 1 = 10

47. (d) According to the question
Incorrect mark = 46
Correct mark = 64
Difference = 64 – 46 = 18 (more)
Difference '18' effect the 36 students

= $\frac{18}{36}$ = 0.5

Old average = 52
New average = 52 + 0.5 = 52.5

48. (a) According to the question
Let is consider by mistake he writes 10th number with its digits interchanged

$\frac{10x + y - (10y + x)}{10}$ = 3.6

In this remaining nine numbers are same and they concel out

$$\frac{10x + y - 10y + x}{10} = 3.6$$

$9x - 9y = 36, \quad x - y = 4$

49. (c) Correct average of the marks obtained by him.

$$\Rightarrow 88 - \frac{(86 - 68)}{6}$$

$$\Rightarrow 88 - \frac{18}{6} = 88 - 3 = 85$$

50. (d) According to the question
Wrong marks = 42 + 74 = 116
Correct marks = 56 + 32 = 88
Difference = 116 – 88 = 28 marks
The difference effect the 14 students

$$= \frac{28}{14} = 2$$

incorrect average = 72
correct average = 71 – 2 = 69

51. (c) Right value = 56 + 32 = 88
Wrong value = 42 + 74 = 116
Difference = 116 – 88 = 28

$$\text{Difference average} = \frac{28}{14} = 2$$

Correct average = 71 – 2 = 69

52. (c) According to question

$$\text{Correct average} = \frac{20 \times 56 - 56 + 61}{20}$$

$$= \frac{1120 - 3}{20} = \frac{1117}{20} = 55.85\text{cm}$$

53. (c) According to question

$$\text{Correct observation} = \frac{50 \times 36 + 48 - 23}{50}$$

$$= \frac{1120 - 3}{50} = \frac{1825}{50} = 36.5$$

54. (c) According to question

$$\text{Correct average} = \frac{5 \times 50 + 48 - 84}{5}$$

$$= \frac{250 - 36}{5} = \frac{214}{5} = 42.8$$

55. (b) According to the question
Average age of eleven cricket players is 20 years
Total age of eleven circket players is
= 20 × 11 = 220
If the age of coach include then the average age increase by 10% *i.e.*

$$= 20 + \frac{10}{100} \times 20 = 22 \text{ years}$$

Total age of eleven player and coach
= 22 × 12 = 264
Age of coach = 264 – 220 = 44 years

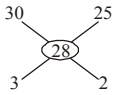
56. (c) According to the question
Mean of 9 observation is = 16
sum of a observation is = 16 × 9 = 144
When one more observation include the new mean = 17
Sum of 10 observation = 10 × 17 = 170
10th observation = 170 – 144 = 26

57. (a) Let the number of girls = x
The number of boys = y
According to the question
73x + 71y = 71.8 (x + y)
1.2x = 0.8y

$$\frac{x}{y} = \frac{2}{3}$$

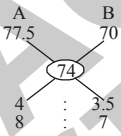
$$\text{Girls \%} = \frac{2}{2+3} \times 100 = \frac{2}{5} \times 100 = 40\%$$

58. (c) According to the question
By using allegation method



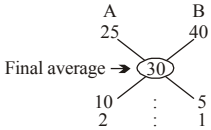
5 units → 10 balls
1 unit → 2 balls
3 units → 2 × 3 = 6 balls
White balls = 6 balls

59. (c) According to the question
By using allegation method



60. (d) According to the question
Total increase in weight including teacher
= 400 × 35 = 14000 gm = 14 kg
If the teacher's weight had been '42' kg so there would not have been any change in average weight.
Teacher's weight : 42 + 14 = 56 kg

61. (a) According to the question



62. (a) According to the question
Average : 4b + 3G = Rs. 120
Sum : 4b + 3G = 120 × 7 = Rs. 840
Average: 4b + 150 × 4 = Rs. 600
Sum of Girls : 840 – 600 = Rs. 2400

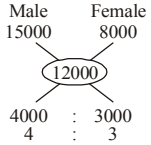
$$\text{Average of girls} = \frac{240}{3} = \text{Rs. } 80$$

63. (b) According to the question

$$\text{Average weight of} = \frac{42 \times 25 + 28 \times 40}{70}$$

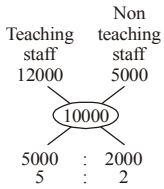
$$\text{Whole class} = \frac{1050 + 1120}{70} = 31\text{kg}$$

64. (c) According to the question



65. (a) According to the question
Average weight of 25 students = 50 kg
Sum of the weight of 25 students
= 50 × 25 = 1250 kg
If the class teacher include the average is increased by 1 kg
Average weight of 25 students and teacher = 51 kg
Sum of weight = 26 × 51 = 1326
Class teacher weight
= 1326 – 1250 = 76 kg

66. (b) According to the question



5 units → 20
1 unit → 4
2 units → 4 × 2 = 8
Non-teaching staff = 8

67. (c) Let the total number of workers = x
According to the question
12 × 400 + (x – 12) × 56 = 60x
4800 + 56x – 672 = 60x = 4128 = 4x

$x = \frac{4128}{4}$, x = 1032

68. (c) According to the question
Average marks of 40 students is = 86
Sum of marks of 40 student is
= 86 × 40 = 3440
5 highest marks are removed then average marks of 35 students is = 85
Sum of marks of 35 students is
= 85 × 35 = 2975 = 3440 – 2975
= 465

Average = $\frac{465}{5}$ = 93

69. (d) Average of whole class

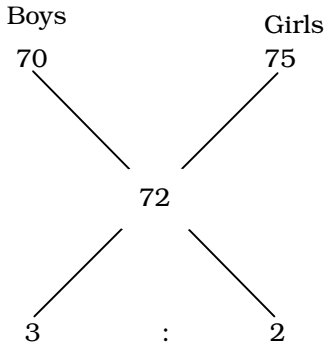
$\frac{85\times4+87+5}{5+4} = \frac{340+435}{9} = \frac{775}{5}$ = 86.1

70. (b) Let the average weight of 12 person is = x
and weight of 12 persons = (x + 33)
According to the question

$\frac{11\times95+x+33}{12}$ = x

1045 + x + 33 = 12x
11x = 1078
x = 98
The weight of 12th person is
= 98 + 33 = 131 kg

71. (a) From alligation method



3R + 2R = 5R
5R = 50, IR = 10
Therefore number of boys in the class
(अत: लड़कों की संख्या) = 3R
= 3 × 10 = 30

72. (d) Sum of age of 14 girls and their teacher's age (14 लड़कियों की तथा उनके शिक्षक का योग)
= 15 × 15 = 225
Sum of girls's age (लड़कियों के उम्र का योग)
= 14 × 14 = 196
Teacher's age (शिक्षक की उम्र)
= 225 - 196 = 29

73. (a) Sum of age four brothers (चारों भाईयों के उम्रों योग) 12 × 4 = 48
Sum of age of four brother and their mother (चारों भाईयों की उम्र तथा उनकी मां के उम्र का योग)= 17 × 5 = 85
Mother's age (मां की उम्र) 85 - 48 = 37 Ans

74. (a) Passed candidates :Failed candidates
6 units = 120

5 units = $\frac{125\times5}{6}$

= 100 candidates

Alternate:
माना की पास करने वाले बच्चों की संख्या = x
Let the no. of candidate who passed the examination = x
then, the failed candidate = (120 - x)
फेल छात्रों की संख्या (120 - x)f
According the question,
प्रश्नानुसार,
$\Rightarrow 120 \times 35 = x \times 39 + (120 - x)15$
$\Rightarrow 4200 = 39x + 1800 - 15x$
$\Rightarrow x = 100$

75. (d) According to question,

Average = $\frac{20\times12+5\times7}{25}$

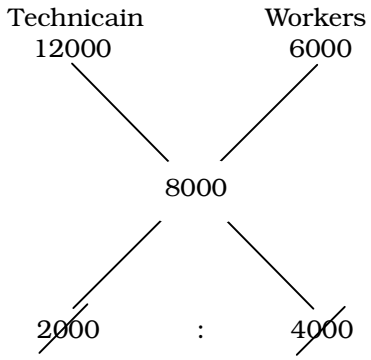
= $\frac{240+35}{25} = \frac{275}{25}$ = 11 yrs

76. (d) According to question,
Average of whole class (पूरी कक्षा का औसत)

$$= \frac{10\times12.5+20\times13.1}{30}$$

$$= \frac{125+262}{30} = \frac{387}{30} = 29.9 \text{ years}$$

77. (b) Use mixture & Alligation



1 = 7
2 = 14

Total worker (कुल कर्मचारी) = 7 + 14 = 21

Alternate:

Let the worker (माना कि कर्मचारी) = x

According to question,

$8000(x + 7) = 12000 \times 7 + 6000 \times x$

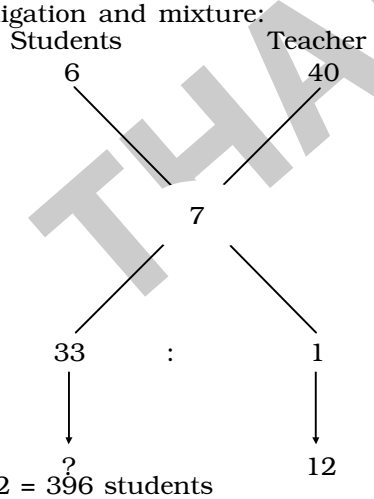
$8000x + 56000 = 84000 + 6000x$

$2000x = 28000$

$x = 14$

Total workers (कुल कर्मचारी) = 7 + 14 = 21

78. (a) Use alligation and mixture:



33 × 12 = 396 students

79. (b) The total age of 24 boys & teachers is (24 लड़कों तथा शिक्षक की कुल उम्र) = 25 × 15 = 375 years

Let the teacher's age (माना कि शिक्षक की उम्र) = x years

According to question,

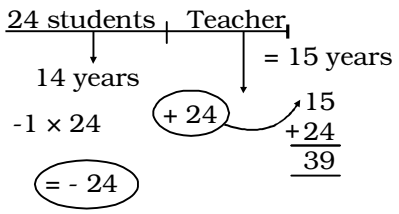
25 × 15 + x = 24 × 14

375 + x = 336

x = 336

x = 39 years

Alternate:



To balance the average of teacher, its must be 24 more than total average i.e. (शिक्षक के औसत को संतुलित करने के लिए यह अनिर्वायत: कुल औसत से 24 अधिक होना चाहिए)

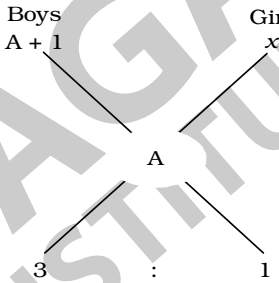
= 39 years

Average of only teacher (केवल शिक्षक का औसत) = 39 years

As it is only 1 person.

∴ Age of teacher also (शिक्षक की उम्र) = 39 years

80. (d) Use alligation and Mixture:



A - x = 3

x = **A - 3**

Alternate:

Let the average score of girls is (माना कि लड़कियों का औसत अंक) = x

According to questions,

3(A + 1) + 1(x) = (3 + 1)

3A + 3 + x = 4A

x = **A - 3**

81. (d) Let the age of teacher (माना कि शिक्षक की आयु) = x years

According to question,

30 × 9 + x = 31 × 10

270 + x = 310

x = 40 yrs

82. (b) According to the question

Average age of 40 students of class is (कक्षा में 40 नये छात्रों आयु) = 18 years

Let the average age of 20 new students (माना कि 20 नये छात्रों की औसत आयु) = x years

$$\therefore \frac{40\times18+20\times x}{60} = \left(18+\frac{1}{2}\right) \text{ years}$$

$$\frac{720+20x}{60} = \frac{37}{2}$$

$$\frac{720+20x}{30} = 37$$

720 + 20x = 1110

$20x = 390$

$x = 19.5$

∴ Average age of newly admitted is (नये छात्रों की औसत आयु)

= 19 years 6 months

83. (b) According to question

$$\frac{\text{Husband} + \text{wife}}{2} = 27 \text{ years}$$

Husband + wife = 54 years

$$\frac{\text{Husband} + \text{wife} + \text{child}}{3} = 21 \text{ years}$$

Husband + wife + child = 63 years

Husband + wife + child = Husband + wife + child - Husband + wife = 63 - 54 = 9 years increse

∴ 9 years divide among husband, wife and child equally

∴ age of child (बच्चे की उम्र) = 3 years

84. (b) According to the question

$$\frac{F + M}{2} = 35 \text{ years}$$

F + M = 70 years .....(i)

$$\frac{F + M + S}{3} = 27 \text{ years}$$

F + M + S = 81 years .....(ii)

S = 11 years

85. (b) According to question

$$\frac{F + M + S}{3} = 25 \text{ years}$$

H + W = 50 years

$$\frac{H + W + C}{3} = 20$$

H + W + C = 60 years

∴ Sum of present age of W + H (पति-पत्नी के वर्तमान उम्रों का योग)

= 50 + 4 × 2 = 58 years

∴ Child age = 2 years

86. (b) According to the question

$$\frac{P + Q}{2} = 25$$

P + Q + R = 50 .....(i) (5 years ages)

$$\frac{P + Q + R}{3} = 25$$

P + Q + R = 75.....(ii) (present age)

∴ Present age of P + Q = 50 + 10 = 60 years

Present age of R = 75 - 60 = 5 years

∴ Age of R after 5 years (पांच वर्ष के बाद R की आयु)

= 15 + 5 = 20 years

87. (d) According to the question

Average age of a family of 10 members is (10 सदस्यों वाले एक परिवार की औसत आयु) = 20 years

Sum of the age of 10 members (10 सदस्यों की आयु का कुल योग)

= 20 × 10 = 200 years

If the age of youngest member is = 10 years (यदि सबसे छोटे सदस्य की आयु 10 वर्ष है तो)

Sum of the age of 9 members at the time of birth of youngest member (सबसे छोटे सदस्य के जन्म के समय नौ सदस्य की आयु योग) = 200 - 10 × 10

= 200 - 100

= 100 years

∴ Average of 9 members is (नौ सदस्यों की आयु का औसत) = $\frac{100}{9} = 11\frac{1}{9}$ years

88. (c) According to the question

$$\frac{P + Q}{2} = 15 \text{ years}$$

P + Q = 30 years (5 years ago)

$$\frac{P + Q + R}{3} = 20$$

P + Q + R = 60 (Present ago)

Sum of increased age of P and Q are = 30 + 10 = 40 years

∴ Present age of R (R की वर्तमान आयु)

= 60 - 40 = 20 years

Age of R after 10 years (10 वर्ष के बाद R की आयु) = 20 + 10 = 30 years

89. (d) According to the questions

A - B = 4y 7m.....(i)

B - C = 3y 4m.....(ii)

(+) (+) (+)

A - C = 7y 11m.....(iii)

Given, When,

C = 5 years 2 months

∴ A = 13 years 1 months

B = 8 years 6 months

∴ Average of $\frac{A + B + C}{3}$

$$= \frac{26 \text{ years } 9 \text{ months}}{3}$$

= 8 years 11 months

90. (c) According to the question

$$\frac{H + W}{2} = 23 \text{ years}$$

H + W = 46 .....(i)

As given in the question after five years they have a one-year old child. (जैसा कि प्रश्न में दिया गया है पांच वर्ष के बाद उनका एक वर्ष का

एक बच्चा होगा)

i.e, After 4 years of marriage child was born (शादी के चार वर्ष बाद बच्चे का जन्म हुआ)

∴ Average of (H + W + C)

$= \frac{46+8}{3} = \frac{54}{3}$ = 18 years

91. (a) According to the question

Average age of 8 membes two years ago (दो वर्ष पहले आठ सदस्यों की औसत आयु) = 18 years

Sum of age of 8 members two years ago (दो वर्ष पहले आठ सदस्यों की आयु का योग) = 144 years

After the addition of a baby the average age of the family is same today. (एक बच्चे की उम्र जुड़ जाने के बावजूद वर्तमान में परिवार की औसत आयु पूर्ववत है)

i.e, Average age of 9 members today = 18 years

Sum of age of 9 member today (वर्तमान में 9 सदस्यों के आयु का योग) = 162 years

In these 2 years the age of 8 members is also increase in age of 8 member = 8 × 2 = 16 years

∴ Sum of age of 8 members today (वर्तमान में 8 सदस्यों के आयु का योग)

=144 + 16 = 160 years

∴ Age of child = 162 - 160 = 2 years

92. (b) According to the question

Due to new comer average age is increased by

(एक नये लड़के कारण औसत उम्र में वृद्धि) = 2 month

Total age increase in 42 boys

= 42 × 2 = 84 months or 7 years

Note: If the weight of new comer is same as the boy which was replaced then these is not effect 2 months (यदि नये लड़के का वजन पुराने लड़के वजन के बराबर है तो 2 माह पर कोई प्रभाव नहीं पड़ेगा)

∴ Age of new boy = 10 + 7 = 17 years

93. (d) According to the question

$\frac{RAM+2C}{3}$ = 17 years

Ram + 2 C = 51 years ..... (i)

$\frac{Wife+2C}{3}$ = 16 years

Wife + 2C = 48 years .....(ii)

If Ram age = 33 years old this value put in equation (i)

∴ 2C = 51 - 33

2C = 18 years old .....(ii)

Put the value in equation (ii)

Wife + 18 = 48

Wife = 48 - 18 = 30

Wife = 30 years old

94. (c) According to the question

$\frac{A+B}{2}$ = 20 years

A + B = 40 years .....(i)

$\frac{C+B}{2}$ = 19 years

C + B = 38 years .....(ii)

$\frac{C+A}{2}$ = 21 years

C + A = 42 years..... (iii)

Add equation (i), (ii) and (iii)

2 (A + B + C) = 120 years

A + B + C = 60 years .....(iv)

From equation (i) and (iv)

40 + C = 60

C = 20

From equation (ii) and (iv)

A + 38 = 60

A = 22 years

From equation (iii) and (iv)

B + 42 = 60

B = 18 years

∴ A, B, C = 22, 18, 20

95. (a) According to the question

Average age of 5 members today (वर्तमान में 5 सदस्यों की औसत उम्र) = 33 years

Sum of age of 5 members today (वर्तमान में 5 सदस्यों की उम्रों का योग) = 33 × 5 = 165 years

If the youngest member is 9 years old (यदि सबसे छोटा सदस्य 9 वर्ष का है)

∴ Sum of the age of 4 members before the birth of youngest child (सबसे छोटे सदस्य के जन्म से पहले चार सदस्यों के उम्र का योग) = 165 - 9 - 4 × 9

= 120 years

∴ Average = $\frac{120}{4}$ = 30 years

96. (a) According to the question

Average age of 7 children (7 बच्चों की औसत आयु) = 12 years

Sum of age of 7 children (7 बच्चों की आयु योग) = 84 years

If a child aged 6 years died then

Sum of age of 6 children (यदि 6 वर्ष का एक बच्चा मर जाता है तो 6 बच्चों की आयु का योग)

= 84 - 6 = 78 years

∴ Average = $\frac{78}{6}$ = 13 years

97. (b) According to the question

Average = $\frac{3\times20+4\times21+3\times22}{10}$

= $\frac{60+84+66}{10}$ = $\frac{210}{10}$ = 21 years

98. (c) According to the question
Average age of a family of 5 members 3 years ago (3 वर्ष पहले परिवार के पांच सदस्यों की औसत आयु) = 17 years
Sum of age of a family (परिवार के आयु का योग) = 5 × 85 years
A baby having been born the average age of the family is same today.
∴ Sum of age of a family of 6 members (परिवार के 6 सदस्यों की आयु का योग) = 17 × 6 = 102 years
∴ Sum of age of a family of 5 members present (वर्तमान में परिवार के पांच सदस्यों की आयु का योग) = 85 + 5 × 3 = 85 + 15 = 100 years
∴ Age of child (बच्चे की आयु) = 102 - 100 = 2 years

99. (a) According to the question

Age (in year):	8	20	26	29
Number of people:	↓×3	↓×2	↓×m	↓×1
Total	:24+	40+	26m	29

Average = $\frac{93+26m}{6+m}$ = 17

93 + 26m = 102 + 17m
9m = 9
m = 1

100.(d) Let present average is (माना कि वर्तमान आयु) = x years
Total age = 5x year
According to question,
5x – y + z = 5x – 15
Where y = Replaced member
z = New member
– y + z = –15
y – z = 15
This is required difference

101.(d) Let child age (माना कि बच्चे की उम्र) = xyears
3 years ago total age of family (3 वर्ष पहले परिवार की कुल आयु) = 85 years
Present total age of family (वर्तमान में परिवार की कुल आयु) 85 + 15 = 100 years
According to question

$\frac{100+x}{6}$ = 17

100 + x = 102
x = 2 years

102.(a) $\frac{100+x}{6}$ = R + 5

P + Q + R = 3R + 15
P + Q – 2R = 15 ..... (i)
P + Q = 39 .....(ii)
From equation (i) and (ii)
39 – 2R = 15
2R = 24
R = 12 years

103.(a) According to question,
Total age of 30 students (30 विद्यार्थियों की कुल उम्र) = 30 × (14 years 4 months)

$30 \times 14\frac{1}{3}$

= $\frac{30\times43}{3}$ = 430 years

Total age of (30 + 5) students (30 + 5 विद्यार्थियों की कुल उम्र) = 35 (13 year 9 month)

= $35 \times \frac{3}{4} = \frac{1925}{4}$ Years

Total age of 5 students = $\frac{1925}{4}$ – 430

= $\frac{205}{4}$ = 51 years 3 months

∴ One of the new five student is (नये विद्यार्थी की आयु) = 9 years 11 month old
⇒ Remaining 4 students age (बचे 4 विद्यार्थियों की आयु) = $\frac{41 \text{ years } 4 \text{ month}}{4}$
= 10 years 4 month

104.(c) According to the question,
Average age of 7 persons (7 व्यक्तियों की आयु का औसत) = 30 years
Sum of age of 7 persons (7 व्यक्तियों की आयु का योग) = 30 × 7 = 210 years
Average age of 5 persons (5 व्यक्तियों की आयु की औसत) = 31 years
Sum of age of 4 persons (5 व्यक्तियों की आयु का योग) 31× 5 = 155 years
∴ Sum of age of remaining two persons (बचे हुए 2 व्यक्तियों की आयु का योग) = 210 – 155 = 55 years
Average of remaining two is (बचे हुए 2 व्यक्तियों की औसत) = $\frac{55}{2}$

= $27\frac{1}{2}$ years

105.(c) Mother + 6 children = 12 × 7 ⇒ 84
= Chidren = 6 × 7 ⇒ 42
Age of mother (मां की आयु) = 42

106.(c) Sum of age of 6 sons of a family (एक परिवार के छः बेटों की आयु का योग) = $8 \times 6 \Rightarrow 48$
Sum of age of 6 sons and their parents (6 बेटों की आयु तथा उनके माता पिता की आयु का योग) = $8 \times 22 \Rightarrow 176$
Parent's age = 176 – 48 = 128
Father's age – Mother's age = 8
$x - y = 8$
$x + y = 128$
$x = 68$
$y = 60$

107.(b) Total age of family at present (वर्तमान परिवार की कुल आयु) = $5 \times 17 + 3 \times 5 = 85 + 15 = 100$ years
Total age of 6 members in family (परिवार के 6 सदस्यों की कुल आयु) = $6 \times 17 = 102$ years
Baby age (बच्चे की उम्र) = 102 – 100 = 2 years
Alternate:-
Sum of 5 members 3 years ago (3 वर्ष पहले 5 सदस्यों का योग) = $17 \times 5 = 85$
Sum of 5 members at presnt (वर्तमान में 5 सदस्यों का औसत) = $17 \times 6 = 102$
Present age of baby (बच्चे की वर्तमान आयु)
= 102 – 100
= 2 years

108.(b) Sum of M + F + S = $42 \times 3 = 126$ years (at the time of marriage)
Sum of (M + F + S + B + C = $36 \times 5 = 180$ years (after 6 years)
Sum of (M + F + S) after 6 years = $126 + 3 \times 6 = 126 + 9 = 144$ years
Sum of (B + C) (after 6 years) = 180 –144 = 36 years
B + 5 = 36 $\Rightarrow$ C = 5 (age of child will become 5 years after 6 years) (5 वर्ष बाद बच्चे की आयु 6 वर्ष होगी)
B = 31 $\Rightarrow$ age of bride after 6 years
$\therefore$ age of bride at the time of marriege (विवाह के समय दुल्हन की आयु)
= 31– 6 = 25 years

109.(c) According to question
Let the four members of a family are A, B, C and D 'D' is the youngest member (माना कि A, B, C, D एक परिवार के सदस्य है और D सबसे छोटा है)

$$\therefore \quad \frac{A+B+C+D}{4} = 36$$

Present age (वर्तमान उम्र) = A+B+C + D =144
If the present age of the youngest member 'D' (यदि सबसे छोटे सदस्य D की वर्तमान आयु) = 12 years
$\therefore$ The age of the family at the time of birth of youngest member is
= 144 – 12 × 4
= 144 – 48 = 96
$\therefore$ The average age of the three members A, B and C is
= 144 – 12 × 4
= 144 – 48 = 96
$\therefore$ The average age of the three members A, B and C is (तीन सदस्य A, B तथा C की औसत आयु)

$$= \frac{96}{3} = 32$$

110.(c) According to the question
Average of five numbers is (5 संख्या का औसत) = 7

Sum of five numbers are = $7 \times 5 = 35$
Average of eight number is = 8.5
Sum of eight numbers are = $8 \times 8.5 = 68$
33 increase

$\therefore$ Avg. of three new number (तीन नई संख्याओं का औसत) = $\frac{33}{3} = 11$

111.(b) According to the question
Avg.age of students and teacher (शिक्षक तथा छात्र की औसत आयु) = 16 years
then, the total age of student and teacher
= $16 \times 10 = 160$
Avg age of 4 students
Avg age of 5 students
$19 \times 4 = 76$
$10 \times 5 = 50$
$\therefore$ Teacher age (शिक्षक की आयु)
= 160 – 76 – 50 = 34 years

112.(b) Let the five persons are A, B, C, D, E (माना कि पांच व्यक्ति)
According to the question

$$\frac{A+B+C+D+E}{5} = 38$$

A + B + C + D + E = 190 kg .....(i)

$$\frac{5 \text{ persons} + \text{Boat}}{6} = 52$$

5 persons + Boat = 312 kg .....(ii)
$\therefore$ Boat = 312 – 190
Boat = 122 kg

113.(c) According to the question

I + II + III	IV + V + VI + VII
2200×3	2550×4
= 6600	= 10200

VIII + IX + X + XI + XII
$3120 \times 5 = 15600$

Total Expenditure (कुल खर्च)

= 6600 + 10200 + 15600

= Rs 32400

Saving = Rs 1260

Income = Total Expenditure + Savings

= Rs 32400 + 1260

= Rs 33660

$\therefore$ Monthly income = $\frac{33660}{12}$ = Rs 2805

114.(a) According to the question

Average of 30 numbers is (30 संख्याओं का औसत) = 40

Sum of 30 number is (30 संख्याओं का योग)

= 40 × 30 = 1200

Average of 40 numbers is (40 संख्याओं का औसत) = 30

Sum of 40 numbers is (40 संख्याओं का योग)

= 40 × 30 = 1200

Total average = $\frac{1200+1200}{70}$

$= \frac{2400}{70}$

$= 34\frac{2}{7}$

115.(a) According to the question

Average of 20 numbers is (20 संख्याओं का औसत) = 15

Sum of 20 numbers is (20 संख्याओं का योग) = 15 × 20 = 300

Average of first five number is (प्रथम पांच संख्याओं का योग) = 12 × 5 = 60

$\therefore$ Sum of remaining number (शेष संख्याओं का योग) = 300 – 60 = 240

Average of remaining (शेष संख्याओं का औसत)

$= \frac{240}{15} = 16$

116.(a) According to the question

Average = $\frac{1.11+0.01+0.101+0.001+0.11}{5}$

$= \frac{1.332}{5} = 0.2664$

117.(b) According to the question

Height of 6 persons (6 व्यक्तियों की लंबाई)

= 6 × 1m 15 cm = 6m 90 cm

Height of 8 persons (8 व्यक्तियों की लंबाई)

= 8 × 1m 10 cm = 8m 80 cm

Height of 6 persons (6 व्यक्तियों की लंबाई)

= 6 × 1m 12 cm = 6 m 72 cm

Total height of 20 persons (20 व्यक्तियों की कुल लंबाई) = 22m 42 cm

Average = $\frac{22\text{m } 42\text{cm}}{20}$

= 1 m 12.1 cm

118.(d) According to question

Average of 11 numbers (11 संख्याओं का औसत) = 50

Sum of 11 numbers (11 संख्याओं का योग)

= 50 × 11 = 550

$\therefore$ VI number (छठी संख्या)

= 312 + 294 – 550 = 56

119.(c) According to the question

$\underbrace{I + II + III}_{15\times 3 = 45}$ ..... (I) $\underbrace{II + III + IV}_{16 \times 3 = 48}$ ..... (II)

If VI number is (यदि छठी संख्या) = 19

then II + III = 48 – 19 = 29

Put this value in equation (i)

I = 45 – 29

I = 16

120.(c) According to the question

Average of nine number is (9 संख्याओं का औसत) = 50

Sum of nine number is (9 संख्याओं का योग)

= 50 × 9 = 450

$\underbrace{I + II + III + IV + V}_{54 \times 3 = 270} + \underset{\downarrow}{VI}_{x} + \underbrace{VII + VIII + IX}_{52 \times 3 = 156}$

= 450

270 + x + 156 = 450

x = 24

121.(b) According to the question

Average marks of 22 candidates are (22 छात्रों के अंक का योग) = 45

Sum of marks of 22 candidates are (22 छात्रों के अंक का योग) = 45 × 22 = 990

$\underbrace{\text{I to V}} + IX + \underbrace{\text{XII to XXII}} = 990$

55 × 10 = 550 + x + 40 × 11 = 440 = x + 990

$\therefore$ x + 990 = 990

$\therefore$ x = 0 marks

122.(c) According to the question

Mean of 20 items is (20 वस्तुओं का माध्य) = 55

Sum of 20 items is (20 वस्तुओं का योग)

= 55 × 20 = 1100

Two items removed

= 45 + 30 = 75

$\therefore$ Sum of 18 items

= 1100 – 75 = 1025

$\therefore$ Average = $\frac{1025}{18}$

= 56.9

123.(c) According to the question

Average of 50 numbers is (50 संख्याओं का औसत) = 38

Sum of 50 numbers is (50 संख्याओं का योग)

= 38 × 50 = 1900

If two numbers are discored i.e (यदि दो संख्याएं हटा दी जाती है।)

= 45 + 55 = 100

∴ Sum of 48 numbers is (48 संख्याओं का योग) = 1900 – 100 = 1800

$$\therefore \text{Average} = \frac{1800}{48} = 37.5$$

124.(b) According to the question

$$\text{Average} = \frac{30\times16+20\times15.5}{50}$$

$$= \frac{480+310}{50} = \frac{790}{50} = 15.8 \text{ kg}$$

125.(a) According to the question

Avg. of 11 number is = 63

Sum of 11 numbers is 63 × 11 = 693

$$\underbrace{I + II + III + IV + V + \textcircled{VI}}_{60\times6=360} \quad \underbrace{\textcircled{VI} + VII + VIII + IX + X + XI}_{65\times6=390}$$

VI number two times add

∴ VI number = 360 + 390 – 693

= 750 – 693

= 57

126.(b) According to the question

$$\underbrace{J + F + M + A}_{2570\times4=10280} + \underbrace{M + J + Ju}_{2490\times3=7470} + \underbrace{A + S + O + N + D}_{3030\times5=15150}$$

∴ Total Expenditure = 10280 + 7470 + 15150 = Rs 32900

Total Savings – Rs 5320

Total income = 32900 + 5320 = Rs 38220

$$\text{Monthly income} = \frac{38220}{12} \text{ Rs } 3185$$

127.(c) According to the question

$$\underbrace{J + F + M + A}_{1800\times4=7200} + \underbrace{M + J + Ju + A + S + O + W + D}_{2000\times8=16000}$$

∴ Total Expenditure

= Rs (7200 + 16000) = Rs 23200

Total Savings = Rs 5600

Total Income = 23200 + 5600 = Rs 28800

$$\text{Monthly Income} = \frac{28800}{12} = \text{Rs } 2400$$

128.(b) Let the total number of workers (माना कि कर्मचारियों की संख्या) = x

According to the question

$12000 \times 7 + (x - 7) \times 6 = 8000 \times x$

$12 \times 7 + (x - 7) \times 6 = 8x$

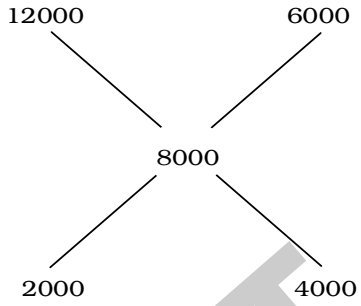
$84 + 6x - 42 = 8x$

$2x = 42$

$x = 21$

∴ Total workers = 21

Alternate:



$1 \Rightarrow 7$

$3 \Rightarrow 21$

129.(a) According to the question

Average of 50 numbers (50 संख्याओं का औसत) = 38

Sum of 50 numbers is (50 संख्याओं का योग) = 38 × 50 = 1900

Two numbers discared (दो संख्याएं छोड़ दी गई) = 45 + 55 = 100

Sum of 48 numbers is (48 संख्याओं का योग) = 1900 – 100 = 1800

$$\therefore \text{Average} = \frac{1800}{48} = 37.5$$

130.(d) According to the question

Average of six number is (6 संख्याओं का औसत) = 20

Sum of six number is (6 संख्याओं का योग) = 20 × 6 = 120

One number is removed then

Average of five number is (5 संख्या हटा देने के बाद 5 संख्याओं का औसत) = 15

Sum of five number is (5 संख्याओं का योग) = 15 × 5 = 75

∴ Removed number (हटाई गई संख्या) = 120 – 75 = 45

131.(c) $\underbrace{a + \overbrace{b + c}^{} + d}$

∵ Average of a, b, c first three (प्रथम तीन संख्याओं a, b, c का औसत) = 16

Total of a + b + c = 16 × 3 = 48 .... (i)

Again

⇒ Average of last 3 numbers b, c and d (अंतिम तीन संख्याओं b, c, d का औसत) = 15

⇒ Then total (b + c + d) = 15 × 3 = 45 ...(ii)

$\Rightarrow$ From (i)....(ii) (समीकरण (i) में से (ii) को घटाने पर)

$\Rightarrow a + b + c - (b + c + d) = 48 - 45$

$\Rightarrow a - d = 3$

$\Rightarrow a - 20 = 3$ [$\because$ d = 20]

$\Rightarrow a = 23$

$\Rightarrow$ Therefore, first number (प्रथम संख्या a) = 23

132.(c) According to question,

$$\Rightarrow 15 = \frac{7+11+15+x+14+21+25}{7}$$

$\Rightarrow 105 = 93 + n$

$\Rightarrow x = 12$

133.(a) Let the six number are a, b, c, d, e, f (माना कि 6 संख्याएं a, b, c, d, e, f)

According to the question,

$$\frac{a+b+c+d+e+f}{6} = 3.95$$

$a + b + c + d + e + f = 237$ ..... (i)

$$\frac{a+b}{2} = 3.4$$

$a + b = 6.8$ ..... (ii)

$$\frac{c+d}{2} = 3.85$$

$c + d = 7.7$ ..... (iii)

Put the value of eq (ii) & (iii) in eq. (i), (समीकरण (ii) तथा (iii) का मान समीकरण (i) में रखने पर)

$e + f = 23.7 - 7.7 - 6.8$

$e + f = 9.2$

Average (औसत) $= \frac{9.2}{2} = 4.6$

134.(a) Let the numbers in decreaseing order be (माना कि अवरोही क्रम में संख्याएं)

$\Rightarrow x, x - 1, x - 2, x - 3, x - 4, x - 5$

$\Rightarrow$ According to the question,

$$\Rightarrow \frac{x+(x-1)+(x-2)+(x+3)+(x-4)}{5}$$

$= 30$

$$\Rightarrow \frac{5x-10}{5} = 30$$

$\Rightarrow x - 2 = 30$

$\Rightarrow x = 32$

$\because$ First number x = 32

then first number = x - 5

$\Rightarrow 32 - 5 = 27$

$\Rightarrow$ Difference between first and last number (प्रथम तथा अंतिम संख्याओं का अंतर)

$= 32 - 27 = 5$

135.(a) Avg. of twelve no. (12 संख्याओं का औसत)= 15

Sum of twelve no (12 संख्याओं का योग) = 15 × 12 = 180

Avg. of first two no. (प्रथम 2 संख्याओं का औसत) = 14

Sum of first two no. (प्रथम 2 संख्याओं का योग) = 14 × 2 = 28

Sum of first two + Sum of rest = 180

Sum of rest = 180 - 28

= 152

$$\left(\begin{array}{l}\frac{x_1+x_2}{2}=14\\ x_1+x_2=28\end{array}\right)$$

Avg. of rest (बची हुई संख्याओं का औसत)

$$\frac{152}{10} = 15\frac{1}{5}$$

136.(d) Total Expenditure (कुल खर्च)

= 1200 × 5 + 1300 × 7

= Rs 15100

Total saving (कुल बचत) = Rs 2900

Total Income (कुल आय) = Rs 18000

Avg. Income (औसत आय) $= \frac{18000}{12}$

= Rs 1500

137.(a) Total of 13 result (13 परिणामों का योग) = 70 × 13 = 910

Total of first seven result (प्रथम 7 संख्याओं का योग) 65 × 7 = 455

Total of last seven result (अंतिम 7 संख्याओं का योग) 75 × 7 = 525

$\Rightarrow 7^{th}$ result (सातवां परिणाम) = 455 + 525 - 910 = 70

138.(c) Total income of 40 persons (40 व्यक्तियों की कुल आय) = 40 × 4200 = Rs 168000

Total income of 35 person (40 व्यक्तियों की कुल आय) = 35 × 4000 = Rs 140000

Total income of 75 person (75 व्यक्तियों की कुल आय)

= 168000 + 140000 = Rs 308000

Average income of 75 person (75 व्यक्तियों की औसत आय) $= \frac{308000}{75}$

$= \frac{12320}{3} = \text{Rs } 4106\frac{2}{3}$

139.(c) Total marks of 8 students (8 छात्रों का कुल अंक) = 51 × 8 = 408

Total marks of 9 students (9 छात्रों का कुल अंक) = 68 × 9 = 612

Total marks of 17 students (17 छात्रों का कुल अंक) = 408 + 612 = 1020

Average of 17 students (17 छात्रों का औसत)

$= \frac{1020}{17}$ = 60 ans

140.(d) Sum of five no (पांच संख्याओं का योग) = 27 × 5 = 135

Sum of four no (चार संख्याओं का योग) = 25 × 4 = 100

Excluded no (हटायी गयी संख्या) = 135 – 100 = 35

141.(a) Total items of first 3 months (पहले तीन माह कुल वस्तु) = 4000 × 3 = 12000

Total items of 12 months (12 माह की कुल वस्तु) = 4375 × 12 = 52500

Average of last 9 month (अंतिम 9 माह का औसत)

$= \frac{52500 - 12000}{9} = \frac{40500}{9}$ = 4500 ans

142.(c) Sum of 9 no. (9 संख्याओं का योग)

= 30 × 9 = 270

Sum of first five no (प्रथम 5 संख्याओं का योग)

= 25 × 5 = 125

Sum of last three no. (अंतिम 3 संख्याओं का योग) = 35 × 3 = 105

6th no is (छठी संख्या है)

270 – 125 – 105 = 40

143.(a) Total marks of three batches (तीन बैचों का कुल अंक)

= 55 × 50 + 60 × 55 + 45 × 60

= 2750 + 3300 + 2700

= 8750

Average $= \frac{8750}{55+60+45} = \frac{8750}{160}$

$= \frac{875}{160}$ = 54.68 Ans

144.(a) Sum of 30 results (30 परिणामों का योग)

= 30 × 20 = 600

Sum of 20 results = 20 × 30 = 600

Average of all results (सभी परिणामों का औसत)

$\frac{600+600}{20+30} = \frac{1200}{50}$ = 24

145.(c) Sum of 15 numbers (15 संख्याओं का योग)

15 × 7 = 105

Sum of 8 numbers (8 संख्याओं का योग)

= 8 × 6.5 = 52

Sum of last 8 numbers (अंतिम 8 संख्याओं का योग) = 8 × 9.5

Middle numbers is (मध्य संख्याएं है)

= 76 + 52 – 105 = 23

146.(a) Let the 15th student (माना कि 15वें छात्र की आयु) = x years

According to question,

5 × 14 + 9 × 16 + x = 15 × 15

70 + 144 + x = 225

214 + x = 225

x = 11 years

147.(c) Let the sixth no. (माना कि छठीं संख्या) = x

Then the seventh (तो सातवीं संख्या) = x + 4

and the eight (और आठवीं संख्या) = x + 7

According to question

$2 \times \frac{31}{2} + 3 \times \frac{64}{3} x + x + 4 + x + 7 = 8 \times 20$

31 + 64 + 3x + 11 = 160

106 + 3x = 240

3x = 54

x = 18

Eight no. (आठवीं संख्या) = x + 7 = 18 + 7 = 25

148.(b) Let the last no. (माना कि अंतिम संख्या) = x

According to question,

12 × 11 + 7 × 10 + x = 20 × 12

132 + 70 + x = 240

x = 240 – 202

x = 38

149.(a) According to question

Average of all 8 boys (सभी 8 लड़कों का औसत)

$= \frac{5\times12+3\times16}{8} = \frac{60+48}{8} = \frac{108}{8}$

$= \frac{27}{2} = 13\frac{1}{2}$ years

150.(b) Let the average age of the new students (माना कि नये छात्र की औसत आयु) = x years

According to question,

40 × 15 + 10x = 50 × 15.2

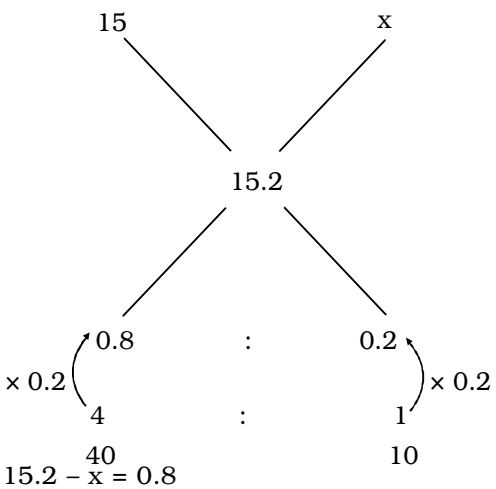
600 + 10x = 760

10x = 160

x = 16 yrs

Alternate:-

Old students New students



15.2 – x = 0.8

x = 16 years