13
CHAPTER

AVERAGE

EXERCISE

TYPE : A

1. The average marks of 32 boys of section A of class X is 60 whereas the average marks of 40 boys of section B of class X is 33. The average marks for both the sections combined together is:
(a) 44 (b) 45
(c) $46\frac{1}{2}$ (d) $45\frac{1}{2}$

2. A man bought 13 articles at Rs. 70 each,15 at Rs. 60 each and 12 at Rs. 65 each. The average price per article is
(a) Rs. 60.25 (b) Rs. 64.75
(c) Rs. 65.75 (d) Rs. 62.25
[SSC GD 2012]

3. A fruit seller sold big, medium and small sized apples for Rs. 15, Rs. 10, and Rs. 5, respectively. The total number of apples sold were in the ratio 3 : 2 : 5. Find the average cost of an apple.
(a) 8 (b) 10
(c) 9 (d) 7
SSC LDC 21-10-2012

4. A man purchased 7 bags of rice at the rate of Rs. 800 each, 8 bags of rice at Rs. 1000 each and 5 bags of rice at the rate of Rs. 1200 each. What is the average cost of one bag of rice?
(a) Rs. 1000 (b) Rs. 980
(c) Rs. 1120 (d) Rs. 1050
SSC DEO 02-11-2014

5. Three Science classes A, B and C take a Life Science test. The average score of class A is 83. The average score of class B is 76. The average score of class C is 85. The average score of class A and B is 79 and average score of class B and C is 81. Then the average score of classes A, B and C is
(a) 80 (b) 80.5
(c) 81 (d) 81.5
(CGL Mains 25-10-2015)

6. The average of marks scored by the students of a class is 68. The average of marks of the girls in the class is 80 and that of the boys is 60. What is the percentage of boys in the class?
(a) 40% (b) 60%
(c) 65% (d) 70%

TYPE : B

7. The average weight of 15 students in a class increases by 1.5kg when one of the student weighing 40 kg is replaced by a new student. What is the weight (in kg) of the new student?
(a) 64.5 kg. (b) 56 kg.
(c) 60 kg. (d) 62.5 kg.

8. There are 50 students in a class. Their average weight is 45 kg. When one student leaves the class the average weight reduces by 100g. What is the weight of the student who left the class?
(a) 45 kg. (b) 47.9 kg.
(c) 49.9 kg. (d) 50.1 kg.

9. The average weight of 12 crewmen in a boat is increased by $\frac{1}{3}$ kg, when one of the crewmen whose weight is 55 kg is replaced by a new man. What is the weight of that new man ?
(a) 58 kg (b) 60 kg
(c) 57 kg (d) 59 kg
SSC LDC 04-11-2012

10. Average age of 8 men is increased by 3 years when two of them whose age are 30 and 34 years are replaced by 2 persons. What is the average age of the 2 persons?
(a) 24 years (b) 32 years
(c) 44 years (d) 48 years
SSC LDC 21-10-2012

11. Out of 10 teachers of a school, one teacher retires and in place of him a new teacher 25 yrs. old joins. As a result of it average age of the teachers reduces by 3 yrs. Age of the retired teacher (in yrs.) is:
(a) 55 (b) 65
(c) 45 (d) 75
(SSC LDC 15-11-2015, Morning)

12. The average weight of 20 students in a class is increased by 0.75 kg when one student of 35 kg replaced by a new student. Weight of the new student (in kg) is:
(a) 35 (b) 40
(c) 45 (d) 50

13. In a class, there are 40 boys and their average age is 16 years. One boy, aged 17 years, leaving the class and another joining, the average age becomes 15.875 years. The age of the new boy is:
(a) 12 years (b) 14.5 years
(c) 15 years (d) 17 years

14. The average age of 8 men is increased by 2 years when two of them whose age are 21 and 23 years replaced by two new men. The average age of the two new men is:
(a) 22 years (b) 24 years
(c) 28 years (d) 30 years

15. The average age of 30 boys in a class is 15 years. One boy, aged 20 years, left the class, but two new boys came in his place whose age differs by 5 years. If the average age of all the boys now in the class becomes 15 years, the age of the younger newcomer is:
(a) 20 years (b) 15 years
(c) 10 years (d) 8 years

16. The average weight of 12 parcels is 1.8 kg. Addition of another new parcel reduces the average weight by 50 g. What is the weight of the new parcel?
(a) 1.50 kg. (b) 1.10 kg.
(c) 1.15 kg. (d) 1.01 kg.

17. Average weight of 25 persons is increased by 1 kg when one person weighing 60 kg is replaced by a new person. Weight of new the person is:
(a) 50 kg. (b) 61 kg.
(c) 86 kg. (d) 85 kg.

18. The average age of 11 players of a cricket team is increased by 2 months when two of them aged 18 years and 20 years are replaced by two new players. The average age of the new players is:
(a) 19 year 1 month
(b) 19 year 6 month
(c) 19 year 11 month
(d) 19 year 5 month

19. If the average weight of 6 students is 50 kg. If two student of average weight of 51 kg are added and two other students of average weight of 55 kg are also added then the average weight of all the students is:
(a) 61 kg (b) 51.5 kg
(c) 52 kg (d) 51.2 kg

20. From a class of 24 boys, a boy, aged 10 years, leaves the class and in his place a new boy is admitted. As a result the average age of the class is increased by 2 months. What is the age of the new boy?
(a) 12 years (b) 15 years
(c) 14 years (d) 13 years

TYPE C

21. The average of 10 numbers is calculated as 15. It is discovered later on that while calculating the average one number, namely 36, was wrongly read as 26. The correct average is:
(a) 20 (b) 18
(c) 16 (d) 14

22. A student finds the average of ten 2 digit numbers. While copying numbers, by mistake, he writes one number with its digits interchanged. As a result his answer is 1.8 less than the correct answer. The difference of the digits of the number, in which he made mistake is:
(a) 2 (b) 3
(c) 4 (d) 6

23. In an examination, the average of marks was found to be 50. For deducting marks for computational errors, the marks of 100 candidates had to be changed from 90 to 60 each and so the average of marks came down to 45. The total number of candidates, who appeared in the examination, was:
(a) 600 (b) 300
(c) 200 (d) 150

24. The average weight of a group of 20 boys was calculated to be 89.4 kg and it was later discovered that one weight was misread as 78 kg instead of 87 kg. The correct average weight is
(a) 88.95 kg (b) 89.25 kg
(c) 89.55 kg (d) 89.85 kg

25. The mean of 50 numbers is 30. Later it was discovered that two entries were wrongly entered as 82 and 13 instead of 28 and 31. Find the correct mean.
(a) 36.12 (b) 30.66
(c) 29.28 (d) 38.21

26. The average of 25 observations is 13. It was later found that an observation 73 was wrongly entered as 48. The new average is
(a) 12.6 (b) 14
(c) 15 (d) 13.8

27. Mean of 10 numbers is 30. Later on it was observed that numbers 15, 23 are wrongly taken as 51, 32. The correct mean is
(a) 25.5 (b) 32
(c) 30 (d) 34.5

28. The mean value of 20 observations was found to be 75, but later on it was detected that 97 was misread as 79. Find the correct means.
(a) 75.7 (b) 75.8
(c) 75.9 (d) 75.6

29. The mean of 100 items was 46. Later on it was discovered that an item 16 was misread as 61 and another item 43 was misread as 34. It was also found that the number of items was 90 and not 100. Then what is the correct mean?
(a) 50 (b) 50.7
(c) 52 (d) 52.7

SSC TIER I 2012

30. The average of seven numbers is 18. If one of the number is 17 and if it is replaced by 31, then the average becomes :
(a) 21.5 (b) 19.5
(c) 20 (d) 21

SSC LDC 04-11-2012

31. In an exam, the average marks obtained by the students was found to be 60. After omission of computational errors, the average marks of 100 candidates had to be changed from 60 to 30 and the average with respect to all the examinees came down to 45 marks. The total number of candidates who took the exam, was
(a) 200 (b) 210
(c) 240 (d) 180

SSC ASSISTANT GRADE -III 11-11-2012

32. The average of 10 items was found to be 80 but while calculating, one of the items was counted as 60 instead of 50. Then the correct average would have been:
(a) 69 (b) 79.25
(c) 79 (d) 79.5

SSC CGL TIER II 29-09-2013

33. A student finds the average of 10, 2 digits numbers. If the digits of one of the numbers is interchanged, the average increases by 3.6. The difference between the digits of the 2 digits number is

(a) 4 (b) 3
(c) 2 (d) 5

SSC CGL TIER I 19-10-2014

34. The average marks obtained by a student in 6 subjects is 88. On subsequent verification it was found that the marks obtained by him in a subject was wrongly copied as 86 instead of 68. The correct average of the marks obtained by him is:

(a) 87 (b) 86
(c) 85 (d) 84

(SSC CGL 16-8-2015, Morning)

35. The average marks of 14 students was 71. It was later found that the marks of one of the student has been wrongly entered as 42 instead of 56 and another as 74 instead of 32. What is the correct average?

(a) 68 (b) 71
(c) 67 (d) 69

(SSC LDC 01-11-2015, Morning)

36. The average of a collection of 20 measurements was calcul-ated to be 56 cm. But later it was found that a mistake had occured in one of the measurement which was recorded as 64 cm., but should have been 61 cm. The correct average must be:

(a) 53 cm (b) 54.5 cm
(c) 55.85 cm (d) 56.15 cm

37. The mean of 50 observations was 36. It was found later that an observation 48 was wrongly taken as 23. The correct (new) mean is:

(a) 35.2 (b) 36.1
(c) 36.5 (d) 39.1

38. The average of marks in Mathematics for 5 students was found to be 50. Later, it was discovered that in the case of one student the marks 48 were misread as 84. The correct average is:

(a) 40.2 (b) 40.8
(c) 42.8 (d) 48.2

TYPE D

39. The average age of eleven cricket players is 20 years. If the age of the coach is also included, the average age increased by 10%. The age of the coach is:

(a) 48 years (b) 44 years
(c) 40 years (d) 36 years

40. The mean of 9 observation is 16. One more observation is included and the new mean becomes 17. The 10th observation is:

(a) 9 (b) 16
(c) 26 (d) 30

41. In a class, the average score of girls in an examination is 73 and that of boys is 71. The average score for the whole class is 71.8. Find the percentage of girls.

(a) 40% (b) 50%
(c) 55% (d) 60%

42. There are 10 balls; some of them are red and the others white. The average cost of all the balls is Rs. 28, average cost of red balls Rs. 25 and that of white balls is Rs. 30, the number of white balls is:

(a) 3 (b) 5
(c) 6 (d) 7

43. The average mathematics marks of two Sections A and B of class IX in the annual examination is 74. The average marks of Section A is 77.5 and that of Section B is 70. The ratio of the number of students of Section A and B is:

(a) 7 : 8 (b) 7 : 5
(c) 8 : 7 (d) 8 : 5

44. The mean weight of 34 students of a school is 42 kg. If the weight of the teacher be included, the mean rises by 400 grams. Find the weight of the teacher (in kg.)

(a) 55 kg (b) 57 kg
(c) 66 kg (d) 56 kg

SSC LDC 21-10-2012

45. On mixing two classes A and B of students having average marks 25 and 40 respectively, the over all average obtained is 30. Find the ratio of the students in the classes A and B.

(a) 2 : 1 (b) 5 : 8
(c) 5 : 6 (d) 3 : 4

SSC LDC 04-11-2012

46. 4 boys and 3 girls spent Rs. 120 on an average, of which boys spent Rs. 150 on the average. Then the average amount spent by the girls is:

(a) Rs. 80 (b) Rs. 60
(c) Rs. 90 (d) Rs. 100

SSC MTS 10-03-2013

47. There are two groups A and B of a class, consisting of 42 and 28 students respectively. If the average weight of group A is 25 kg and that of group B is 40 kg, find the average weight of the whole class.

(a) 69 kg (b) 31 kg
(c) 70 kg (d) 30 kg

SSC FCI ANIST. GRADE III M AIN

48. The average monthly salary of all the employees in an industry is Rs. 12,000. The average salary of male employees is Rs. 15,000 and that of female employees is Rs. 8,000. What is the ratio of male employees to female employees?

(a) 5 : 2 (b) 3 : 4
(c) 4 : 3 (d) 2 : 5

SSC FCI ANIST. GRADE II MAIN

49. Average weight of 25 students of a class is 50 kg. If the weight of the class teacher is included, the average is increased by 1 kg. The weight of the teacher is

(a) 76 kg (b) 77 kg
(c) 74 kg (d) 75 kg

SSC MTS 24-03-2013

50. The average salary of all staff of a school is Rs. 10,000. The average salary of 20 teaching staff is Rs. 12,000 and that of non-teaching staff is Rs. 5000, the number of non-teaching staff will be

(a) 7 (b) 8
(c) 10 (d) 12

SSC CGL TIER I 19-5-2013

51. The average salary, per head, of all the workers of an institution is Rs. 60. The average salary of 12 officers is Rs. 400; the average salary, per head, of the rest is Rs. 56. The total number of workers in the institution is

(a) 1030 (b) 1035
(c) 1032 (d) 1020

SSC CGL TIER I 26-10-2014

52. The average marks obtained by 40 students of a class is 86. If the 5 highest marks are removed, the average reduces by one mark. The average marks of the top 5 students is

(a) 92 (b) 96

(c) 93 (d) 97

SSC CGL TIER I (2013) 20-07-2014

53. In an examination average marks obtained by the girls of a class is 85 and the average marks obtained by the boys of the same class is 87. If the girls and boys are in the ratio 4 : 5, average marks of the whole class (approx.) is closest to

(a) 86.5 (b) 85.9

(c) 86.4 (d) 86.1

(CGL Mains 25-10-2015)

54. The average weight of first 11 persons among 12 persons is 95 kg. The weight of 12^{th} person is 33 kg more than the average weight of all the 12 persons. The weight of the 12^{th} person is

(a) 128.75 (b) 131

(c) 128 (d) 97.45

(CGL Mains 12-04-2015)

55. The average marks of 50 students in a class is 72. The average marks of boys and girls in that subject are 70 and 75 respectively. The number of boys in the class is:

(a) 30 (b) 20

(c) 35 (d) 25

(SSC LDC 20-12-2015, Morning)

56. The average age of four brothers is 12 years. If the age of their mother is also included, the average is increased by 5 years. The age of the mother (in years) is:

(a) 37 years (b) 43 years

(c) 48 years (d) 53 years

57. The average of marks obtained by 120 candidates in a certain examination is 35. If the average marks obtained by passed candidates are 39 and those of the failed candidates are 15, what is the number of candidates who passed the examination?

(a) 100 (b) 120

(c) 150 (d) 140

58. The average age of 20 boys in a class is 12 years. 5 new boys are admitted to the class whose average age is 7 years. The average age of all the boys in the class becomes

(a) 8.2 years (b) 9.5 years

(c) 12.5 years (d) 11 years

59. There are 30 students in a class. The average age of first 10 students is 12.5 years. The average age of the remaining 20 students is 13.1 years. The average age (in years) of the students of the whole class is:

(a) 12.5 years (b) 12.7 years

(c) 12.8 years (d) 12.9 years

60. The average salary of all the workers in a workshop is Rs. 8000. The average salary of 7 technicians is Rs.12000 and the average salary of the rest is Rs. 6000. The total number of workers in the workshop is:

(a) 20 (b) 21

(c) 23 (d) 22

61. In a school, the average age of students is 6 years, and the average age of 12 teachers is 40 years. If average age of combined group of all the teachers and students is 7 years, then the number of students is:

(a) 396 (b) 400

(c) 408 (d) 416

62. The average age of 24 boys and their teacher is 15 years. When the teacher's age is excluded, the average age decreases by 1 year. The age of the teacher is:

(a) 38 years (b) 39 years

(c) 40 years (d) 41 years

63. The average score of a class of boys and girls in an examination is A. The ratio of boys and girls in the class is 3 : 1. If the average score of the boys is A + 1, the average score of the girls is:

(a) A + 1 (b) A – 1

(c) A + 3 (d) A – 3

64. The average age of 30 students is 9 years. If the age of their teacher is included, the average age becomes 10 years. The age of the teacher (in years) is:

(a) 27 (b) 31

(c) 35 (d) 40

65. The average age of 40 students of class is 18 years. When 20 new students are admitted to the same class, the average age of the students of the class is increased by 6 months. The average age of newly admitted students is

(a) 19 years

(b) 19 years 6 month

(c) 20 years

(d) 20 years 6 month

TYPE E

66. The average age of a husband and his wife was 27 years when the child was born, the average age of the husband, the wife and a new-born child is 21 years now. The present age of the child is:

(a) 4 years (b) 3 years

(c) 2 years (d) 1 year

67. In a family, the average age of a father and a mother is 35 years. The average age of the father, mother and their only son is 27 years. What is the age of the son?

(a) 12 years (b) 11 years

(c) 10.5 years (d) 10 years

68. The average age of a husband and wife, who were married 4 years ago, was 25 years at the time of their marriage. The average age of the family consisting of husband, wife and a child, born during the interval is 20 years today. The age of the child is:

(a) 1 years (b) 2 years

(c) 2.5 years (d) 3 years

69. Five years ago, the average age of P and Q was 25. The average age of P, Q and R today is 25. Age of R after 5 years will be

(a) 15 years (b) 20 years

(c) 40 years (d) 35 years

70. The average age of a family of 10 members is 20 years. If the age of the youngest member of the family is 10 years, then the average age of the members of the family just before the birth of the youngest member was approximately.

(a) 27.14 years (b) 12.5 years

(c) 14.28 years (d) $11\frac{1}{9}$ years

SSC LDC 21-10-2012

71. B was born when A was 4 year 7 month old and C was born when B was 3 year 4 month old. When C was 5 year 2 month old, then their average age was:
(a) 8 years 9 months
(b) 7 years 3 months
(c) 8 years 7 months
(d) 8 years 11 months

SSC GD 22-04-2012

72. The average age of husband and his wife was 23 years at the time of their marriage. After five years they have a one-year old child. The average age of the family of three, when the child was born, was
(a) 23 years (b) 24 years
(c) 18 years (d) 20 years

SSC CONST. (GD)24-03-2013

73. Two years ago the average age of a family of 8 members was 18 years. After the addition of a baby, the average age of the family is same today. What is the age of the baby?
(a) 2 years (b) $1\frac{1}{2}$ years
(c) 1 years (d) $2\frac{1}{2}$ years

SSC CGL TIER I 19-5-2013

74. From a class of 42 boys, a boy aged 10 years goes away and in his place, a new boy is admitted. If on account of this change, the average age of the boys in that class increases by 2 months, the age of the newcomer is:
(a) 19 years
(b) 17 years
(c) 10 yr. 6 month
(d) 12 yr. 2 month

SSC MTS 10-03-2013

75. The average age of Ram and his two children is 17 years and the average age of Ram's wife and the same children is 16 years. If the age of Ram is 33 years, the age of his wife is (in years)
(a) 31 (b) 32
(c) 35 (d) 30

SSC CGL TIER I 19-5-2013

76. The average age of A and B is 20 years. If A is to be replaced by c, the average would be 19 years. The average age of C and A is 21 years. The ages of A, B and C in order (in years) are
(a) 18, 22, 20 (b) 18, 20, 22
(c) 22, 18, 20 (d) 22, 20, 18

SSC DEO 04-11-2013

77. In a family of 5 members, the average age at present is 33 years. The youngest member is 9 year old. The average age of the family just before the birth of the youngest member was:
(a) 30 years (b) 29 years
(c) 25 years (d) 24 years

SSC CGL TIER II 29-09-2013

78. A man had 7 children. When their average age was 12 years, a child aged 6 years died. Then average age of remaining six children is:
(a) 13 years (b) 10 years
(c) 11 years (d) 14 years

SSC CGL TIER I (2013) 20-07-2014

79. If out of 10 selected students for an examination, 3 were of 20 years, 4 of 21 years and 3 of 22 years, the average age of the group is
(a) 22 years (b) 21 years
(c) 21.5 years (d) 20 years

SSC CGL TIER I (2013) 27-04-2014

80. 3 years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is same today. The present age of the baby is
(a) 1 years (b) $1\frac{1}{2}$ year
(c) 2 years (d) 3 years

SSC DEO 16-11-2014

81. The frequency distribution data is given below. If the average age is 17 years, the value of m is

Age (in years)	: 8	20	26	29
No. of people	: 3	2	m	1

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

SSC CGL TIER II 21-09-2014

82. After replacing an old member by a new member, it was found that the average age of five members of a club is the same as it was 3 years ago. The difference between the ages of the replaced and the new members is
(a) 2 years (b) 4 years
(c) 8 years (d) 15 years

SSC TIER II 21-09-2014

83. The average age of P, Q and R is 5 years more than R's age. If the total age of P and Q together is 39 years, then R's age is
(a) 12 years (b) 24 years
(c) 16 years (d) 14 years

SSC LDC 16-11-2014

84. The average age of 30 students of a class is 14 year 4 month. After admission of 5 new student in the class the average becomes 13 year 9 month. The youngest one of the five new students is 9 year 11 month old. The average age of the remaining 4 new students is
(a) 10 years 4 months
(b) 12 years 4 months
(c) 11 years 2 months
(d) 13 years 6 months

(CGL Mains 25-10-2015)

85. Average age of seven persons in a group is 30 years, the average age of five persons of this group is 31 years. What is the average age of the other two persons in the group?
(a) 55 years
(b) 26 years
(c) None of these
(d) 15 years

(SSC LDC 01-11-2015, Morning)

86. The average age of mother and her six children is 12 years, which is reduced by 5 years if the age of mother is excluded. The age of the mother (in yrs) is:
(a) 40 (b) 50
(c) 42 (d) 48

(SSC LDC 06-12-2015, Morning)

87. Average age of 6 sons of a family is 8 years. Average age of sons together with their parents is 22 years. If the father is older than the mother by 8 years, the age of mother (in years) is:
(a) 44 (b) 52
(c) 60 (d) 68

88. The average of runs scored by a cricketer in his 99 innings is 99. How many runs will he have to score in his 100th innings so that his average of runs in 100 innings will become 100?

(a) 100 (b) 99

(c) 199 (d) 101

(SSC CGL Pre Exam 2016)

89. Average age of mother, father and son was 42 at the time of son's marriage. After one year, an infant was born and after 6 years of marriage the average age of family becomes 36. Find the age of bride at the time of marriage.

(a) 26 years (b) 25 years

(c) 24 years (d) 23 years

90. The present average age of a family of four members is 36 years. If the present age of the youngest member of the family be 12 years, the average age of the family at the time of birth of the youngest member was :

(a) 48 years (b) 40 years

(c) 32 years (d) 24 years

TYPE F

91. The average of five numbers is 7. When three new numbers are included, the average of the eight numbers becomes 8.5. The average of the three new numbers is:

(a) 9 (b) 10.5

(c) 11 (d) 11.5

92. The average age of 9 students and their teacher is 16 years. The average age of the first four students is 19 years and that of the last five is 10 years. The teacher's age is

(a) 36 years (b) 34 years

(c) 30 years (d) 28 years

93. The average weight of five persons sitting in a boat is 38 kg. The average weight of the boat and the persons sitting in the boat is 52 kg. What is the weight of the boat ?

(a) 228 kg (b) 122 kg

(c) 232 kg (d) 242 kg

SSC TIER I 2012

94. The average of 30 numbers is 40 and that of other 40 numbers is 30. The average of all the numbers is:

(a) $34\frac{2}{7}$ (b) 35

(c) 34 (d) 34.5

SSC LDC 20-10-2013

95. The average of 20 numbers is 15 and the average of first five numbers is 12. The average of the rest is:

(a) 16 (b) 15

(c) 14 (d) 13

SSC TIER I 19-05-2013

96. Find the average of 1.11, 0.01, 0.101, 0.001, 0.11

(a) 0.2664 (b) 0.2554

(c) 0.1264 (d) 0.1164

SSC MTS 10-03-2013

97. Out of 20 boys, 6 are each of 1 m 15 cm height, 8 are of 1 m 10 cm and rest of 1 m 12 cm. The average height of all of them is :

(a) 1 m 12.1 cm

(b) 1 m 21.1 cm

(c) 1 m 21 cm

(d) 1 m 12 cm

SSC MTS 17-03-2013

98. The average of 11 results is 50. If the average of the first six results is 49 and that of the last six is 52, the sixth no. is

(a) 48 (b) 50

(c) 52 (d) 56

SSC CGL TIER II 29-09-2013

99. Out of four numbers, the average of the first three is 15 and that of the last three is 16. If the last number is 19, the first is:

(a) 19 (b) 15

(c) 16 (d) 18

SSC CONSTABLE (GD)22-04-2013

100. The average of nine number is 50. The average of first five numbers is 54 and that of the last three numbers is 52. Then the sixth number is:

(a) 30 (b) 34

(c) 24 (d) 44

SSC TIER I 19-05-2013

101. The average marks obtained by 22 candidates in an examination are 45. The average marks of the first 10 candidates is 55 and those of the last eleven is 40.The number of marks obtained by the eleventh candidate is:

(a) 45 (b) 0

(c) 50 (d) 47.5

SSC LDC 04-11-2012

102. The mean of 20 items is 55. If two items 45 and 30 are removed, the new mean of the remaining items is:

(a) 65.1 (b) 65.3

(c) 56.9 (d) 56

SSC CGL TIER I 19-5-2013

103. In a pre school, the average weight of 30 girls in a class among 50 students is 16 kg and that of the remaining students is 15.5 kg. What is the average weight of all the students in the class?

(a) 15.2 kg. (b) 15.8 kg.

(c) 15.4 kg. (d) 15.6 kg.

104. A man spends Rs. 1800 monthly on an average for the first four months and Rs. 2000 monthly for the next eight months and saves Rs. 5600 a year. His average monthly income is

(a) Rs. 2000 (b) Rs. 2200

(c) Rs. 2400 (d) Rs. 2600

SSC CGL TIER II 21-09-2014

105. The average of 50 numbers is 38. If two numbers, namely 45 and 55 are discarded, the average of the remaining numbers is

(a) 37.5 (b) 37.9

(c) 36.5 (d) 37.0

SSC TIER I 26-10-2014

106. The average of six numbers is 20. If one number is removed, the average becomes 15. What is the number removed?

(a) 5 (b) 35

(c) 112 (d) 45

SSC TIER II 21-09-2014

107. Out of four numbers the average of the first three is 16 and that of the last three is 15. If the last number is 20 then the first number is :

(a) 25 (b) 21

(c) 23 (d) 28

(SSC CGL 09-08-2015, Evening)

108. The average of 7,11, 15, x, 14, 21, 25 is 15, then the value of x is:

(a) 3 (b) 14.5

(c) 12 (d) 13.3

(SSC CGL 09-08-2015, Evening)

109. The average of six numbers is 3.95. The average of two of them is 3.4, while the average of the other two is 3.85. The average of the remaining two numbers is

(a) 4.6 (b) 4.8

(c) 4.5 (d) 4.7

(CGL Mains 12-04-2015)

110. Six consecutive numbers are arranged in decreasing order. The average of the first five numbers is 30 and the average of the last five numbers is 25. The difference of the first and the last numbers is:

(a) 5 (b) 20

(c) 25 (d) 30

(SSC LDC 15-11-2015, Morning)

111. The average of 12 numbers is 15 and the average of the first two is 14. What is the average of the rest?

(a) $15\frac{1}{5}$ (b) 14

(c) $11\frac{1}{5}$ (d) 15

(SSC LDC 15-11-2015, Evening)

112. The average expenditure of a man for the first five months is ₹1200 and for the next seven months is ₹1300. If he saves ₹2900 in that year,his monthly average income is:

(a) ₹1600 (b) ₹1700

(c) ₹1400 (d) ₹1500

(SSC LDC 15-11-2015, Evening)

113. The average income of 40 persons is Rs. 4200 and that of another 35 persons is Rs. 4000. The average income of the whole group is :

(a) 4100 (b) $4106\frac{1}{3}$

(c) $4106\frac{2}{3}$ (d) $4108\frac{1}{3}$

114. The average of the marks obtained in an examination by 8 students was 51 and by 9 other students was 68. The average marks of all 17 students was:

(a) 59 (b) 59.5

(c) 60 (d) 60.5

115. The average of five numbers is 27. If one number is excluded, the average becomes 25. The excluded number is :

(a) 25 (b) 27

(c) 30 (d) 35

116. A company produces an average of 4000 items per month for the first 3 months. How much items, it must produce on an average per month over the next 9 months to get average 4375 items per month over the whole year?

(a) 4500 (b) 4600

(c) 4680 (d) 4710

117. The average of 9 numbers is 30. The average of first 5 numbers is 25 and that of the last 3 numbers is 35. What is the 6th numbers?

(a) 20 (b) 30

(c) 40 (d) 50

118. If the average marks of three batches of 55, 60 and 45 students respectively is 50, 55 and 60, then the average marks of all the students is:

(a) 54.68 (b) 53.33

(c) 55 (d) None of these

119. The average of 30 results is 20 and the average of other 20 results is 30. What is the average of all the results?

(a) 24 (b) 48

(c) 25 (d) 50

120. The average of 15 numbers is 7. If the average of the first 8 numbers be 6.5 and the average of the last 8 numbers be 9.5, then the middle number is:

(a) 20 (b) 21

(c) 23 (d) 18

121. The average age of 15 students of a class is 15 years. Out of these the average age of 5 students is 14 years and that of the other 9 students is 16 years. The age of the 15th student is:

(a) 11 years (b) 15 years

(c) $15\frac{2}{7}$ years (d) 14 years

YEAR : 2004

122. The average of 8 numbers is 20. The average of first two numbers is $15\frac{1}{2}$ and that of the next three is $21\frac{1}{3}$. If the sixth number be less than the seventh and eighth numbers by 4 and 7 respectively, then the eighth number is:

(a) 18

(b) 22

(c) 25

(d) 27

123. The average of 20 numbers is 12. The average of the first 12 numbers is 11 and that of the next 7 numbers is 10. The last number is:

(a) 40 (b) 38

(c) 48 (d) 50

124. The average age of 5 boys is 12 years. The average age of 3 others is 16 years. The average age of all the 8 boys is:

(a) $13\frac{1}{2}$ years (b) 14 years

(c) $12\frac{1}{2}$ years (d) 13 years

125. The average age of 40 students of a class is 15 years. When 10 new students are admitted, the average is increased by 0.2 year. The average age of the new students is:

(a) 15.2 years (b) 16 years

(c) 16.2 years (d) 16.4 years

126. The average of 100 numbers is 44. The average of these 100 numbers and 4 other new numbers is 50. The average of the four new numbers will be:

(a) 800 (b) 200

(c) 176 (d) 24

127. The average of 6 observations is 45.5. If one new observation is added to the previous observations, then the new average becomes 47. The new observation is

(a) 58 (b) 56

(c) 50 (d) 46

128. The average age of group of 20 girls is 15 years and that of another group of 25 boys it is 24 years. The average age of the two groups mixed together is:

(a) 19.5 years (b) 20 years

(c) 21 years (d) 21.5 years

TYPE G

129. The batting average for 40 innings of a cricket player is 50 runs. His highest score exceeds his lowest score by 172 runs. If these two innings are excluded, the average of the remaining 38 innings is 48 runs. The highest score of the player is

(a) 165 runs (b) 170 runs

(c) 172 runs (d) 174 runs

130. A cricketer has a mean score of 60 runs in 10 innings. Find out how many runs are to be scored in the eleventh innings to raise the mean score to 62?

(a) 83 (b) 82

(c) 80 (d) 81

SSC TIER II 16-09-2012

131. A batsman in his 12th innings makes a score of 63 runs and there by increases his average score by 2. What is his average after the 12th innings?

(a) 13 (b) 39

(c) 41 (d) 87

SSC TIER I 2012

132. Sachin Tendulkar has a certain average for 11 innings. In the 12th innings he scores 120 runs and thereby increases his average by 5 runs. His new average is:

(a) 60 (b) 62

(c) 65 (d) 66

SSC CGL TIER I 19-5-2013

133. The average age of a cricket team of 11 players is the same as it was 3 years back because 3 of the players whose current average age of 33 years are replaced by 3 youngsters. The average age of the new comers is:

(a) 23 years (b) 21 years

(c) 22 years (d) 20 years

SSC CGL TIER I(2013) 20-07-2014

134. A cricketer whose bowling average is 12.4 runs per wicket, takes 5 wickets for 26 runs in the next innings and thereby decreases his average by 0.4. The number of wickets taken by him till the last match was

(a) 64 (b) 72

(c) 90 (d) 85

SSC LDC 02-11-2014

135. The average run of a player is 32 out of 10 innings. How many runs must he made in the next inning so as to increase his average by 6?

(a) 98 (b) 6

(c) 40 (d) 38

(CPO 21-06-2015, Evening)

136. A cricketer whose bowling average is 24.85 runs per wicket, takes 5 wickets for 52 runs in next inning and thereby decreases his average by 0.85. The number of wickets taken by him till the last match was:

(a) 75 (b) 85

(c) 80 (d) 96

137. The average age of 11 players of a cricket team decreases by 2 months when two new players are included in the team replacing two players of age 17 years and 20 years. The average age of new players is :

(a) 17 years 1 month

(b) 17 years 7 months

(c) 17 years 11 months

(d) 18 years 3 months

138. A cricketer had a certain average of runs for his 64 innings. In his 65th innings, he is bowled out for no score on his part. This brings down his average by 2 runs. His new average of runs is:

(a) 130 (b) 128

(c) 70 (d) 68

139. A cricketer has a certain average of runs for his 8 innings. In the ninth innings, he scores 100 runs, thereby increases his average by 9 runs. His new average age of runs is:

(a) 20 (b) 24

(c) 28 (d) 32

TYPE H

140. Out of nine persons, 8 persons spent Rs. 30 each for their meals. The ninth one spent Rs. 20 more than the average expenditure of all the nine. The total money spent by all of them was:

(a) Rs. 260 (b) Rs. 290

(c) Rs. 292.50 (d) Rs. 400.50

SSC TIER II 16-09-2012

141. The mean high temperature of the first four days of a week is 25° c whereas the mean of the last four days is 25.5° c. If the mean of the whole week is 25.2°c then the temperature of the 4th day is:

(a) 25°c (b) 25.2° c

(c) 25.6°c (d) 25.5°c

(SSC LDC 01-11-2015, Evening)

142. There were 35 students in a hostel. If the number of students is increased by 7 the expenditure on food increases by Rs. 42 per day while the average expenditure of students is reduced by Rs. 1. What was the initial expenditure on food per day ?

(a) Rs. 400 (b) Rs. 432

(c) Rs. 442 (d) Rs. 420

TYPE I

143. Total weekly emoluments of the workers of a factory is Rs. 1534. Average weekly emolument of a worker is Rs.118. The number of workers in the factory is:

(a) 16 (b) 14

(c) 13 (d) 12

144. The average of the first 100 positive integers is

(a) 100 (b) 51

(c) 50.5 (d) 49.5

145. The average of odd numbers upto 100 is

(a) 50.5 (b) 50

(c) 49.5 (d) 49

146. The average of the squares of first ten natural numbers is

(a) 35.5 (b) 36

(c) 37.5 (d) 38.5

147. The arithmetic mean (average) of the first 10 whole number is
(a) 5 (b) 4
(c) 5.5 (d) 4.5

148. The average of seven consecutive positive integers is 26. The smallest of these integers is:
(a) 21 (b) 23
(c) 25 (d) 26

149. 30 pens and 75 pencils altogether were purchased for Rs. 510. If the average price of a pencil was Rs. 2, what was the average price of a pen?
(a) Rs. 9 (b) Rs. 10
(c) Rs. 11 (d) Rs. 12

YEAR : 2011

150. If average of 20 observations x_1, x_2, ... x_{20} is y, then the average of $x_1 - 101$, $x_2 - 101$, $x_3 - 101$, ... $x_{20} - 101$ is
(a) $y - 20$ (b) $y - 101$
(c) $20\,y$ (d) $101y$

151. The average of x number is y and average of y numbers is x. Then the average of all the numbers taken together is:
(a) $\frac{x+y}{2xy}$ (b) $\frac{2xy}{x+y}$
(c) $\frac{x^2+y^2}{x+y}$ (d) $\frac{xy}{x+y}$

152. The average of x numbers is y^2 and the average of y numbers is x^2. So the average of all the numbers taken together is :
(a) $\frac{x^3+y^3}{x+y}$ (b) xy
(c) $\frac{x^2+y^2}{x+y}$ (d) $xy^2 + yx^2$

153. The average of n numbers x_1, x_2.....x_n is $\bar{x}$. Then the value of $\sum_{i=1}^{n}\left(x_i - \bar{x}\right)$ is equal to
(a) n (b) 0
(c) $n\bar{x}$ (d) $\bar{x}$

154. The average of three numbers is 135. The largest number is 195 and the difference between the other two is 20.The smallest number is:
(a) 65 (b) 95
(c) 105 (d) 115

155. The average of three consecutive odd numbers is 12 more than one third of the first of these numbers. What is the last of the three numbers ?
(a) 15 (b) 17
(c) 19
(d) Data inadequate

156. a, b, c, d, e, f, g are consecutive even numbers. j, k, l, m, n are consecutive odd numbers. The average of all the numbers is :
(a) $3\left(\frac{a+n}{2}\right)$ (b) $\left(\frac{l+d}{2}\right)$
(c) $\frac{a+b+m+n}{4}$ (d) $\frac{j+c+n+g}{4}$

157. The average of three numbers is 40. The first number is twice the second and the second one is thrice the third number. The difference between the largest and the smallest numbers is
(a) 30 (b) 36
(c) 46 (d) 60

158. Among three numbers, the first is twice the second and thrice the third. If the average of the three numbers is 49.5, then the difference between the first and the third number is:
(a) 54 (b) 28
(c) 39.5 (d) 41.5

159. Out of 4 numbers, whose average is 60, the first one is one-fourth of the sum of the last three. The first number is:
(a) 15 (b) 45
(c) 48 (d) 60

160. The average of six numbers is 32. If each of first three numbers is increased by 2 and each of the remaining three numbers is decreased by 4, then the new average is:
(a) 35 (b) 34
(c) 31 (d) 30

161. The average of the three numbers x, y and z is 45. x is greater than the average of y and z by 9. The average of y and z is greater than y by 2. Then the difference of x and z is:
(a) 3 (b) 5
(c) 7 (d) 8

162. If the average of x and $\frac{1}{x}(x \neq 0)$ is M, then the average of x^2 and $\frac{1}{x^2}$ is:
(a) $1 - M^2$ (b) $1 - 2M^2$
(c) $2M^2 - 1$ (d) $2M^2 + 1$

163. A library has an average number of 510 visitors on Sunday and 240 on other days. The average number of visitors per day in a month of 30 day beginning with Sunday is :
(a) 285 (b) 295
(c) 300 (d) 290

SSC LDC 21-10-2012

164. The mean of 11 numbers is 35. If the mean of first 6 numbers is 32 and that of the last six numbers is 37, find the sixth number.
(a) 28 (b) 29
(c) 30 (d) 27

SSC LDC 21-10-2012

165. The average of 5 consecutive integers starting with 'm' is n. What is the average of 6 consecutive integers starting with $(m + 2)$?
(a) $\frac{(2n + 5)}{2}$ (b) $(2n + 2)$
(c) $(n+3)$ (d) $\frac{2n + 9}{2}$

SSC TIER I 2012

166. Eight consecutive numbers are given. If the average of the two numbers that appear in the middle is 6, then the sum of the eight given numbers is:
(a) 54 (b) 64
(c) 36 (d) 48

SSC LDC 21-10-2012

167. The average of four consecutive even numbers is 15. The 2nd highest number is:
(a) 12 (b) 18
(c) 14 (d) 16

SSC GD 2012

168. Average of first five odd multiples of 3 is
(a) 12 (b) 16
(c) 15 (d) 21

SSC DED 21-10-2012

169. The average of four consecutive even numbers is 9. Find the largest number.

(a) 12 (b) 6

(c) 8 (d) 10

SSC TIER I 2012

170. In a 20 over match, the required run rate to win is 7.2. If the run rate is 6 at the end of the 15th over, the required run rate to win the match is:

(a) 1.2 (b) 13.2

(c) 10.8 (d) 12

SSC DEO 04-11-2012

171. If the mean of 4 observations is 20, when a constant 'C' is added to each observation, the mean becomes 22. The value of C is :

(a) 6 (b) –2

(c) 2 (d) 4

SSC LDC 21-10-2012

172. The average weight of 40 children of a class is 36.2 kg. When three more children with weight 42.3 kg, 39.7 kg and 39.5 kg join the class, the average weight of the 43 children in the class is:

(a) 39.2 kg (b) 36.5 kg

(c) 38.35 kg (d) 37.3 kg

SSC LDC 21-10-2012

173. The average pocket money of 3 friends A, B, C is Rs. 80 in a particular month. If B spends double and C spends triple of what A spends during that month and if the average of their unspent pocket money is Rs. 60, then A spends (in Rs.)

(a) Rs. 10 (b) Rs. 20

(c) Rs. 30 (d) Rs. 40

SSC TIER II 16-09-2012

174. 5 members of a team are weighed consecutively and their average weight calculated after each member is weighed. If the average weight increases by one kg each time, how much heavier is the last player than the first one?

(a) 4 kg (b) 20 kg

(c) 8 kg (d) 5 kg

SSC TIER II 16-09-2012

175. In the afternoon, a student read 100 pages at the rate of 60 pages per hour. In the evening, when she was tired, she read 100 more pages at the rate of 40 pages per hour. What was her average rate of reading the pages per hour?

(a) 60 (b) 70

(c) 48 (d) 50

SSC LDC 21-10-2012

176. While purchasing one item costing Rs. 400, one has to pay sales tax at 7% and on another costing Rs. 6400, the sales tax was 9%. The percentage of sales tax one has to pay, taking these items together on an average is:

(a) $8\frac{13}{17}$ (b) $8\frac{15}{17}$

(c) $8\frac{1}{2}$ (d) 8

SSC LDC 21-10-2012

177. A man purchases milk for three consecutive years.In the first year, he purchases milk at the rate of Rs. 7.50 per litre, in the second year, at the rate of Rs. 8.00 per litre and in the third year, at Rs. 8.50 per litre. If he purchases milk worth Rs. 4080 each year, the average price of milk per litre for the three years is:

(a) Rs. 7.68 (b) Rs. 7.98

(c) Rs. 7.54 (d) Rs. 7.83

SSC DELHI POLICE (S-1)19-08-2012

178. Six tables and twelve chairs were bought for Rs. 7,800. If the average price of a table is Rs. 750, then the average price of a chair would be:

(a) Rs. 250 (b) Rs. 275

(c) Rs. 150 (d) Rs. 175

SSC MTS 17-03-2013

179. The average of the first nine integral multiples of 3 is

(a) 21 (b) 12

(c) 15 (d) 18

SSC DEI 04-11-2013

180. If the average of 6 consecutive even number is 25, the difference between the largest and the smallest number is:

(a) 8 (b) 10

(c) 12 (d) 14

SSC GD 22-04-2013

181. The average of nine consecutive numbers is n. If the next two numbers are also included the new average will be

(a) increase by 2

(b) remain the same

(c) increase by 1.5

(d) increase by 1

SSC LDC 04-11-2013

182. What is the average of the first six (positive) odd number each of which is divisible by 7?

(a) 42 (b) 43

(c) 47 (d) 49

SSC TIER I 19-05-2013

183. The average of first ten prime numbers is:

(a) 10.1 (b) 10

(c) 12.9 (d) 13

SSC (GD) 25B 22-04-2013

184. The average of first three numbers is double of the fourth number. If the average of all the four numbers is 12. Find the 4th number.

(a) 16 (b) $\frac{48}{7}$

(c) 20 (d) $\frac{18}{7}$

SSC TIER I 19-05-2013

185. The average age of four boys A, B, C and D is 5 years and the average age of A, B, D, E is 6 years. C is 8 years old. The age of E is (in years)

(a) 12 (b) 13

(c) 14 (d) 15

SSC MTS 24-03-2013

186. Find the average of cubes of first 49 positive integers.

(a) 30625 (b) 1225

(c) 30125 (d) 6235

SSC CAPT SI 2013

187. The arithmetic mean of the following numbers:

1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 5, 6, 6, 6, 6, 6, 6, and 7, 7, 7, 7, 7, 7, 7 is

(a) 4 (b) 5

(c) 14 (d) 20

SSC CGL TIER II 21-09-2014

188. The average of all the numbers between 6 and 50 which are divisible by 5 is

(a) 27.5 (b) 30

(c) 28.5 (d) 22

SSC CAPF-SI 22-06-2014

189. If a, b, c, d, e are five consecutive odd numbers, their average is :

(a) $5(a + 4)$ (b) $\frac{abcde}{5}$

(c) $5(a+b+c+d+e)$ (d) $a + 4$

SSC CGL TIER I (2013) 27-04-2014

190. Average weight of 3 men A, B, C is 84 kg. Another man D joins the group and the average now becomes 80 kg. If another man E whose weight is 3 kg more than that of D replaces A then the average weight of B, C,D and E becomes 79 kg. The weight of A in kg is:

(a) 80 (b) 72

(c) 75 (d) 70

(SSC CGL 16-8-2015, Evening)

191. A librarian purchased 50 storybooks for his library. But he saw that he could get 14 books more by spending ₹ 76 more but per book average becomes ₹1 less. The average price (in ₹) of each book he bought, was;

(a) 15 (b) 25

(c) 20 (d) 10

(SSC CGL 16-8-2015, Evening)

192. The average of some natural numbers is 15. If 30 is added to the first number and 5 is subtracted from the last number the average becomes 17.5 then the number of natural numbers is

(a) 20 (b) 30

(c) 15 (d) 10

(CPO 21-06-2015, Morning)

193. Average of n numbers is a. The first number is increased by 2, second one is increased by 4, the third one is increased by 8 and so on. The average of the new numbers is

(a) $a + \frac{2(2^n-1)}{n}$ (b) $a + \frac{2^{n+1}-1}{n}$

(c) $a + \frac{2^{n+1}}{n}$ (d) $a + 2\frac{2^{n-1}}{n}$

(CGL Mains 25-10-2015)

194. There is a number consisting of two digits, the digit in the units' place is twice than digit in the tens' place and if 2 subtracted from the sum of the digits, the difference is equal to $1/6^{th}$ of the number. The number is

(a) 23 (b) 25

(c) 26 (d) 24

(CGL Mains 25-10-2015)

195. The average of the largest and smallest 3 digit numbers formed by 0,2 and 4 would be

(a) 312 (b) 222

(c) 213 (d) 303

(CGL Mains 12-04-2015)

196. If the average of eight consecutive even numbers be 93, then the greatest number among them is

(a) 100 (b) 102

(c) 86 (d) 98

(CGL Mains 12-04-2015)

197. The average (arithmetic mean) of 3^{30}, 3^{60} and 3^{90} is

(a) $3^{27} + 3^{57} + 3^{87}$ (b) $3^{29} + 3^{59} + 3^{89}$

(c) 3^{60} (d) 3^{177}

(CGL Mains 12-04-2015)

198. A man spends his three months income in four month time. If his monthly income is ₹ 1,000 then his annual savings is.

(a) ₹ 3,000 (b) ₹ 9,000

(c) ₹ 4,000 (d) ₹ 6,000

(SSC LDC 01-11-2015, Morning)

199. A shop of electronic goods remains closed on Monday.The average sales per day for remaining six days of a week is ₹ 15640 and the average sale of Tuesday to Saturday is ₹ 14124. The sales on Sunday is:

(a) ₹ 23220

(b) ₹ 201888

(c) Data inadequate

(d) ₹ 21704

(SSC LDC 01-11-2015, Evening)

200. The average of all the odd integers between 2 an 22 is:

(a) 13 (b) 12

(c) 11 (d) 14

(SSC LDC 06-12-2015, Morning)

201. A student was asked to find the value of x, and given the arithmetic mean is 12 of the following 12 numbers :

3, 11, 7, 9, 15, 13, 8, 19, 17, 21, 14 and x

(a) 3 (b) 7

(c) 17 (d) 31

202. Of the three numbers whose average is 60, the first is one fourth of the sum of the whole number. The first number is:

(a) 30 (b) 36

(c) 42 (d) 45

203. The arithmetic mean of the scrores of a group of students in a test was 52. The brightest 20% of them secured a mean score of 80 and the dullest 25% a mean score of 31. The mean score of remaining 55% is:

(a) 45 (b) 50

(c) 51.4 (d) 54.6

YEAR : 2001

204. Of the three numbers, the first is twice the second and the second is thrice the third. If the average of the three numbers is 10, the largest number is:

(a) 12 (b) 15

(c) 18 (d) 30

YEAR : 2002

205. The average monthly income of A and B is Rs. 14000, that of B and C is Rs. 15600 and A and C is Rs. 14400. The monthly income of C is:

(a) 16000 (b) 15000

(c) 14000 (d) 15500

206. The average of first three numbers is thrice the fourth number. If the average of all the four numbers is 5, then find the fourth number.

(a) 4.5 (b) 5

(c) 2 (d) 4

207. Average of two numbers is 8 and average of other three numbers is 3; the average of the five numbers is

(a) 2 (b) 3

(c) 5 (d) 6

208. The present age of a father is 3 years more than three times the age of his son. Three years hence, father's age will be 10 years more than twice the age of the son. The father's age is:
(a) 33 years (b) 39 years
(c) 45 years (d) 40 years

209. In a family of 8 adults and some minors, the average consumption of rice per head per month is 10.8 kg: while the average consumption for adults is 15 kg per head and for minors it is 6 kg per head. The number of minors in the family is:
(a) 8 (b) 6
(c) 7 (d) 9

210. The average monthly income (in Rs.) of certain agricultural workers is S and that of other workers is T. The number of agricultural workers is 11 times that of other workers. Then the average monthly income (in Rs.) of all the workers is:
(a) $\frac{S+11T}{12}$ (b) $\frac{S+T}{12}$
(c) $\frac{11S+T}{12}$ (d) $\frac{1}{11S}+T$

YEAR : 2005

211. The average monthly salary of the workers in a workshop is Rs. 8,500. If the average monthly salary of 7 technicians is Rs.10,000 and average monthly salary of the rest is Rs. 7,800, the total number of workers in the workshop is
(a) 18 (b) 20
(c) 22 (d) 24

YEAR : 2006

212. The average of 5 consecutive natural numbers is M. If the next three natural numbers are also included, how much more than M will the average of these 8 numbers be?
(a) 2 (b) 1
(c) 1.4 (d) 1.5

213. The average of 10 numbers is 7. If each number is multiplied by 12, then the average of the new set of numbers will be
(a) 7 (b) 19
(c) 82 (d) 84

214. 5 years ago, the average age of A, B, C and D was 45 years. With E joining them now, the average age of all the five is 49 years. How old is E?
(a) 25 years (b) 40 years
(c) 45 years (d) 64 years

215. The average expenditure of a man for the first five months of a year is Rs. 5,000 and for the next seven months is Rs. 2,300 during a year. His average monthly expenditure is:
(a) Rs. 5,000 (b) Rs. 5,446
(c) Rs. 3,425 (d) Rs. 5,600

YEAR : 2008

216. In a certain year, the average monthly income of a person was Rs. 3,400. For the first eight months of the years, his average monthly income was Rs. 3,160 and for the last five months, it was Rs. 4,120. His income in the eighth month of the year was:
(a) Rs. 3,160 (b) Rs. 5,080
(c) Rs. 15,520 (d) Rs. 5,520

217. The average of nine consecutive odd numbers is 53. The least odd number is:
(a) 22 (b) 27
(c) 35 (d) 45

218. The average per day income of A, B and C is Rs. 450. If the average per day income of A and B be Rs. 400 and that of B and C be Rs. 430, the per day income of B is:
(a) Rs. 300 (b) Rs. 310
(c) Rs. 415 (d) Rs. 425

219. The average monthly income of A and B is Rs. 15,050, the average monthly income of B and C is Rs. 15,350 and the average income of A and C is Rs. 15,200. The monthly income of A is.
(a) Rs. 15,200 (b) Rs. 14,900
(c) Rs. 15,500 (d) Rs. 15,900

(SSC CPO 20-03-2016, Morning)

220. The average age of a class is 15.8 years. The average age of the boys in the class is 16.4 years while that of the girls is 15.4 years. The ratio of boys to girls in the class is
(a) 3 : 5 (b) 2 : 3
(c) 3 : 4 (d) 1 : 2

(SSC CPO 20-03-2016, Morning)

221. The average age of husband, wife and their child 3 years ago was 27 years and that of wife and the child 5 years ago was 20 years. The present age of the husband is:
(a) 40 years
(b) 35 years
(c) None of the options
(d) 50 years

(SSC CPO 20-03-2016, Evening)

222. If the difference between the average of x, y and y, z is 12, then the difference between x and z is:
(a) 6 (b) 48
(c) 24 (d) 12

(SSC CPO 20-03-2016, Evening)

223. The ratio of the number of players in the three cricket teams A, B, and C is 2:5:3. If the ratio of number of runs scored per player for each of the three teams A, B, and C, is 30: 17: 25 respectively, then what is the average number of runs scored per player across all the three teams collectively?
(a) 20 (b) 21
(c) 22 (d) 23

(SSC CPO(Re) 04-06-2016, Morning)

224. If the average of 5 consecutive integers is x then, find the average of next to next 5 consecutive integers.
(a) x + 5
(b) x + 5
(c) x + 10
(d) x + 25

(SSC CPO(Re) 05-06-2016, Evening)

225. The average age of 7 members of a family is 40 years. In the family, there are three men, three women and one boy. If the average age of three men is 48 years and average age of three women is 44 years, then the age of the boy is:
(a) 6 years
(b) 2 years
(c) 4 years
(d) 8 years

(SSC CPO(Re) 06-06-2016, Morning)

226. The average temperature on Tuesday, Wednesday and Thursday was 41 degrees, and on Wednesday, Thursday and Friday was 40 degrees. If on Friday it was exactly 39 degrees, then what was the temperature on Tuesday?

(a) 42 degrees
(b) 46 degrees
(c) 23 degrees
(d) 26 degrees

(SSC CPO(Re) 06-06-2016, Evening)

227. The average of five numbers is 7. If three new numbers would be added, then the new average comes out to be 8.5. What is the average of those three new numbers?

(a) 9 (b) 10.5
(c) 11 (d) 11.5

(SSC CPO(Re) 06-06-2016, Evening)

228. The average salary of all the associates in a team is 16000. The average salary of 7 senior associates is 24000 and the average salary of the rest is 12000. How many associates work in that team?

(a) 21 (b) 22
(c) 23 (d) 24

(SSC CPO(Re) 07-06-2016, Morning)

229. An elevator can carry maximum of 16 passengers with an average weight of 80 kg. However, four boys more than the maximum carrying capacity of the elevator entered it making the average weight as 86 kg and overloading the elevator. What is the average weight of those four boys?

(a) 112 kg (b) 108 kg
(c) 110 kg (d) 98 kg

(SSC CPO(Re) 07-06-2016, Morning)

230. A set A consists of integers 27, 28, 30 and 33. If integer k is included in the set, the average of set A will increase by 30%. What is the value of integer K?

(a) 68 (b) 79
(c) 73.75 (d) 75.25

(SSC CPO(Re) 07-06-2016, Evening)

231. The average age of a family with 5 members is 28. If one of the members of age 20 is excluded the average age of the family becomes-

(a) 25 (b) 20
(c) 30 (d) 24

(SSC CPO(Re) 07-06-2016, Evening)

232. The average of the first 3 whole numbers in a given series is 24 and the average of the remaining whole numbers is 18. What will be the average of all the numbers of this series?

(a) Less than 18
(b) Between 18 and 24
(c) More than 24
(d) Cannot be determined

(SSC CPO(Re) 08-06-2016, Morning)

233. The average rainfall for a week excluding Saturday was 0.5 cm. But there was a heavy rain on Saturday and the average rainfall for the week raised by 1.5 cm. Then the rainfall on Saturday is:

(a) 6 cm (b) 7.5 cm
(c) 11 cm (d) 6.5 cm

(SSC CPO(Re) 08-06-2016, Evening)

234. The average marks of a class of 35 children is 35. the marks of one of the student, who got 35, was incorrectly entered as 65. What is the correct average of the class?

(a) 33.76 (b) 34.14
(c) 35.24 (d) 36.50

(SSC CPO(Re) 10-06-2016, Evening)

235. The average age of 36 students in a group is 14 years. When the teacher's age is included in it, the average increases by one year. The teacher's age in years is

(a) 31 (b) 51
(c) 36 (d) 50

(SSC CGL Pre Exam 2016)

236. The average age of a class of 39 students is 15 years. If the age of the teacher is included, then the average increases by 3 months. Find the age of the teacher.

(a) 30 (b) 25
(c) 35 (d) 40

(SSC CGL Pre Exam 2016)

237. The average of 15 numbers is 7. If the average of the first 8 numbers is 6.5 and the average of the last 8 numbers is 8.5 then middle number is

(a) 10
(b) 23
(c) 13
(d) 15

(SSC CGL Pre Exam 2016)

238. If the Arithmetic mean of 7,5,13,x and 9 is 10, then the value of x is

(a) 10 (b) 12
(c) 14 (d) 16

(SSC CGL Pre Exam 2016)

239. The average weight of 10 parcels is 1.7 kg. Addition of a new parcel reduces the average weight by 60 gram. What is the weight (in kg) of the new parcel?

(a) 1.04 (b) 1.08
(c) 1.4 (d) 1.8

(SSC CGL Pre Exam 2016)

240. The average marks obtained by a class of 60 students is 65. The average marks of half of the students is found to be 85. The average marks of the remaining students is

(a) 35 (b) 45
(c) 55 (d) 65

(SSC CGL Pre Exam 2016)

241. A student, by mistake wrote 64 in place of 46 as a number at the time of finding the average of 10 given numbers & got the average as 50. The correct average of the number is

(a) 48.2 (b) 48
(c) 48.1 (d) 49

(SSC CGL Pre Exam 2016)

242. The average of 9 observations was found to be 35. Later on, it was detected that an observation 81 was misread as 18. The correct average of the observations is

(a) 28 (b) 42
(c) 32 (d) 45

(SSC CGL Pre Exam 2016)

243. The average temperature of Monday, Tuesday, Wednesday and Thursday is 60°, the average for Tuesday, Wednesday, Thursday and Friday is 63°; if the ratio of temperature for Monday and Friday is 21 : 25, then what is the temperature of Friday?

(a) 70° (b) 73°

(c) 75° (d) 78°

(SSC CGL Pre Exam 2016)

244. The average height of 30 boys out of a class of 50 is 160 cm. If the average height of the remaining boys is 165 cm, the average height of the whole class (in cm) is:

(a) 161 (b) 162

(c) 163 (d) 164

(SSC CGL Pre Exam 2016)

245. The mean of 100 observa-tions was calculated as 40. It was found later on that one of the observation was misread as 83 instead of 53. The correct mean is:

(a) 39 (b) 39.7

(c) 40.3 (d) 42.7

(SSC CGL Pre Exam 2016)

246. The average of a,b,c is 20 and that of b,c,d is 25; if d=30, then the value of a is

(a) 25 (b) 45

(c) 30 (d) 15

(SSC CGL Pre Exam 2016)

247. The average monthly salary of 19 members of a group is ₹ 16000. If one more member whose monthly salary is ₹ 20,000 has joined the group, then the average salary of the group is

(a) ₹ 18250 (b) ₹ 16200

(c) ₹ 18000 (d) ₹ 16250

(SSC CGL Pre Exam 2016)

248. Average runs scored by 11 players of a cricket team is 23 runs. If the first player scored 113 runs. Find the average runs of the remaining players.

(a) 8 runs (b) 12 runs

(c) 14 runs (d) 27 runs

(SSC CGL Pre Exam 2016)

249. The average age of 10 children is 9 years 9 months. The average of 9 children is 8 years 11 months. What is the age of the tenth child?

(a) 17 years 3 months

(b) 18 years 4 months

(c) 17 years 5 months

(d) 18 years 3 months

(SSC CGL Pre Exam 2016)

250. The average weight of A, B and C is 45 kg. If the average weight of A and B be 40 kg and that of B and C be 43 kg then the weight of B is.

(a) 31 kg (b) 32 kg

(c) 29.5 kg (d) 35 kg

(SSC CGL Mains Exam 2016)

251. The batting average for 40 inings of a cricket player is 50 runs . His highest score exceeds his lowest score by 172 runs. If these two innings are excluded, the average of the remaining 38 innings is 48 runs. The highest score of the player is

(a) 165 (b) 170

(c) 172 (d) 174

(SSC CGL Mains Exam 2016)

252. The average of 7 consecutive number is 20. The largest of these number is

(a) 20 (b) 23

(c) 24 (d) 26

(SSC CGL Mains Exam 2016)

253. Mukesh has twice as much money as Soham. Soham has 50% more money than pankaj. If the average money with them is Rs. 110, then Mukesh has

(a) 155 (b) 160

(c) 180 (d) 175

(SSC CGL Mains Exam 2016)

254. The average daily income of 7 men, 11 woman and 2 boys is Rs. 257. 50. If the average daily income of the men is Rs. 10 more than that of woman and the average daily income of the women is Rs. 10 more than that of boys the average daily in-come of a man is

(a) Rs. 277.5 (b) Rs. 250

(c) Rs. 265 (d) Rs. 257

(SSC CGL Mains Exam 2016)

255. A batman has a certain average of runs for 12 innings. In the 13th inning he scores 96 runs there by increasing his average by 5 runs. What will be his average after 13th inning?

(a) 28 (b) 32

(c) 36 (d) 42

(SSC CGL Mains Exam 2016)

256. A team of 8 persons joins in a shooting competition. The best marksman scored 85 points. If he had scored 92 points, the average score for the team would have been 84. The number of points the team scored was

(a) 672 (b) 665

(c) 645 (d) 588

(SSC CGL Mains Exam 2016)

257. A librarian purchased 60 story books for his library. But he found that he could get 4 extra books by spending ₹ 336 more and then the overall average price per book would be reduced by Rupees 1. The previous average price of each book was

(a) ₹ 84 (b) ₹ 83

(c) ₹ 68 (d) ₹ 100

(SSC CGL Mains Exam 2016)

258. In an exam, the average marks obtained by John in English, Math, Hindi and Drawing were 50. His average mark in Maths, Science, Social Studies and Craft were 70. If the averge mark in all seven subjects is 58, his score in Maths was

(a) 50 (b) 52

(c) 60 (d) 74

(SSC CGL Mains Exam 2016)

259. The average weight of 3 men, A, B and C is 84 kg. Another man D joins the group and the average now becomes 80 kg. If another man E whose weight is 3 kg more than that of D, replaces A then the average weight of B, C, D and E becomes 79 kg. What is the weight of A?

(a) 70 kg. (b) 72 kg.

(c) 75 kg. (d) 80 kg.

(SSC CGL Mains Exam 2016)

260. The average monthly salary of all the employees in a factory is ₹ 8840. If the average salary of all the officers is ₹15000 and that of the remaining employees is ₹ 8000 then what is the percentage of the officers among the employees?

(a) 12% (b) 15%

(c) $8\frac{1}{3}\%$ (d) 16%

(SSC CGL Mains Exam 2016)

261. An hour-long test has 60 problems. If a student completes 30 problem in 25 minutes, then the required seconds he has taken on average for computing each of the remaining problems is

(a) 70 seconds (b) 50 seconds

(c) 40 seconds (d) 30 seconds

(SSC CGL Mains Exam 2016)

262. A and B have their annual average income ₹ 80,000. B and C have their annual average income ₹ 75,000. C and A have their annual average income ₹ 78,000. The annual income of A is?

(a) ₹ 81000 (b) ₹ 82000

(c) ₹ 83000 (d) ₹ 84000

(SSC CGL Mains Exam 2016)

263. A car travels from A to B with 40 km/h and returns from B to A with 60 km/h. Its average speed during the whole journey is

(a) 48 km/h (b) 50 km/h

(c) 45 km/h (d) 60 km/h

(SSC CGL Mains Exam 2016)

264. In the first 10 overs of a cricket game, the run rate was only 3.2. The run rate in the remaining 40 overs to reach the target of 282 runs is

(a) 6.4 (b) 6.3

(c) 6.25 (d) 6.5

(SSC CGL Mains Exam 2016)

265. The average (artihmetic mean) amount of savings of ten students is ₹ 600. Three of the students have no savings at all and each of the others have at least ₹ 250 including Nihar, who has exactly ₹ 1300. The largest amount in ₹ that any one student could have is

(a) 3250 (b) 3450

(c) 3650 (d) 3850

(SSC CGL Mains Exam 2016)

266. An Army of 12000 consists of Europeans and Indian. The average height of European is 5 feet 10 inches and that of an Indian is 5 feet 9 inches and that of the whole army is 5 feet $9\frac{3}{4}$ inches. Then the number of Indians in the army is?

(a) 3000

(b) 4000

(c) 5500

(d) 2700

(SSC CGL Mains Exam 2016)

267. The sum of three consective even numbers is 28 more than the average of these three numbers.Then the smallest of these numbers is

(a) 6 (b) 16

(c) 12 (d) 14

(SSC CGL Mains Exam 2016)

268. Fifteen movie theatres average 600 customers per theatre per day. If six of the theatres close down but the total theatre attendence stays the same, then the average daily attendendce per the remaining theatres is

(a) 900 (b) 1000

(c) 1100 (d) 1200

(SSC CGL Mains Exam 2016)

ANSWER KEY

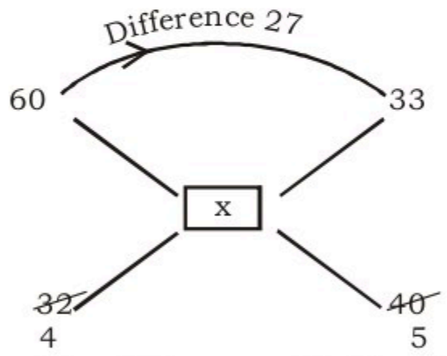
1. (b)	31. (a)	61. (a)	91. (c)	121. (a)	181. (d)	151. (b)	211. (c)	241. (a)
2. (b)	32. (c)	62. (b)	92. (b)	122. (c)	182. (a)	152. (b)	212. (d)	242. (b)
3. (c)	33. (a)	63. (d)	93. (b)	123. (b)	183. (c)	153. (b)	213. (d)	243. (c)
4. (b)	34. (c)	64. (d)	94. (a)	124. (a)	184. (b)	154. (b)	214. (c)	244. (b)
5. (d)	35. (d)	65. (b)	95. (a)	125. (b)	185. (a)	155. (c)	215. (c)	245. (b)
6. (b)	36. (c)	66. (b)	96. (a)	126. (b)	186. (a)	156. (b)	216. (b)	246. (d)
7. (d)	37. (c)	67. (b)	97. (a)	127. (b)	187. (b)	157. (d)	217. (d)	247. (b)
8. (c)	38. (c)	68. (b)	98. (d)	128. (b)	188. (a)	158. (a)	218. (b)	248. (c)
9. (d)	39. (b)	69. (b)	99. (c)	129. (d)	189. (d)	159. (c)	219. (b)	249. (a)
10. (c)	40. (c)	70. (d)	100. (c)	130. (b)	190. (c)	160. (c)	220. (b)	250. (a)
11. (a)	41. (a)	71. (d)	101. (b)	131. (c)	191. (d)	161. (c)	221. (a)	251. (d)
12. (d)	42. (c)	72. (c)	102. (c)	132. (c)	192. (d)	162. (c)	222. (c)	252. (b)
13. (a)	43. (c)	73. (a)	103. (b)	133. (c)	193. (a)	163. (a)	223. (c)	253. (c)
14. (d)	44. (d)	74. (b)	104. (c)	134. (c)	194. (d)	164. (b)	224. (c)	254. (c)
15. (b)	45. (a)	75. (d)	105. (a)	135. (a)	195. (a)	165. (a)	225. (c)	255. (c)
16. (c)	46. (a)	76. (c)	106. (d)	136. (b)	196. (a)	166. (d)	226. (a)	256. (b)
17. (d)	47. (b)	77. (a)	107. (c)	137. (b)	197. (b)	167. (d)	227. (c)	257. (d)
18. (c)	48. (c)	78. (a)	108. (c)	138. (b)	198. (a)	168. (c)	228. (a)	259. (c)
19. (d)	49. (a)	79. (b)	109. (a)	139. (c)	199. (a)	169. (a)	229. (c)	260. (a)
20. (c)	50. (b)	80. (c)	110. (a)	140. (c)	200. (b)	170. (c)	230. (c)	261. (a)
21. (c)	51. (c)	81. (a)	111. (a)	141. (c)	201. (b)	171. (c)	231. (c)	262. (c)
22. (a)	52. (c)	82. (d)	112. (d)	142. (d)	202. (d)	172. (b)	232. (b)	263. (a)
23. (a)	53. (d)	83. (a)	113. (c)	143. (c)	203. (c)	173. (a)	233. (c)	264. (c)
24. (d)	54. (b)	84. (a)	114. (c)	144. (c)	204. (c)	174. (c)	234. (b)	265. (b)
25. (c)	55. (a)	85. (c)	115. (d)	145. (b)	205. (a)	175. (c)	235. (b)	266. (a)
26. (b)	56. (a)	86. (c)	116. (a)	146. (d)	206. (c)	176. (b)	236. (b)	267. (c)
27. (a)	57. (a)	87. (c)	117. (c)	147. (d)	207. (c)	177. (b)	237. (d)	268. (b)
28. (c)	58. (d)	88. (c)	118. (a)	148. (b)	208. (a)	178. (b)	238. (d)	
29. (b)	59. (d)	89. (b)	119. (a)	149. (d)	209. (c)	179. (c)	239. (a)	
30. (c)	60. (b)	90. (c)	120. (c)	150. (b)	210. (c)	180. (b)	240. (b)	

EXPLANATION

1. (b) **Note:** Detailed solution of this type of question given earlier

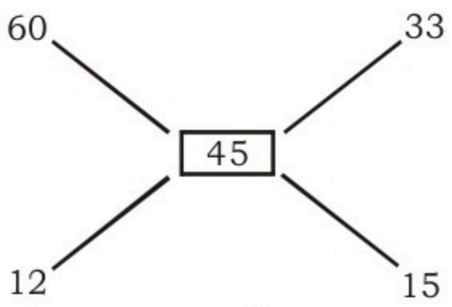
Now, choose alligation method to save the valuable time

According to the question



27 units difference divides into 4 : 5

∴ we get, (4,5) = (12,15)



∴ Average marks are

= **45**

Alternate

According to the question

$$= \frac{32\times 60 + 40\times 33}{72}$$

$$= \frac{1920+1320}{72} = \frac{3240}{72}$$

= 45

2. (b) According to the question

$$\text{Average} = \frac{13\times 70 + 15\times 60 + 12\times 65}{40}$$

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

= 64. 75

3. (c) According to the question

	Big		medium		Small
Price	15		10		5
	×		×		×
Quantity	3		2		5
	45	+	20	+	25 = 90

∴ Average cost = $\frac{90}{10}$ = **9**

4. (b) According to the question

Average

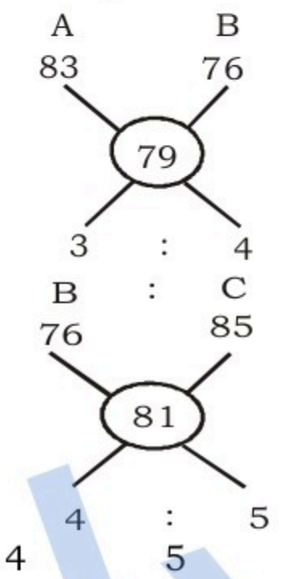
$$= \frac{7\times 800 + 8\times 1000 + 5\times 1200}{20}$$

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

$$= \frac{19600}{20}$$

∴ Average = **Rs. 980**

5. (d)

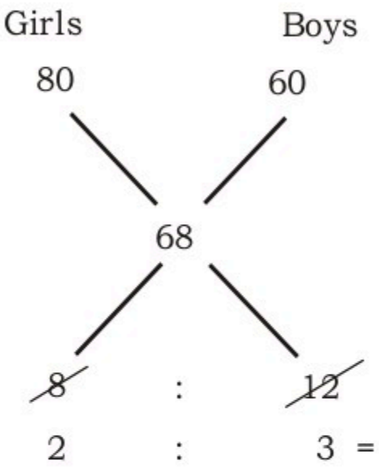


A : B : C = 3 : 4 : 5

$$\text{Average} = \frac{(83\times 3)+(76\times 4)+(85\times 5)}{12}$$

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

6. (b) Use alligation and Mixture:



Percentage of boys in the class

= $\frac{3}{5}\times 100$ = **60 %**

7. (d) let the weight of 1 student = x kg

the weight to 15 student = $15x$ kg

Let the weight of new comer = y kg.

∴ According to the question.

$15x - 40 + y = 15(x + 1.5)$

$15x - 40 + y = 15x + 22.5$

y = 62.5 kg

Alternate

Increase in weight of every student

= 1.5kg

∴ increase in weight of 15 students

= 15 × 1.5 = 22. 5 kg

weight of replaced student = 40 kg.

∴ weight of new students = weight of replaced student + increase in weight of 15 students

= 40 + 22.5 = 62.5 kg

8. (c) According to the question

The average weight of 50 students was = 45 kg

when one student leaves the class the avg. reduced by 100 gm

∴ Total weight reduction due to 49 students

= 49 × 100 = 4900 gm = 4.9 kg

∴ The weight of student who left

= 45+ 4.9 = 49.9 kg

9. (d) According to the question

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

∴ Total increase in weight

$= 12\times\frac{1}{3} = 4$ kg.

weight of old Man = 55 kg

weight of new Man = 55 + 4

= **59kg**

10. (c) According to the question.

Total increase in age = 3 × 8

= 24 years

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 3 years

∴ Average age of new person

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

11. (a) Age of retired teacher

$= 25 + (10 \times 3) = 25 + 30 = 55$ years

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

According to the question

$$\frac{x - 35}{20} = 0.75$$

$$\Rightarrow x - 35 = 15$$

$$x = 50 \text{ kg.}$$

13. (a) Sum of age of 40 boys

$= 16 \times 40 = 640$

New age of 40 boys

$= 15.875 \times 40 = 635$

Difference = 640–635

= 5 years.

$17 - x = 5$

x = 17 – 5 = **12 years Ans.**

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

$$\frac{17 - x}{40} = 0.125$$

$17 - x = 5$

$x = 12$

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

and the age of two new men = y years

According to the question

$8x - 21 - 23 + y = 8(x + 2)$

$8x - 44 + y = 8x + 16$

$y = 16 + 44$

$y = 60$ years.

Average age of new men = $\frac{y}{2}$

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

Alternate:

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

$$\frac{\text{sum of new men} - 44}{8} = 2$$

sum of ages of new men

$= 16 + 44 = 60$

Average of new men = **30 years**

15. (b)Let the age of younger boy = x years

then the age of older boy = $(x + 5)$

According to the question

$(30 \times 15) - 20 + x + x + 5 = 31 \times 15$

$430 + 2x + 5 = 465$

$2x = 30$

x = **15 years Ans.**

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

According to the question,

$12 \times 1.8 + x = 13 \times 1.75$

$21.6 + x = 22.75$

$x = 1.15$ kg.

17. (d) Let the weight of 25 person = $25x$ kg.

and the new Person's weight = y kg.

According to the question,

$25x - 60 + y = 25(x + 1)$

$25x - 60 + y = 25x + 25$

y = **85 kg.**

18. (c) Total age of 2 players

= 18 + 20 = 38 years

Increased years = 2 × 11

= 22 months

Age of new players

= 38 years + 22 month = 39 years 10 months

Average = **19 years 11 months**

Alternate:

Let the total age of 11 players = $11x$

then the sum of age of new players = y years

According to question,

$$11x + y - 18 - 20 = 11\left(x + \frac{1}{6}\right)$$

$$11x + y - 38 = 11x + \frac{11}{6}$$

$$y = \frac{11}{6} + 38$$

$$y = \frac{239}{6}$$

$$\text{Average} = \frac{239}{2 \times 6} = \frac{239}{12}$$

= 19 years 11 months

19. (d) According to question,

Required Average

$$= \frac{6 \times 50 + 51 \times 2 + 55 \times 2}{10} = \frac{300 + 212}{10}$$

$$= \frac{512}{10} = \textbf{51.2 kg.}$$

20. (c) Let the age of New boy be is x years.

and the average age of 24 students of class is y

According to the question,

$$24y - 10 + x = 24\left(y + \frac{1}{6}\right)$$

$24y - 10 + x = 24y + 4$

x = **14 years**

21. (c) According to the question

The avg. of 10 numbers is = 15

$\therefore$ Sum of 10 numbers are = 15 × 10 = 150

He mistakenly writes one number 26 instead of 36.

$\therefore$ difference = 36 – 26 = 10

$\therefore$ Actual sum of 10 numbers = 150 + 10 = 160

Actual average = $\frac{160}{10}$ = **16**

22. (a) Let us consider by mistake he writes 10th number with its digits interchanged.

$$\therefore \frac{10x + y - (10y + x)}{10} = 1.8$$

(In this remaining nine numbers are same and they cancel out)

$\therefore 10x + y - 10y - x = 18$

$9x - 9y = 18$

$x - y$ = **2**

23. (a) let the number of students = x

According to the question

$$\frac{50x - 100 \times 30}{x} = 45$$

$50x - 3000 = 45x$

$5x = 3000$

x = **600**

24. (d) According to the question

avg. weight of a 20 boys = 89.4 kg

Sum of a weight of 20 boys = 89.4 × 20 = 1788kg

It was later discovered that one weight was misread as 78 kg instead of 87 kg

$\therefore$ difference = 87 – 78 = 9 kg

$\therefore$ Actual sum of a weight of 20 boys

= 1788 + 9 = 1797 kg

Actual avg. = $\frac{1797}{20}$ = 89.85 kg

25. (c) According to the question
The mean of 50 no. is = 30
Sum of 50 no. is
= 50 × 30 = 1500
later it 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 numbers is = 1500 – 36 = 1464

$\therefore$ Actual avg. = $\frac{1464}{50}$ = **29.28**

Alternate

Sum of wrongly entered numbers
= 82 + 13 = 95
Sum of correct numbers
= 28 + 31 = 59
Required average

$= 30 + \frac{59 - 95}{50} = 30 - 0.72$

= 29.28

26. (b) According to the question
avg. 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 avg. = $\frac{350}{25}$ = **14**

27. (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 avg of 10 numbers

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

Alternate

Sum of correct numbers
= 15 + 23 = 38
sum of incorrect numbers
= 51 + 32 = 83
Difference = 83 – 38 = 45
The difference of 45 effect the

10 numbers = $\frac{45}{10}$ = 4.5

wrong average = 30
correct average = 30 – 4.5
= 25.5

28. (c) According to the question
Wrong numbers = 79
Correct numbers = 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**

29. (b) According to the question
mean of 100 items is = 46
Sum of 100 items = 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 observations are = 90

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

Alternate

Subtract the misread and add the correct from the sum.
Sum = 100 × 46 = 4600
New sum = 4600 – (61 + 34) + (16+ 43) = 4564
New number of observations = 90

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

30. (c) According to the question
Actual number = 17
New number = 31
Difference = 37 – 17 = 14
Difference '14' effects the

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

∵ Present average = 18
∴ New Average = 18 + 2 = **20**

31. (a) According to the question
let the number of students = x

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

$60x - 3000 = 45x$
$15x = 3000$
x = **200**

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

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

old average = 80
new average = 80 – 1 = **79**

33. (a) According to the question
let as consider by mistake he writes 10th number with its digits interchanged

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

∴ In these remaining nine numbers are same and they cancel out

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

$9x - 9y = 36$
$x - y$ = **4**

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

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

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

35. (d) According to the question.
Wrong marks = 42 + 74 = 116
correct marks = 56 + 32 = 88
Difference= 116 – 88
= 28 marks
∵ This difference effect the 14

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

and, Incorrect average = 71
∴ correct average = 71 – 2 = 69

36. (c) According to the question

Correct average= $\frac{20 \times 56 - 64 + 61}{20}$

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

37. (c) According to the question,
Correct observation

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

$$= \frac{1800 + 25}{50} = \frac{1825}{50} = \mathbf{36.5}$$

38. (c) According to the question,
correct Average

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

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

39. (b) According to the question
Average age of eleven cricket players is 20 years
total age of eleven cricket players is = 20 × 11 = 220
If the age of coach included then the average age increased by 10% **i.e.**

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

∴ Total age of eleven players and coach = 22× 12 = 264 year
∴ Age of coach
= 264 – 220 = **44 years**

40. (c) According to the question
mean of 9 observations is = 16
sum of all observations is
= 16 × 9 = 144
when one more observation included the new mean = 17
Sum of 10 observations
= 10 × 17 = 170
∴ 10^{th} observation = 170 – 144 = 26

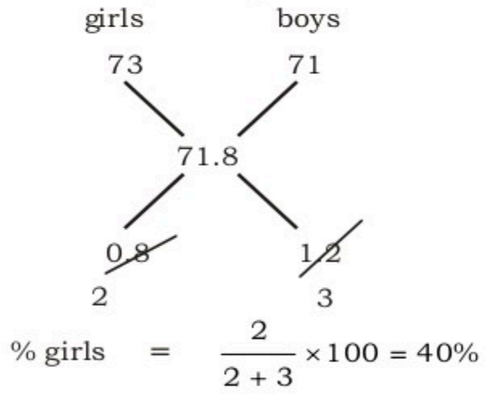
41. (a) let the number of girls = x
and, the number of boys = y
According to the question
$73x + 71y = 71.8(x + y)$
$1.2x = 0.8y$

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

$$\therefore \text{ girls\%} = \frac{2}{2+3} \times 100$$

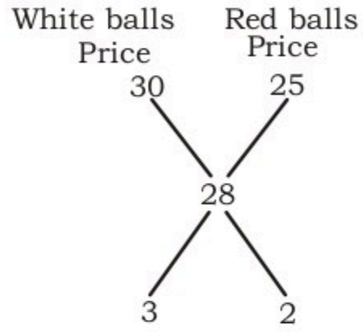
$$= \frac{2}{5} \times 100 = \mathbf{40\%}$$

Alternate by Alligation



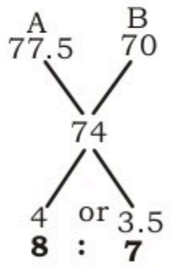
$$\% \text{ girls} = \frac{2}{2+3} \times 100 = 40\%$$

42. (c) According to the question
By using alligation method



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

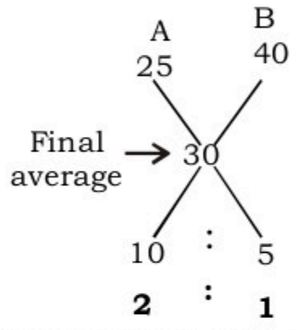
43. (c) According to the question



By using alligation method therefore, the ratio of number of students in section A and section B = 8 : 7

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

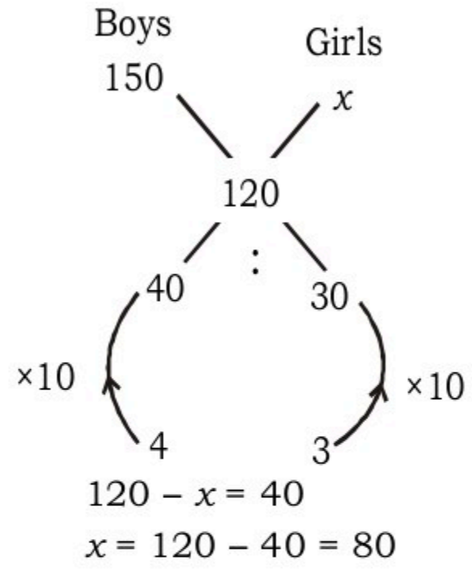
45. (a) According to the question
By applying alligation



46. (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. 240
Average of Girls

$$= \frac{240}{3} = \mathbf{Rs.\ 80}$$

Alternate:
By alligation



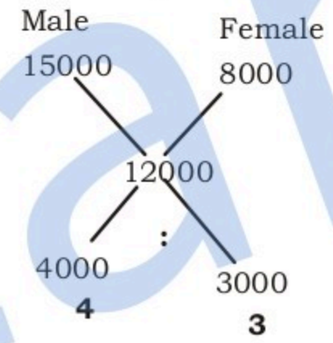
120 – x = 40
x = 120 – 40 = 80

47. (b) According to the question.
Average weight of whole class

$$= \frac{42 \times 25 + 28 \times 40}{70}$$

$$= \frac{1050 + 1120}{70} = \mathbf{31\ kg}$$

48. (c) According to the question



Therefore, the required ratio = 4 : 3

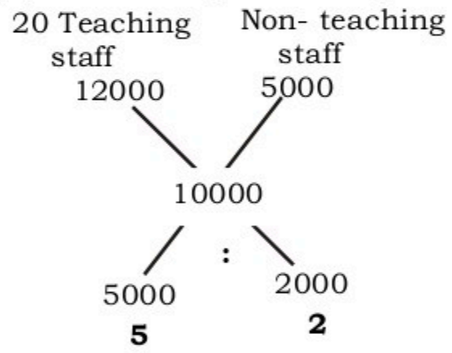
49. (a) According to the question
Average weight of 25 students = 50 kg
Sum of the weight of 25 students = 50 × 25 = 1250 kg
If the class teacher included the average is increased by 1 kg
∴ Average weight of 25 students and teacher = 51 kg
∴ Sum of weight = 26 × 51 = 1326 kg
∴ Class teacher weight =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

Alternate:
If the weight of the class teacher is included the average is increased by 1 kg
∴ Total increased in weight
= 26 × 1 = 26 kg
Note : If the weight of class teacher is same as the average weight of 25 students

then there would have been no effect on average. But the weight of teacher is more than the averge of 25 students weight then average is increased by 1 kg

$\therefore$ Class teacher's weight = 50 + 26 = 76 kg

50. (b) According to the question



5 units $\rightarrow$ 20

1 unit $\rightarrow$ 4

2 units $\rightarrow$ 4 × 2 = 8

$\therefore$ Non- teaching staff = 8

51. (c) let the total number of workers = x

According to the question

$12 \times 400 + (x-12) \times 56 = 60x$

$4800 + 56x - 672 = 60x$

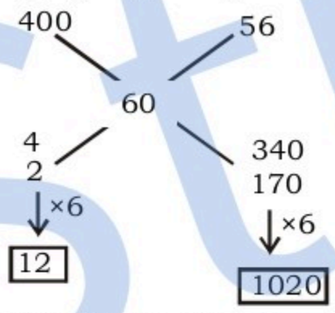
$4128 = 4x$

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

$x = 1032$

Alternate:

By applying alligation;



Total workers = 1020 + 12 = 1032

52. (c) According to the question

Average marks of 40 students is = 86

Sum of marks of 40 students is = 86 × 40 = 3440

$\therefore$ Sum of marks of 35 students is = 85 × 35 = 2975

= 3440 - 2975 = 465

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

53. (d) Average of whole class

$\frac{85 \times 4 + 87 \times 5}{5+4} = \frac{340+435}{9}$

$= \frac{775}{9}$ = **86.1**

54. (b) Let the average weight of 12 person is = x and weight of 12 persons

According to the question,

$\frac{11 \times 95 + x + 33}{12} = x$

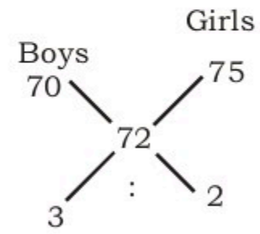
$1045 + x + 33 = 12x$

$11x = 1078$

$x = 98$

$\therefore$ The weight of 12th person is = 98 + 33 = **131 kg**

55. (a) By alligation method



3R+2R = 5R

5R = 50, 1R = 10

Therefore number of boys in the class = 3R = 3×10 = 30

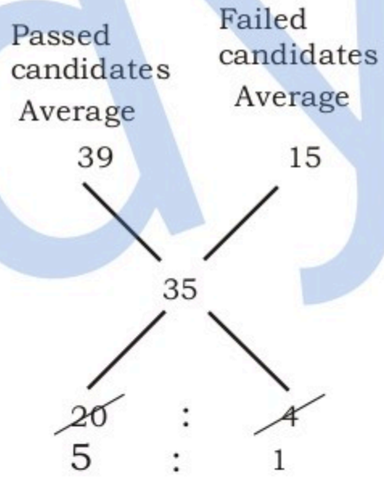
56. (a) Sum of age of four brothers = 12 × 4 = 48

Sum of age of four brothers and their mother = 17 × 5 = 85

Mother's age = 85 – 48

= **37 Ans.**

57. (a)



Passed candidates : Failed candidates = 5 : 1

i.e. 6 units = 120

5 units = $\frac{120 \times 5}{6}$

= **100 candidates Ans.**

Alternate:

Let the no. of candidates who passed the examination = x

then, the number of failed candidates = (120 - x)

According to the question,

$\Rightarrow 120 \times 35 = x \times 39 + (120 - x)\,15$

$\Rightarrow 4200 = 39x + 1800 - 15x$

$\Rightarrow$ **x = 100**

58. (d) According to the question,

Average = $\frac{20 \times 12 + 5 \times 7}{25}$

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

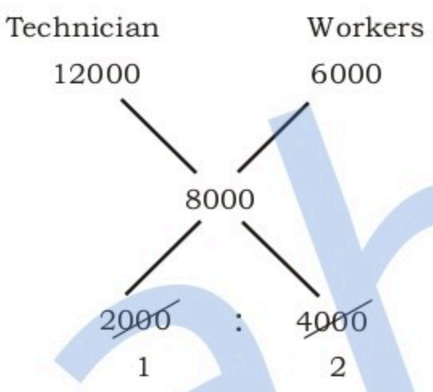
59. (d) According to the question,

Average of whole class

$= \frac{10 \times 12.5 + 20 \times 13.1}{30}$

$= \frac{125+262}{30} = \frac{387}{30}$ = **12.9 years**

60. (b) Use mixture & Alligation,



1 = 7

2 = 14

Total workers = 7 + 14 = **21**

Alternate:

Let the number of workers = x

According to the question,

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

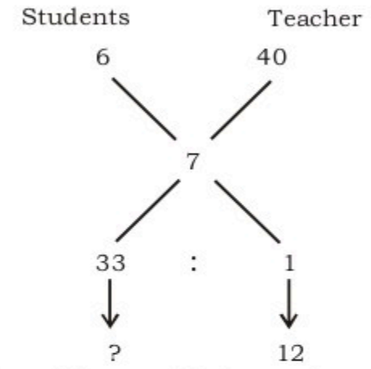
$8000x + 56000 = 84000 + 6000x$

$2000x = 28000$

$x = 14$

$\therefore$ Total workers = 7 + 14 = **21**

61. (a) Use Alligation and Mixture:



33 × 12 = 396 students

62. (b) The total age of 24 boys & teacher is = 25 × 15 = 375 years

Let the teacher's age = x year

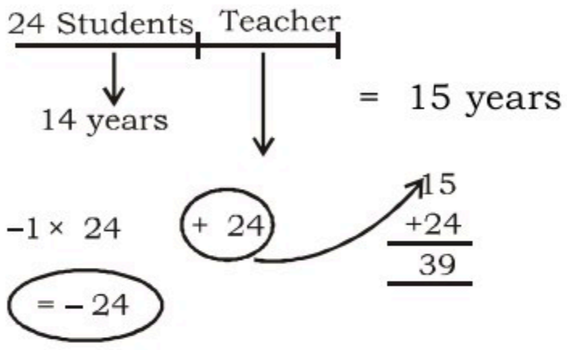
According to the question,

$25 \times 15 = 24 \times 14 + x$

$375 = 336 + x$

x = 39 years

Alternate:



To balance the average of teacher, it must be 24 more than total average i.e = 39 years

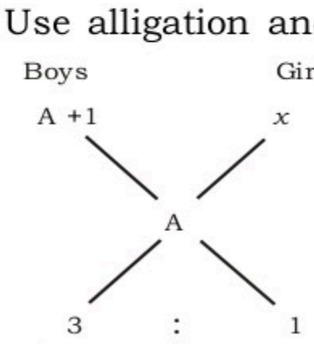
Age of only teacher = 39 years

As it is only 1 person.

∴ age of teachers

= 39 years

63. (d) Use alligation and Mixture:



$A - x = 3$

$x =$ **A – 3**

Alternate:

Let the average score of girls is = x

According to the question,

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

$3A + 3 + x = 4A$

$x =$ **A – 3**

64. (d) Let the age of teacher = x years

According to the question,

$30 \times 9 + x = 31 \times 10$

$270 + x = 310$

$x = 40$ yrs

65. (b) According to the question

Average age of 40 students of class is = 18 years

let the average age of 20 new students = x years

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

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

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

$720 + 20x = 1110$

$20x = 390$

$x = 19.5$

∴ Average age of newly admitted students is

= 19 years 6 month

66. (b) According to the question

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

Husband + wife = 54 years

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

Husband + wife + child = 63 years

Husband + wife + child = (husband + wife + child) – (Husband + wife) = 63 – 54 = 9 year increase

∴ 9 years divide among husband, wife and child equally

∴ age of child = **3 years**

67. (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**

68. (b) According to the question

$$\frac{H + W}{2} = 25 \text{ years}$$

H + W = 50 years

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

H + W + C = **60 years**

∴ Sum of present age of H + W

= 50 + 4×2 = 58 years

∴ Child's age = 2 years

69. (b) According to the question

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

P + Q = 50 .....(i) (5 years ago)

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

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

∴ Present age of P + Q = 50 + 10

= 60 years

Present age of R = 75 – 60

= 15 years

∴ Age of R after 5 years

= 15 + 5 = 20 years

70. (d) According to the question

Average age of a family of 10 members is

= 20 years

Sum of the age of 10 members

If the age of youngest member is = 10 years

Sum of the age of 9 members at the time of birth of youngest member = 200 –10 × 10

= 200 – 100 = 100 years

∴ Average of 9 members is

$$= \frac{100}{9} = 11\frac{1}{9} \text{ years}$$

71. (d) According to the question

A – B = 4y 7m .....(i)

B – C = 3y 4m .....(ii)

(+) (+) (+)

A – C = 7y 11m .....(ii)

Given: when,

C = 5 years 2 months

∴ A = 13 years1 month

B = 8 years 6 months

∴ Average of $\frac{A + B + C}{3}$

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

= **8 years 11 months**

72. (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.

i.e, After 4 years of marriage child was born

∴ Average of (H + W + C)

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

73. (a) According to the question

Average age of 8 members two years ago = 18 years

Sum of age of 8 members two years ago = 144 years

After the addition of a baby the average age of the family is same today.

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

Sum of age of 9 member today = 162 years

In these 2 years the age of 8 members is also increased

Increase in the age of 8 members = 8 × 2 = 16 years

∴ Sum of ages of 8 members today = 144 + 16 = 160 years

∴ Age of child = 162 – 160

= **2 years**

74. (b) According to the question

Due to new comer average age is increased by

= 2 months

Total age increment in 42 boys = 42 × 2 = 84 months or **7 years**

Note: If the age of new comer is same as the boy which was replaced then there is no effect on 2 months

∴ Age of new boy = **10 + 7**

= 17 years

75. (d) According to the question

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

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

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

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

If Ram age = 33 years old.

Put this value in equation (i)

∴ 2C = 51 – 33

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

Put this value in equation (iii)

Wife + 18 = 48

Wife = 48 – 18 = 30

Wife = **30 years old**

76. (c) According to the question

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

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

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

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

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

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**

77. (a) According to the question

Average age of 5 members today = 33 years

Sum of ages of 5 members today = 33 × 5 = 165 years

If the youngest member is 9 year old

∴ Sum of the age of 4 members before the birth of youngest child = 165 – 9 – 4× 9 = 120 years

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

78. (a) According to the question

Average age of 7 children = 12 years

Sum of ages of 7 children = 84 years

If a child aged 6 years died then

Sum of ages of 6 children = 84 – 6 = 78 years

∴ Average = $\frac{78}{6}$ = 13 years

79. (b) According to the question

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

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

80. (c) According to the question

Average age of a family of 5 members 3 year ago = 17 years

sum of ages of a family members = 5 ×17 = 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 = 17 ×6 = 102 years

∴ Sum of age of a family of 5 members at present = 85 + 5× 3 = 85 + 15 = 100 years

∴ Age of child = 102 – 100 = 2 years

81. (a) According to the question

Age(in year):	8	20	26	29	
Number of people:	×3	+ ×2	+ ×m	+ ×1	= 6 + m
Total :	24+	40	+ 26m	+29	= 93+26m

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

93 +26m = 102 + 17m

9m = 9

m = **1**

82. (d) Let the present average is = x years

Total age = $5x$ year

According to the question,

$5x – y + z = 5x – 15$

where y = Replaced member

z = New member

– y + z = –15

y – z = 15

This is the required difference.

83. (a) $\frac{P+Q+R}{3} = R + 5$

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

84. (a) According to the question,

Total age of 30 students = 30 × (14 years 4 months) = $30 \times 14\frac{1}{3}$

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

Total age of (30 + 5) students ((30 + 5)

= 35 (13 years 9 months)

$$= 35 \times 13\frac{3}{4} = \frac{1925}{4} \text{ years}$$

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

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

∴ One of the new five student is = 9 years 11 month old

⇒ Remaining 4 students age

$$= \frac{41 \text{ years } 4 \text{ months}}{4}$$

= 10 years 4 months

85. (c) According to the question,
Average age of 7 persons = 30 years
Sum of age of 7 persons
= 30 × 7 = 210 years
Average age of 5 persons
= 31 years.
Sum of ages of 5 persons = 31 × 5 = 155 years
∴ Sum of age of remaining two persons = 210 – 155
= 55 years
∴ Average of remaining two is
$= \frac{55}{2} = 27\frac{1}{2}$ years.

86. (c) Mother + 6 children
= 12 × 7 ⇒ 84
6 children = 6 ×7 ⇒ 42
age of mother = 42 year

87. (c) Sum of ages of 6 sons of a family = 8 × 6 = 48
Sum of ages of 6 sons and their parents = 8 × 22 =176
Parent's age = 176 – 48 = 128
Father's age – Mother's age = 8
$x - y = 8$
$x + y = 128$
$x = 68,$
$y = 60$
∴ Mother's age = 60 years

88. (c) 99 × 99 + k = 100 × 100
k = 199
Alternate:
In 100th innings average increased by 1
Runs scored in 100th innings
= 100 × 1 + 99 = 199

89 (b) Sum of ages of M + F + S
= 42 × 3 = 126 years
(at the time of marriage)
Sum of ages of M + F + S + B + C = 36 × 5 = 180 years (after 6 years)
Sum of ages of (M + F + S) after 6 years = 126 + 3 × 6 = 126 + 8 = 144years
sum of ages of (B + C)(after 6 years)=180– 144 = 36 years
B + 5 = 36
∴ C = 5 (age of child will become 5 years after 6 years)
B = 31
⇒ age of bride after 6 years
∴ age of bride at the time of marriage = 31 – 6 = 25 years.

90. (c) let the four members of a family are A,B,C and D 'D' is the youngest member
According to the question
$\therefore \frac{A+B+C+D}{4} = 36$
Present age = A + B + C + D = 144
Since the present age of the youngest member 'D' = 12 years
∴ The age of the family at the time of birth of youngest member is = 144 – 12 × 4
= 144 – 48 = 96
∴ The average age of the three members A,B and C is
$= \frac{96}{3} = \mathbf{32}$

91. (c) According to the question
Average of five numbers is = 7
Sum of five numbers is = 7 ×5 = 35
Average of eight numbers is = 8.5
Sum of eight numbers is = 8 × 8.5 = 68
33 increase
∴ Avg. of three new numbers
$= \frac{33}{3} = 11$

92. (b) According to the question
Avg. age of nine students and teacher = 16 years
then, the total Average age of students and teacher
= 16 × 10 = 160
and, Avg age of first 4 students
= 19 × 4 = 76
Avg age of last 5 students
= 10 × 5 = 50
∴ Teacher's age
= 160 – 76 – 50 = 34 years

93. (b) let the five persons be A, B, C, D, E
According to the question
$\frac{A+B+C+D+E}{5} = 38$ kg
A + B + C + D + E = 190 kg .....(i)
$\frac{5\ persons + Boat}{6} = 52$
5 persons + Boat = 312 kg .....(ii)
∴ Boat's weight = 312 – 190
= **122 kg**

94. (a) According to the question
Average of 30 numbers is = 40
Sum of 30 numbers is
= 40 × 30 = 1200
Average of 40 numbers is = 30
Sum of 40 numbers is
= 40 × 30 = 1200
Total average = $\frac{1200+1200}{70}$
$= \frac{2400}{70} = \mathbf{34\frac{2}{7}}$

95. (a) According to the question
Average of 20 numbers is = 15
sum of 20 numbers is = 15 × 20 = 300
Average of first five numbers is = 12
sum of first five numbers is
= 12 × 5 = 60
∴Sum of remaining numbers
= 300 – 60 = 240
Average of remaining
$= \frac{240}{15} = \mathbf{16}$

96. (a) According to the question
Average $= \frac{1.11+0.01+0.101+0.001+0.11}{5}$
$= \frac{1.332}{5} = \mathbf{0.2664}$

97. (a) According to the question
Height of 6 persons
= 6 × 1m 15 cm = 6m 90 cm
Height of 8 persons
= 8 × 1m 10 cm = 8m 80 cm
Height of 6 persons
= 6 × 1 m 12 cm = 6 m 72 cm
Total Height of 20 persons
= 22 m 42 cm
Average = $\frac{22m\ 42cm}{20}$
= **1 m 12.1 cm**

98. (d) According to the question
Average of 11 numbers is = 50
Sum of 11 numbers is = 50 × 11 = 550
$\underbrace{I + II + III + IV + V + VI}_{49 \times 6 = 294}$ $\underbrace{VI + VII + VIII + IX + X + XI}_{52 \times 6 = 312}$
∴ VI number
= 312 + 294 – 550 = **56**

99. (c) According to the question

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

If IV number is = 19

then II + III = 48 – 19 = 29

Put this value in equation (i)

$\therefore$ I = 45 – 29

I = 16

100. (c) According to the question

Average of nine numbers is = 50

Sum of nine numbers is = 50 × 9 = 450

$\underbrace{I + II + III + IV + V + VI}_{54 \times 5 = 270} + \underbrace{VII + VIII + IX}_{52 \times 3 = 156} = 450$

$270 + x + 156 = 450$

x = **24**

101. (b) According to the question

Average marks of 22 candidates is = 45

Sum of marks of 22 candidates is = 45 × 22 = 990

$\underbrace{I \text{ to } X}_{55 \times 10 = 550} + XI + \underbrace{XII \text{ to } XXII}_{40 \times 11 = 440} = 990$

$550 + x + 440 = 990$

$\therefore$ $x + 990 = 990$

$\therefore$ x = **0**

$\therefore$ Marks obtained by 11th candidate = 0 marks

102. (c) According to the question

Mean of 20 items is = 55

Sum of 20 items is

= 55 × 20 = 1100

Two items removed

= 45 + 30 = 75

Now, Sum of 18 items

= 1100 – 75 = 1025

$\therefore$ Average = $\frac{1025}{18}$ = **56.9**

103. (b) According to the question

Average = $\frac{30 \times 16 + 20 \times 15.5}{50}$

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

104. (c) According to the question

$\underbrace{J + F + M + A}_{1800 \times 4 = 7200} + \underbrace{M + J + Ju + A + S + O + N + D}_{2000 \times 8 = 16000}$

$\therefore$ Total Expenditure

= Rs(7200 + 16000) = Rs. 23200

Total Savings = Rs. 5600

Total Income = 23200 + 5600

= Rs. 28800

Monthly Income = $\frac{28800}{12}$

= Rs. 2400

105. (a) According to the question

Average of 50 numbers is = 38

Sum of 50 numbers is

= 38 × 50 = 1900

Two numbers discarded

= 45 + 55 = 100

Sum of 48 numbers

= 1900 – 100 = 1800

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

106. (d) According to the question

Average of six number is = 20

Sum of six number is

= 20 × 6 = 120

one number is removed then

Average of five number is = 15

Sum of five numbers is = 15 × 5 = 75

$\therefore$ Removed number = 120 – 75

= **45**

107. (c) $\underbrace{a + b + c}_{} + d$

$\because$ Average of a, b, c first three = 16

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

Again

$\Rightarrow$ Average of last 3 numbers b, c and d = 15

$\Rightarrow$ then total (b + c + d) = 15 × 3 = 45 ..... (ii)

$\Rightarrow$ from (i) – (ii)

$\Rightarrow$ 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 a = **23**

108. (c) According to the question

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

$\Rightarrow$ 105 = 93 + x

$\Rightarrow$ x = **12**

109. (a) Let the six number be 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 = 23.7 . . (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),

e + f = 23.7 – 7.7 – 6.8

e + f = 9.2

$\therefore$ Average = $\frac{9.2}{2}$ = 4.6

110. (a) Let the numbers in decreasing order be

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

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 last number x – 5

= 32 – 5 = 27

$\Rightarrow$ Difference between first and last number = 32 – 27 = 5

111. (a) Avg. of twelve no. = 15

Sum of twelve no. = 15×12 =180

Avg. of first two no. = 14

Sum of first two no. = 14 × 2 = 28

Sum of first two + Sum of rest = 180

Sum of rest = 180 – 28 = 152

Avg. of rest

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

112. (d) Total Expenditure

= 1200 × 5 + 1300 × 7 = ₹15100

Total Saving = ₹ 2900

Total Income = ₹ 18000

Avg. Income = $\frac{18000}{12}$ = 1500 ₹

113. (c) Total income of 40 persons
= 40×4200 = Rs. 168000
Total income of 35 persons
= 35 × 4000 = Rs. 140000
Now, Total income of 75 persons
= 168000 + 140000
= Rs. 308000
Average income of 75 persons

$$= \frac{308000}{75}$$

$$= \frac{12320}{3} = \textbf{Rs. 4106}\frac{\textbf{2}}{\textbf{3}}$$

114. (c) Total marks of 8 students
= 51 × 8 = 408
Total marks of 9 students
= 68 × 9 = 612
Total marks of 17 students
= 408 + 612 = 1020
Average of 17 students

$$= \frac{1020}{17} = \textbf{60 Ans.}$$

115. (d) Sum of five no. = 27×5
= 135
Sum of four no. = 25 × 4 = 100
Excluded no. = 135 – 100 = **35**

116. (a) Total items of first 3 months
= 4000 × 3 = 12000
Total items of 12 months
= 4375 × 12 = 52500
Average of last 9 months

$$= \frac{52500 - 12000}{9} = \frac{40500}{9} = \textbf{4500 Ans.}$$

117. (c) Sum of 9 no. = 30×9 = 270
Sum of first five no. = 25×5 = 125
Sum of last three no. = 35×3 = 105
6th no. is
270–125–105 = **40**

118. (a) Total marks of three batches
= $55 \times 50 + 60 \times 55 + 45 \times 60$
= 2750 + 3300 + 2700
= 8750

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

$$= \frac{875}{16} = \textbf{54.68 Ans.}$$

119. (a) sum of 30 results = 30 × 20
= 600
sum of 20 results = 20 × 30
= 600

$$\text{Average of all results } \frac{600 + 600}{20 + 30}$$

$$= \frac{1200}{50} = \textbf{24}$$

120. (c) Sum of 15 numbers = 15 × 7
= 105
Sum of 8 numbers = 8 × 6.5= 52
Sum of Last 8 numbers
= 8 × 9.5 = 76
middle numbers is
= 76 + 52 – 105 = 23

121. (a) Let the 15th student age
= x years
According to the question,
$5 \times 14 + 9 \times 16 + x = 15 \times 15$
$70 + 144 + x = 225$
$214 + x = 225$
$x = 11$ years

122. (c) Let the sixth no. = x
then the seventh = $x + 4$ and the eighth = $x + 7$
According to the question,

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

$= 8 \times 20$
$31 + 64 + 3x + 11 = 160$
$106 + 3x = 160$
$3x = 54$
$x = 18$
∴ Eighth no. $x + 7 = 18 + 7 = 25$

123. (b) Let the last no. = x
According to question,
$12 \times 11 + 7 \times 10 + x = 20 \times 12$
$132 + 70 + x = 240$
$x = 240 - 202$
$x =$ **38**

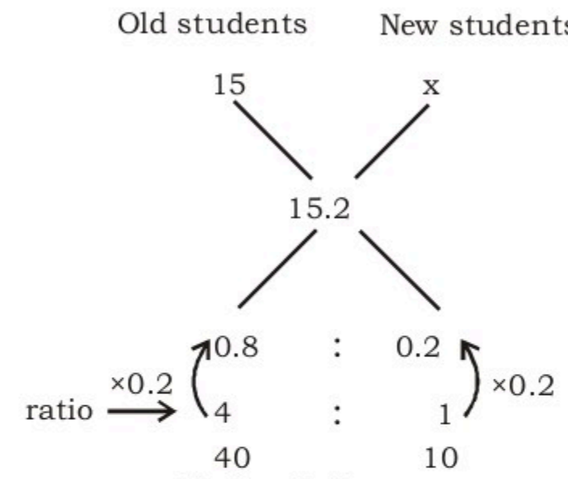
124. (a) According to the question,
Average of all the 8 boys

$$= \frac{5 \times 12 + 3 \times 16}{8} = \frac{60 + 48}{8} = \frac{108}{8}$$

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

125. (b) Let the average age of the new students = x years
According to the question,
$40 \times 15 + 10x = 50 \times 15.2$
$600 + 10x = 760$
$10x = 160$
$x =$ **16 yrs**

Alternate:



$x - 15.2 = 0.8$
$x = 16$ years

126. (b) Let the average of four new no. = x
According to the question,
$100 \times 44 + 4x = 104 \times 50$
$4400 + 4x = 5200$
$4x = 800$
$x = 200$
∴ Average of four new numbers = 200

127. (b) Let the new observation be = x
According to the question,
$6 \times 45.5 + x = 7 \times 47$
$273.0 + x = 329$
$x = 329 - 273$
$x = 56$

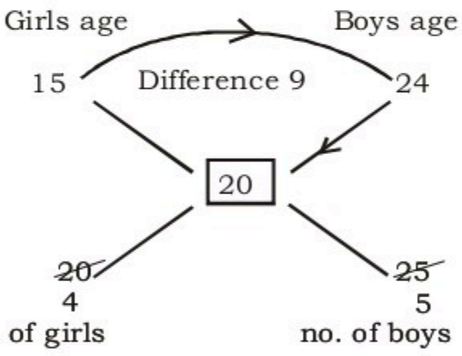
128. (b) According to the question
The average age of 20 girls is
= 15 years
The average age of 25 boys is
= 24 years
= 24 years
∴ Mixed average

$$= \frac{20 \times 15 + 25 \times 24}{45} = \frac{300 + 600}{45}$$

$$= \frac{900}{45} = 20 \text{ years}$$

Alternate :

By using alligation method.



9 divides in 4 : 5 are 4 and 5
∴ Average age = **20 years**

129. (d) let the highest score of the innings = x

the score of lowest innings = y

According to the question

Average of 40 innings of Cricket player = 50 runs

Sum of 40 innings runs

$= 50 \times 40 = 2000$

Average of 38 innings runs = 48

Sum of 38 innings runs

$= 48 \times 38 = 1824$

$\therefore x + y = 2000 - 1824$

$x + y = 176$ .....(i)

$x - y = 172$ .....(ii) (given)

Solve equation (i) and (ii)

$x = 174$

$y = 2$

$\therefore$ Highest Scrores = 174

130 (b) let the score in the eleventh innings = x

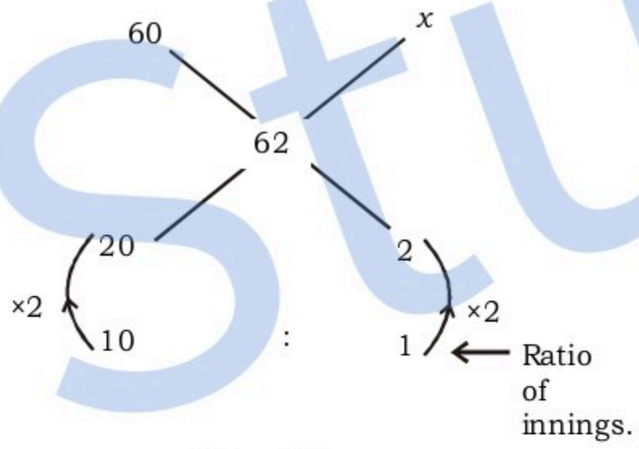
According to the question

$$\frac{60 \times 10 + x}{11} = 62$$

$600 + x = 682$

$x =$ **82**

Alternate:



$\therefore x - 62 = 20$

$x = 82$

131. (c)let the average score till his 11 innings = x

According to the question

$$\frac{11x + 63}{12} = x + 2$$

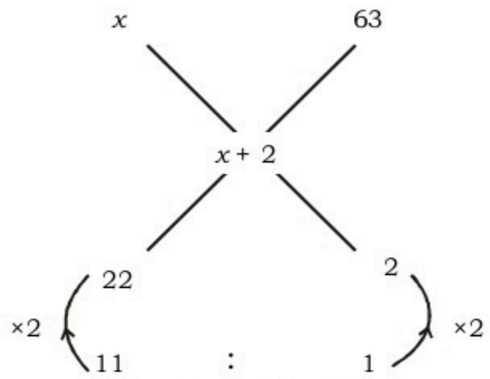
$11x + 63 = 12x + 24$

$x = 39$

12th innings average = 39 + 2 = **41**

Alternate:

Let the average score till his 11 innings = x



$63 - (x + 2) = 22$

$63 - x - 2 = 22$

$-x + 61 = 22$

$x = 61 - 22 = 39$

Average after 12 innings = $x + 2$

$= 39 + 2 =$ **41**

132. (c) let the average of '11' innings is = x

According to the question

$$\frac{11x + 120}{12} = x + 5$$

$11x + 120 = 12x + 60$

$x = 60$

$\therefore$ His new average = 60 + 5 = 65

133. (c) According to the question

Increased age of 11 players

$= 11 \times 3 = 33$ years

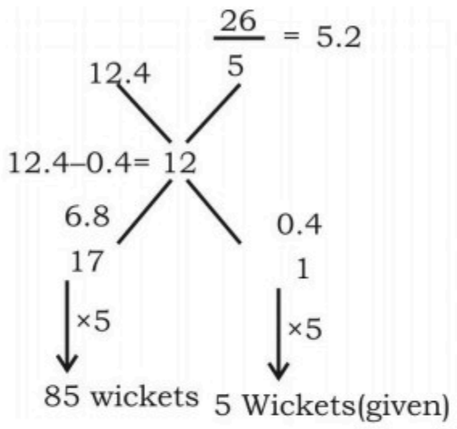
Current age of 3 players who are replaced = $3 \times 33 = 99$ years

$\therefore$ Age of 3 newcomers

$= 99 - 33 = 66$ years

Average age $= \frac{66}{3} = 22$ years

134. (c) According to the question



The number of wickets taken by him till the last match was = 85 + 5 = 90

135. (a) Let next innings Runs = x

According to the question

$$\frac{32 \times 10 + x}{11} = 38$$

$320 + x = 418$

$x = 98$

136. (b) Let the no. of wickets = x

According to question,

$24.85x + 52 = 24\ (x + 5)$

$24.85x + 52 = 24x + 120$

$0.85x = 68$

$$x = \frac{68 \times 100}{85}$$

$x = 80$

No. of wickets till the last match is $x + 5 = 80 + 5 =$ **85**

Alternate

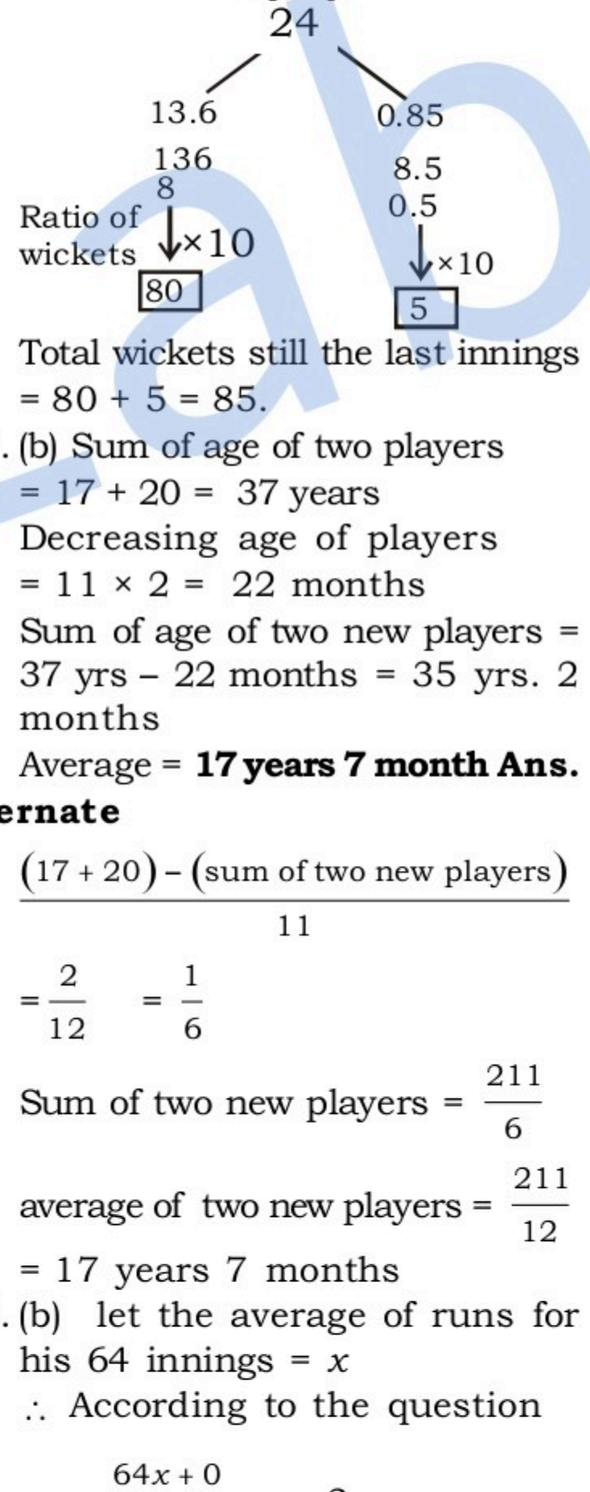
Apply alligation

Average of last inning

$= \frac{52}{5} = 10.4$

Average before last inning = 24.85

Final average of all innings = 24



Total wickets still the last innings = 80 + 5 = 85.

137. (b) Sum of age of two players

= 17 + 20 = 37 years

Decreasing age of players

= 11 × 2 = 22 months

Sum of age of two new players = 37 yrs – 22 months = 35 yrs. 2 months

Average = **17 years 7 month Ans.**

Alternate

$$\frac{(17 + 20) - (\text{sum of two new players})}{11}$$

$= \frac{2}{12} = \frac{1}{6}$

Sum of two new players = $\frac{211}{6}$

average of two new players = $\frac{211}{12}$

= 17 years 7 months

138. (b) let the average of runs for his 64 innings = x

$\therefore$ According to the question

$$\frac{64x + 0}{65} = x - 2$$

$64x = 65x - 130$

$x = 130$

$\therefore$ His new average is = 130 – 2 = **128.**

139. (c) let the average of runs for his 8 innings = x

According to the question

$$\frac{8x+100}{9} = x+9$$

$$8x + 100 = 9x + 81$$

$$x = 19$$

$\therefore$ his new average of runs

$= 19 + 9 =$ **28**

140. (c) let the average of 9 people expenditure = Rs. x

According to the question

$$\frac{30\times 8 + x + 20}{9} = x$$

$$240 + 20 + x = 9x$$

$$260 = 8x$$

$$x = \frac{260}{8}$$

$$x = 32.5$$

Total expenditure are = 32 .5 × 9

= Rs. 292.5

141. (c) According to question,

$\Rightarrow$ Total temperature of first four days

Mon + Tue + Wed + Thu

$= 25 \times 4 = 100°$ .....(i)

$\Rightarrow$ Total temperature of Last four days

Thr + Fri + sat + sun $= 25.5 \times 4$

$= 102°$ .....(ii)

$\Rightarrow$ Total temperature of week

$= 25.2° \times 7 = 176.4°$ .....(iii)

After adding equation (i) + (ii)

Mon + Tue + Wed + 2 × Thu + Fri + Sat + sun = 202°.....(iv)

After subtracting equation (iv) – (iii)

$202 - 176.4° = 25.6°C$

$\Rightarrow$ Temperature of 4th day

$= 25.6°C$

142. (d) Let the average expenditure = Rs. x

According to question,

$35 \times x + 42 = 42\ (x - 1)$

$35x + 42 = 42x - 42$

$7x = 84$

$x =$ **12**

Initial expenditure = 35 × 12

= Rs. 420

143. (c) According to the question

Total weekly emoluments of the workers = Rs. 1534

number of workers = $\frac{1534}{118} = 13$

144. (c) According to the question

As we know that Avg. of 'n' positive integer is

$$= \frac{n(n+1)}{2\times n}$$

$$= \frac{(n+1)}{2}$$

Here n = 100

$$\therefore \quad \frac{100+1}{2} = \frac{101}{2} = \mathbf{50.5}$$

145. (b) According to the question As we know that.

No. of odd terms $= \frac{\text{last term}+1}{2}$

No. of odd terms $= \frac{99+1}{2} = \frac{100}{2} = 50$

Avg. of odd terms upto 100 = **50**

Note: Avg of 'n' odd terms = No. of terms.

146. (d) As we know that average of square of 'n' natural number is

$$= \frac{n(n+1)(2n+1)}{6n} = \frac{(n+1)(2n+1)}{6}$$

According to the question,

Avg. of square of first ten natural number is

$$= \frac{(10+1)(20+1)}{6}$$

$$= \frac{11\times 21}{6}$$

$$= \mathbf{38.5}$$

147. (d) According to question

First 10 whole numbers are

$= 0,1,2,3,4,5,6,7,8,9$

$\therefore$ Avg. of 10 whole no.

$$= \frac{0+1+2+3+4+5+6+7+8+9}{10}$$

$$= \frac{45}{10} = \mathbf{4.5}$$

148. (b) let the seven consecutive positive integers are

$x, x+1, x+2, x+3, x+4, x+5, x+6$

$$\frac{x+x+1+x+2+x+3+x+4+x+5+x+6}{7}$$

$=26$

$7x + 21 = 182$

$7x = 161$

$x =$ **23**

149. (d) According to question

30 pens + 75 pencils = Rs. 510

Average price of a pencil = Rs. 2

Price of 75 pencils

$= 2 \times 75 =$ Rs. 150

$\therefore$ Price of 30 pens

$= 510 - 150 =$ Rs. 360

$\therefore$ Average price of pen

$$= \frac{360}{30} = \text{Rs. } \mathbf{12}$$

150. (b) According to the question

$$\frac{x_1 + x_2 + x_3 + x_4 + \ldots\ldots + x_{20}}{20} = y$$

$$x_1+x_2+x_3+x_4+\ldots\ldots+x_{20} = 20y$$

$$\Rightarrow \frac{x_1 - 101 + x_2 - 101 + x_3 - 101 + \ldots\ldots + x_{20} - 101}{20}$$

$$\Rightarrow \frac{(x_1 + x_2 + x_3 + \ldots\ldots + x_{20}) - 20\times 101}{20}$$

$$\Rightarrow \frac{20y - 20\times 101}{20}$$

$\Rightarrow$ y – **101**

151. (b) According to question

The avg. of x no . is = y

Sum of x no. is = xy

The avg. of y no. is = x

Sum of y no. is = xy

$\therefore$ Then avg. of all no . is

$$= \frac{xy + xy}{x+y} = \frac{2xy}{x+y}$$

152. (b) According to the question

Avg. of x no . is y^2

$\therefore$ sum of x no. is = xy^2

Avg. of y no. is = x^2

$\therefore$ Sum of y no. is = yx^2

Avg of all no. is = $\frac{xy^2 + yx^2}{x+y}$

$$= \frac{xy(x+y)}{x+y}$$

= ***xy***

153. (b) According to the question

Avg. of 'n' number's $x_1, x_2, x_3 \ldots x_n$ is $\bar{x}$

sum of n numbers = $n\bar{x}$

$\therefore \quad \sum_{i-1}^{n} (x_1 - \bar{x})$

put i = 1,2,3.....n then

$\{(x_1 + x_2 + x_3 + \ldots\ldots\ldots\ldots\ldots (xn - n\bar{x})$

As we know that $x_1 + x_2 + x_3 + \ldots . x_n x = n\bar{x}$

$(n\bar{x} - n\bar{x}) = 0$

154. (b) According to the question

$$\frac{I + II + III}{3} = 135$$

I + II + III = 405 .....(i)

let largest no. is III = 195

$\therefore$ I + II = 405 – 195

I + II = 210 .....(ii)

I – II = 20 .....(iii)

(Given)

Solve equation (ii) and (iii)

$\therefore$ I - 115 and II = 95

Smallest number is = **95**

155. (c) let the three consecutive odd numbers are

= $x, x + 2, x + 4$

According to the question

$$\frac{x + x + 2 + x + 4}{3} = \frac{1}{3}x + 12$$

$$\frac{3x + 6}{3} = \frac{x + 36}{3}$$

$3x + 6 = x + 36$

$2x = 30$

$x = 15$

$\therefore$ last no. is = x + 4

= 15 + 4

= **19**

156. (b) According to the question

consecutive even numbers

= a, b, c, d, e, f, g

consecutive odd numbers

= j, k, l, m, n

consecutive even number

2,4,6,⑧, 10, 12, 14

$$\frac{2 + 4 + 6 + 8 + 10 + 12 + 14}{7}$$

$= \frac{56}{7} = 8$ middle term

Consecutive odd numbers 1, 3 ,⑤, 7,9

$$\frac{1 + 3 + 5 + 7 + 9}{5} = \frac{25}{5} = 5 \text{ middle term}$$

$\therefore$ Same as in above situation.

Avg. of even numbers= d

Avg. of odd numbers = l

$\therefore$ Avg. of all numbers = $\frac{l + d}{2}$

157. (d) According to the question

$$\frac{I + II + III}{3} = 40$$

I + II + III = 120 .....(i)

Given: I = 2II

and II = 3 III

$$\frac{I}{II} = \frac{2}{1}$$

$$\frac{II}{III} = \frac{3}{1}$$

To make 'II' number same

I II III

6 + 3 + 1 = 10 units

5 units difference

10 units = 120

1 unit = $\frac{120}{10} = 12$

5 units = 12 × 5 = 60

difference between the largest and the smallest = 60

158. (a) According to the queston

I = 2II

and I = 3III

$$\frac{I}{II} = \frac{2}{1}$$

$$\frac{I}{III} = \frac{3}{1}$$

To maek 'I' number same

I II III

6 + 3 + 2 = 11 units

4 units difference

Given:

$$\frac{I + II + III}{3} = 49.5$$

I + II + II = 148.8

11 units = 148.5

1 unit = $\frac{148.5}{11} = 13.5$

4 units = 13.5 × 4 = **54**

159. (c) According to the question

$$\frac{I + II + III + IV}{4} = 60$$

I + II + III + IV = 240.....(i)

Given: $I = \frac{1}{4}(II + III + IV)$

4I = II + III + IV .....(ii)

Compare equation (i) and (ii)

I + 4I = 240

5I = 240 = I = **48**

160. (c) According to the question

first three numbers is increased by 2 = 3 × 2 = +6

Remaining three numbers is decreased by 4 = (– 4 × 3) = – 12

difference '– 6' effect on 6

numbers = $\frac{-6}{+6} = -1$

$\therefore$ Previous average = 32

New average = 32 – 1 = **31**

161. (c) According to the question

$$\frac{x + y + z}{3} = 45$$

$x + y + z = 135$ .....(i)

$x = \frac{y + z}{2} + 9$

$2x - y - z = 18$ .....(ii)

$x + y + z = 135$

$2x - y - z = 18$

$3x = 153$

$x = 51$

From (i)

$y + z = 135 - 51 = 84$ .....(iii)

also,

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

y + z = 2y + 4

z – y = 4

$y + z = 84$

$-y + z = 4$

$2z = 88$

$z = 44$

Required difference = 51 – 44 = 7

162. (c) According to the question

Average of $\frac{x + \frac{1}{x}}{2} = M$

put $x = 1$

$\therefore \quad \frac{1 + \frac{1}{1}}{2} = M$

M = 1

$\therefore \quad \frac{x^2 + \frac{1}{x^2}}{2} = \frac{1^2 + \frac{1}{1^2}}{2} = 1$

Now check from the option

option : (c) $2M^2 - 1$ (put M = 1)

2 × 1– 1 = 1 (Satisfied)

Alternate:

According to question

$$\frac{x+\frac{1}{x}}{2} = M$$

$$x+\frac{1}{x} = 2M$$

$$\therefore \quad x^2 + \frac{1}{x^2} = (2M)^2 - 2 = 4M^2 - 2$$

Required average $= \dfrac{x^2+\frac{1}{x^2}}{2}$

$= \dfrac{4M^2-2}{2} = 2M^2 - 1$

163. (a) According to the question

Average no. of visitiors on sunday = 510

Average no. of visitiors on other days = 240

∴ If month start on sunday then there are five sundays in a month and 25 other days.

∴ no. of visitiors on sundays $= 510 \times 5 = 2550$

no. of visitors on other days $= 240 \times 25 = 6000$

∴ Average visitors

$= \dfrac{2550+6000}{30} = 285$

164. (b) According to the question

Mean of 11 numbers is = 35

Sum of 11 numbers is = $35 \times 11 = 385$

$\underbrace{\text{I + II +III+ IV+V+(VI)}}_{32 \times 6 = 192}$

$\underbrace{\text{(VI)+VII+VIII+IX+X+XI}}_{37 \times 6 = 222}$

∴ VI = 222 + 192 – 385 = 29

∴ means VI two times add

∴ VI = 29

165. (a) According to the question

let M = 1

∴ 5 consecutive integers are = 1,2,3,4,5

$$\therefore \quad \frac{1+2+3+4+5}{5} = n$$

$$n = \frac{15}{5} = 3$$

∴ 6 consecutive integers starting with (m +2) are = 3, 4, 5, 6, 7, 8

$$\therefore \quad \frac{3+4+5+6+7+8}{6} = \frac{33}{6} = \frac{11}{2}$$

Now check from option to put n = 3

Option : (a) $\dfrac{2n+5}{2}$

$\dfrac{2\times 3+5}{2} = \dfrac{11}{2}$ (Satisfied)

166. (d) let Eight consecutive numbers are

= 1,2,3,4,5,6,7,8 sum = 36 units

two middle numbers are

= 4 + 5 = 9 units

Average of two middle numbers = 6 (Given)

Sum of two middle numbers = $6 \times 2 = 12$

∴ 9 units → 12

1 unit → $\dfrac{12}{9}$

∴ 36 units → $\dfrac{12}{9} \times 36 = 48$

∴ Sum of all consecutive number = 48

167. (d) let the 4 even consecutive numbers x, $x+2$, $x+4$, $x+6$

According to the question

$$\frac{x+x+2+x+4+x+6}{4} = 15$$

$$4x + 12 = 60$$

$$4x = 48 = x = 12$$

∴ 2nd highest number is

= $x + 4 = 12 + 4 = 16$

168. (c) According to the question

First five odd multiples of 3 is = 3,9,15,21,27

∴ Average $= \dfrac{3+9+15+21+27}{5}$

$= \dfrac{75}{5} = 15$

169. (a) let four consecutive even number x, $x+2$, $x+4$, $x+6$

According to the question

$$\frac{x+x+2+x+4+x+6}{4} = 9$$

$$4x + 12 = 36$$

$$4x = 24$$

$$x = 6$$

largest number = $x + 6$

= 6 + 6 = **12**

170. (c) According to the question 20 over match required run rate = 7.2

Total runs are

= 7. 2× 20

= 144 runs

If the run rate is 6 at the end of the 15th over

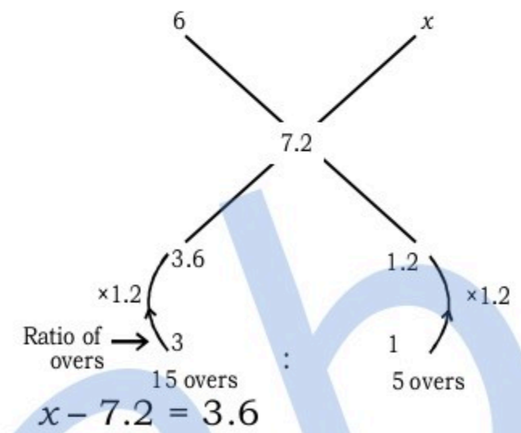
∴ Required runs

= 144 – 90 = 54 runs

Required run rate

$= \dfrac{54}{5} =$ **10.8**

Alternate:



∴ $x - 7.2 = 3.6$

$x = 7.2 + 3.6 = 10.8$

171. (c) let the four observations are = a,b,d,e

According to question

$$\frac{a+b+e+d}{4} = 20 \ldots\ldots\ldots\ldots (i)$$

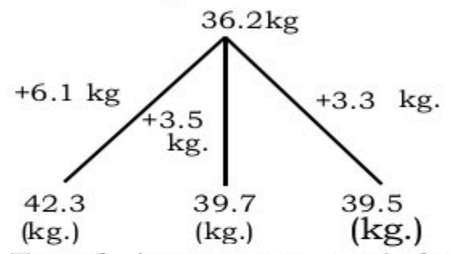
$$\frac{a+c+b+c+e+c+d+c}{4} = 22$$

$$\frac{4c+(a+b+e+d)}{4} = 22$$

$$\frac{4c}{4} + 20 = 22$$

$$c = 2$$

172. (b) According to the question average weight of 40 children = 36.2 kg



Total increase weight of 3 student = 6.1+3.5+3.3

= 12.9 kg

∴ This increase weight effect the average of 43 children

$\therefore \quad \dfrac{12.9}{43} = 0.3$

Old average = 36.2 kg

New average = 36.2 + 0.3 = 36.5 kg.

173. (a) According to the question

Pocket money

$= \frac{A+B+C}{3} = 80$

$= A + B + C = 240$

Unspent pocket money

$= \frac{A+B+C}{3} = 60$

$= A + B + C = 180$

Spent Pocket money = 240 – 180 = Rs 60.

Given:

$\frac{B}{A} = \frac{2}{1}$ and $\frac{C}{A} = \frac{3}{1}$

	A	B	C	
Spent	1	2	3	= 6 units
6 units				60
1 unit				10

∴ A spent = 1 × 10 = Rs. 10

174. (c) let the average weight of 1st person = x years

I II III IV V

x

$x+1$

$x+2$

$x+3$

$x+4$

Then,

According to the question

average of 5 members = $x + 4$

sum of 5 members

$= (x + 4)5 = 5x + 20$

sum of 4 members

$= (x + 3)4 = 4x + 12$

∴ weight of 5th member

$= 5x + 20 - 4x - 12$

$= x + 8$

∴ last player is 8 kg heavier

175. (c) According to the question

afternoon

100 pages read at the rate 60 pages per hour

Total time taken to read 100 pages

$= \frac{100}{60} = \frac{5}{3}$ hours

Evening

100 pages read at the rate 40 page per hour

Total time taken to read 100 pages

$= \frac{100}{40} = \frac{5}{2}$ hours.

Average rate of reading the pages per hour

$= \frac{200}{\frac{5}{3}+\frac{5}{2}} = \frac{200 \times 6}{10+15}$

$= \frac{200 \times 6}{25} = 48$

176. (b) According to the question

Costing: Item–1 400 → Sales tax 7% → Rs.28

Item – 2 6400 → Sales tax 9% → Rs. 576

Total sales tax = 28 + 576 = 604

∴ overall sales tax $\% = \frac{604}{6800} \times 100$

$= 8\frac{15}{17}\%$

177. (b) According to the question

Quantity of Milk in Ist year

$= \frac{4080}{7.5} = 544$ ltr

Quantity of Milk in 2nd year

$= \frac{4080}{8} = 510$ ltr

Quantity of Milk in 3rd year

$= \frac{4080}{8.5} = 480$ ltr

Total Milk = 544 + 510 + 480 = 1534 ltr

Average price in three years

$= \frac{4080 \times 3}{1534} =$ Rs. 7.98

178. (b) According to the question

6 T + 12C = 7800

Average price of Table = Rs. 750

Total price of tables = 750 × 6

= Rs 4500

Total Price of chairs = 7800 – 4500

= Rs. 3300

Average price of chairs

$= \frac{3300}{12} =$ **Rs. 275**

179. (c) According to the question

First nine integral multiples of 3

= 3, 6, 9, 12, 15, ...

Sum of numbers,

$Sn = \frac{n}{2}(2a + (n-1)d)$

$Sn = \frac{9}{2}(2 \times 3 + (9-1)3)$

$Sn = \frac{9}{2}(6 + 24)$

$Sn = \frac{9}{2} \times 30 = 135$

∴ Required average $= \frac{135}{9}$

$= 15$

180. (b) According to the question

Sum of 6 consecutive even number is = 25 × 6 = 150

$Sn = \frac{n}{2}(2a + (n-1)d)$

$150 = \frac{6}{2}(2a + (6-1) \times 2)$

$150 = \frac{6}{2}(2a + 10)$

$300 = 12a + 60$

$12a = 240$

$a = \frac{240}{12} = 20$

∴ Numbers are 20,22,24,26,28,30

Difference between largest and smallest is = 30 – 20 = 10

Alternate

Let the 6 consecutive no is = $x, x+2, x+4, x+6, x+8, x+10$

A.T.Q.

largest number = avg. + (n–1) = 25 + 5 = 30

smallest number = avg. – (n–1) = 25 – 5 = 20

Diff. between largest and smallest no. 30–20 = 10

181. (d) let the numbers are

$= x, x+1, x+2, x+3, x+4, x+5, x+6, x+7, x+8$

According to the question

$\frac{x + x+1 + x+2 + x+3 + x+ 4 + x+5 + x+6 + x+7 + x+8}{9}$

$\frac{9x + 36}{9} = n$

$x + 4 = n$

If next two numbers also include $(x + 9, x+10)$

then average

$= \frac{9x+36+x+9+x+10}{11}$

$= \frac{11x+55}{11}$

average= x + 5

Difference = x + 5 – x – 4

Difference = 1(Increase by 1)

182. (a) According to the question

First six odd numbers which are divisible by '7'

$\underbrace{7,21,35,49,63,77}_{+14\ +14\ +14\ +14\ +14}$

$Sn = \frac{n}{2}\left[2a+(n-1)d\right]$

$Sn = \frac{6}{2}\left(2\times7+(6-1)14\right)$

Sn = 3(14 + 70)

Sn = 252

$\therefore$ Average = $\frac{252}{6}$ = 42

183. (c) According to the question

first ten prime number is = (2, 3, 5, 7, 11, 13, 17, 19, 23, 29)

Sum = 2 + 3 + 5 + 7 +11+ 13 + 17 +19 + 23+29

Sum = 129

Average = $\frac{129}{10}$ = 12.9

184. (b) let the four numbers are a,b,c,d

$\frac{a+b+c+d}{4}$ = 12

a + b + c + d = 48

Also,

$\frac{a+b+c}{3}$ = 2d

a + b + c = 6d

$\therefore$ a + b + c + d = 48

6d + d = 48

7d = 48

d = $\frac{48}{7}$

185. (a) According to the question

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

A + B + C + D = 20 .....(i)

$\frac{A+B+D+E}{4}$ = 6

A + B + D + E = 24 .....(ii)

If C = 8 years old . put the value of 'C' in equation (i)

$\therefore$ A + B + D + 8 = 20

A + B + D = 12 .....(iii)

Put the value of equation (iii) in equation (ii)

12 + E = 24

E = 24 – 12 = 12

E = 12

186. (a) sum of cubes of first n positive consecutive numbers is

$= \frac{\left(n(n+1)\right)^2}{4}$

$\therefore$ Average = $\frac{n(n+1)^2}{4}$

$\Rightarrow$ n = 49

$\Rightarrow \frac{49(50)^2}{4}$ = 30625

187. (b) According to the question

Avg.= $\frac{1+2+2+3+3+3+4+4+4+4+5+5+5+5+5+6+6+6+6+6+6+7+7+7+7+7+7}{28}$

Avg. $\frac{1+2\times2+3\times3+4\times4+5\times5+6\times6+7\times7}{28}$

Avg. = $\frac{1+4+9+16+25+36+49}{28}$

Avg. = **5**

Alternate:

we know that sum of n^2 terms

$= \frac{n(n+1)(2n+1)}{6}$

$= \frac{7\times8\times15}{6} = \frac{7\times120}{6}$ = 140

here terms are 28.

$\therefore$ Average = $\frac{140}{28}$ = 5

188. (a) According to the question

numbers between 6 and 50 divisible by '5'

10, 15, 20, 25, 30, 35, 40, 45

Avg.= $\frac{10+15+20+25+30+35+40+45}{8}$

Avg. = $\frac{220}{8}$ = 27.5

189. (d) let five consecutive odd numbers are 1, 3, 5, 7, 9

Here a = 1, b =3, C = 5, d = 7, e =9

According to the question

Avg = $\frac{1+3+5+7+9}{5} = \frac{25}{5}$

Avg. = 5

Now check the option.

Option: (d) a + 4

Here a = 1

1 + 4 = 5 satisfy

190. (c) According to the question,

Average weight of 3 men A, B, and C = 84 kg.

$\Rightarrow$ Total weight of (A+B+C) = 84×3 = 252 kg

$\Rightarrow$ After joining D, average of 4 men (A+B+C+D)

= 80 kg

$\Rightarrow$ Total weight (A+B+C+D) = 80×4 = 320 kg .....(i)

$\Rightarrow$ Weight of D = 320 – 252 = 68 kg

$\Rightarrow$ Weight of E = D+3 = 68+3 = 71 kg

$\because$ B, C, D and E average weight = 79

Total weight (B+C+D+E) = 79×4 = 316 kg .....(ii)

After (ii) – (i)

E – A = 316 – 320

71 – A = –4

A = 75

191. (d) Let the average price of 1 book = ₹ x

According to the question,

$\Rightarrow \frac{50x+76}{(50+14)} = (x-1)$

$\Rightarrow \frac{50x+76}{64} = x-1$

$\Rightarrow$ 50x + 76 = 64x – 64

140 = 14x

x = ₹ 10

Therefore average price of 1 book = ₹ 10

192. (d) Let the number of natural numbers = n

$\because$ The average of some natural nubmers is = 15

$\Rightarrow$ Sum of these natural number = 15 × n = 15n

$\because$ 30 is added and 5 is subtracted

So, Now addition of these numbers

$= 15n+30-5 = 15n+25$

According to the question,

$$\Rightarrow \frac{15n+25}{n} = 17.5$$

$\Rightarrow 15n + 25 = 17.5n$

$\Rightarrow 2.5n = 25$

$\Rightarrow n = 10$

Therefore, the numbers of natural numbers $n = 10$

193. (a)Series :- a, a + 2, a + 4 ..... sum = na + 2 + 4 + ... upto n terms

$\text{sum} = na + S_n$

$$S_n = \frac{2(2^n - 1)}{2-1}$$

$$\text{Average} = a + \frac{2(2^n - 1)}{n}$$

194. (d) **Shortcut method:-**

Do by option

Let the number be 24

Sum of digits 2 + 4 = 6

$$\Rightarrow 6 - 2 = \frac{1}{6} \times 24 = 4$$

$= 4$ matched.

So 24 is answer

195. (a) According to the question,

Largest number

$= 420$

Smallest number $= 204$

$$\text{Average} = \frac{420 + 204}{2}$$

$$= \frac{624}{2} = 312$$

196. (a) Let the eight consecutive integer are x, $x + 2$, $x + 4$, $x + 6$, $x + 8$, $x + 10$, $x + 12$, $x + 14$

According to the question,

$$\frac{x + x + 2 + x + 4 + x + 6 + x + 8 + x + 10 + x + 12 + x + 14}{8} = 93$$

$8x + 56 = 744$

$8x = 688$

$x = 86$

$\therefore$ Greatest number $= x + 14$

$= 86 + 14 =$ **100**

197. (b) According to the question,

$$\Rightarrow \frac{3^{30} + 3^{60} + 3^{90}}{3}$$

$$\Rightarrow 3^{29} + 3^{59} + 3^{89}$$

198. (a) According to the question,

Annual income $= 1000 \times 12$

$= \text{Rs. } 12000$

Annual expenditure $= 1000 \times 9$

$= \text{Rs. } 9000$

Savings $= 12000 - 9000 = \text{Rs. } 3000.$

199. (a) According to the question,

Total sales for remaining 6 days (Sun+ Tue+Wed+Th+Fri+Sat)

$= 15640 \times 6 = 93840$ Rs. .....(i)

Total sales from tuesday to saturday

(Tue + Wed + Thr + Fri + sat)

$= 14124 \times 5 = 70620$ Rs.

.....(ii)

$\Rightarrow$ After subtracting eq. (i) – (ii)

$\Rightarrow$ The sale on sunday is

$= 93840 - 70620 = 23220$ Rs.

200. (b) Series $\rightarrow$ 3 + 5 + 7 21

Total numbers =

$$\frac{\text{Last term} - \text{first term}}{\text{difference}} + 1$$

$$= \frac{21-3}{2} + 1$$

$$= \frac{18}{2} + 1 = 10$$

$$\text{Sum of series} = \frac{n}{2}\left[2a + (n-1)d\right]$$

$$\Rightarrow \frac{10}{2}\left[2 \times 3 + (10-1) \times 2\right]$$

$\Rightarrow 5[6 + 9 \times 2]$

$\Rightarrow 5 \times 24$

$\Rightarrow 120$

$$\text{Average} = \frac{120}{10} = 12$$

201. (b)

$$\frac{3+11+7+9+15+13+8+19+17+21+14+x}{12}$$

$= 12$

$\Rightarrow 137 + x = 12 \times 12$

$x = 144 - 137 =$ **7 Ans.**

202. (d) Sum of three no. $= 60 \times 3 = 180$

$$\text{First no.} = \frac{1}{4} \times 180 = 45 \text{Ans.}$$

203. (c) Let the total no. of students $= 100$

According to question,

$20 \times 80 + 25 \times 31 + 55 \times x = 52 \times 100$

$1600 + 775 + 55x = 5200$

$55x = 5200 - 1600 - 775$

$55x = 2825$

$x = 51.4$

204. (c) Let the III[rd] no $= x$

and the II[nd] $= 3x$

then the I[st] no. be $= 6x$

sum of no. $= 10 \times 3$

$x + 3x + 6x = 30$

$x = 3$

Largest number is $6x = 6 \times 3 = 18$

205. (a)Income of A and B

$= 2 \times 14000 = 28000$ Rs.

Income of B and C = Rs. 31200

Income of A and C $= 2 \times 14400$

$=$ Rs. 28800

Income of A, B and C

$$= \frac{(28000+31200+28800)}{2}$$

$=$ Rs. 44000

C's income $= 44000 - 28000$

$=$ Rs. 16000 Ans.

206. (c) Let the fourth no. $= x$

and the average of first three no. $= 3x$

According to the question

Sum of four no.

$= 5 \times 4 = 20$

also, $x + 3 \times 3x = 20$

$10x = 20$

$x = 2$

$\therefore$ Fourth no. is = 2

207. (c) Sum of two no. $= 8 \times 2 = 16$

Sum of other three no.

$= 3 \times 3 = 9$

Total sum = 25

$$\text{Avg} = \frac{25}{5} = 5$$

208. (a) Let the present age of Son $= x$ years

and the Father's age

$= 3x + 3$

According to the question,

$2(x + 3)+10 = 3x + 3 + 3$

$2x + 6 + 10 = 3x + 6$

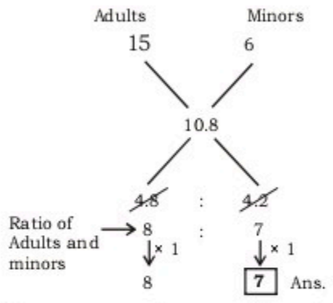
$2x + 16 = 3x + 6$

$x = 10$ years

Father's age $= 3x + 3$

$= 3 \times 10 + 3 = 33$ years

209. (c) Use Mixture and Alligation:



Therefore number of minors = 7

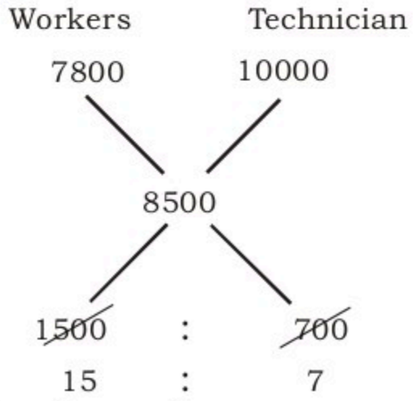
210. (c) According to the question,

$$= \frac{\text{Agricultural workers}}{\text{other workers}} = \frac{11}{1}$$

Average of monthly Income of all workers

$$= \frac{11\times S + 1\times T}{12} = \frac{11S + T}{12}$$

211. (c) Use alligation and Mixture:



7 units $\rightarrow$ 7

(15 + 7) units = 22 workers

212. (d) Let the five consecutive no. = 1, 2, 3, 4, 5

Average of no.

$$m = \frac{1+2+3+4+5}{5} = 3$$

Average of eight no.

$$= \frac{1+2+3+4+5+6+7+8}{8}$$

$$= \frac{36}{8} = 4.5$$

$3 + x = 4.5$

$x = 1.5$

the average of no. is increased by 1.5

213. (d) Average of 10 no. = 7

Each no is multiplied by 12

Then, average will also get multiplied by 12

therefore, new average = 12 × 7 = 84

214. (c) Let the E's age be = x years

According to the question,

$(5\times4) + 4 \times 45 + x = 5 \times 49$

$20 + 180 + x = 245$

$x = 245 - 200$

$x = 45$ years

therefore, age of E = 45 years

215. (c) According to the question,

Average monthly expenditure

$$= \frac{5\times5000 + 7\times2300}{12}$$

$$= \frac{25,000 + 16,100}{12} = \frac{41,100}{12}$$

= 3425

therefore, avg. monthly expenditure = Rs.3425

216. (b) Let the Income in eighth month = Rs. x

According to the question,

$8 \times 3160 + 5 \times 4120 = 12 \times 3400 + x$

$25280 + 20600 = 40800 + x$

$45880 = 40800 + x$

$x =$ Rs. 5080

217. (d) let nine consecutive numbers be

$x, x+2, x+4, x+6, x+8, x+10, x+12, x+14, x+16$

$$\therefore \frac{x+x+2+x+4+x+6+x+8+x+10+x+12+x+14+x+16}{9} = 53$$

$9x + 72 = 477$

$9x = 405$

$x = 45$

$\therefore$ least odd number is = 45

218. (b) According to the question

$$\frac{A+B+C}{3} = 450$$

A + B + C = 1350 .....(i)

$$\frac{A+B}{2} = 400$$

A + B = 800 .....(ii)

$$\frac{B+C}{2} = 430$$

B + C = 860 .....(iii)

Equation (ii) + (iii)

A + B + C + D = 1660

1350 + B = 1660

B = 310

219. (b) Total Income of A & B

= 2 × 15050 = ₹ 30100

Total Income of B & C

2 × 15350 = ₹ 30700

Total Income of A & C

= 2 × 15200 = ₹ 30400

Total Income of A, B, & C

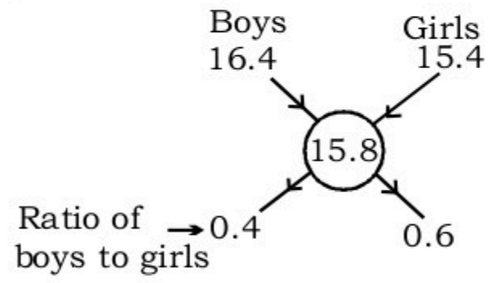
$$= \frac{30100+30700+30400}{2}$$

$$= \frac{91200}{2} = ₹\ 45,600$$

Income of A = 45600 – 30700

= ₹ 14, 900

220. (b) According to the Question



221. (a) Total age of husband, wife & their child at present

= 3 × 27 + 3 × 3 = 90 years.

Total age of wife & child at present

= 20 × 2 + 2 × 5 = 50 years

Husband's age

= 90 – 50 = 40 years

222. (c) $\frac{x+y}{2} - \frac{y+z}{2} = 12$

$x + y - y - z = 24$

$x - z = 24$

223. (c) A : B : C = 2 : 5 : 3

$$\text{Avg} = \frac{30\times2+17\times5+25\times3}{10}$$

$$= \frac{60+85+75}{10} = 22$$

224. (c) Let No. be a, a + 1, a + 2, a + 3, a + 4

Next, a + 5, a + 6, a + 7, a + 8, a + 9

Next to Next – a + 10, a + 11, a + 12, a + 13, a + 14

Ist condition = $\frac{5a+10}{5} = x$

5a + 10 = 5x ....(i)

IInd condition

$$= \frac{a+10+a+11+a+12+a+13+a+13+a+14}{5}$$

$$= \frac{5a+50+10}{5}$$

From eq. (i)

$$= \frac{5x+50}{5} = x + 10$$

225. (c) According to the question,
Let the Age of Boy be x
$7 \times 40 = 3 \times 48 + 3 \times 44 + 1 \times x$
$280 = 144 + 132 + x$
$x = 4$
therefore, age of the boys = 4 years

Alternate:

(48 – 40) (48 – 44)

M M M W W W B = 40

+8 +4

×3 ×3

24 12 40 – 24 – 12

B = 40 – 24 – 12 = 4 years

226. (a)
Tue + Wed + Thu = 41° × 3 = 123° .....(i)
Wed + Thu + Fri = 40° × 3 = 120° ....(ii)

(i) – (ii)
After solving both, we get
Tue – Fri = 3°
Tue = 3° + Fri
= 3° + 39° = 42°

227. (c) Sum of 5 no. = 7×5=35
Sum of 8 no. = 8.5×8=68
Sum of added all three no.
= 68–35 = 33
average of three new numbers
$= \frac{33}{3} = 11$

228. (a) Using Alligation Method

Senior Remaining

24000 12000

16000

4000 8000

1 : 2

1 unit ——–7
So, total associates = (1 + 2)
and, 3 units = 3 × 7 = 21

229. (c)

Passengers	weight	Total weight
16 ×	80	= 1280
20×	86	= 1720
Weight of 4 Boys		= 440

Average weight of 4 Boys $= \frac{440}{4}$
= 110 kg.

230. (c) Average of set A
$= \frac{27+28+30+33}{4} = \frac{118}{4} = 29.5$
After increase
$= \frac{29.5 \times 130}{100} = 38.35$

Now $\frac{\text{sum of first four numbers} + k}{5} =$
New Average
118 + k = 38.35 × 5
118 + k = 191.75
K = 191.75 – 118 = 73.75

231. (c) Total age of 5 members = 5 × 28 = 140
and, Required average
$= \frac{140-20}{4}$
$= \frac{120}{4} = 30$ years

232. (b) Let the no. of remaining number be x
then,
Total Avg. $\Rightarrow \frac{24 \times 3 + 18x}{x+3}$
$= \frac{72+18x}{x+3}$
Now put values of x
For $x = 0$, Avg. = 24
for $x = 1$, Avg, = 22.5
for $x = 2$, Avg, = 21.6
So for any value of x, total average will always be between 18 & 24

233. (c) Let rainfall on saturday = x
Total rainfall from sunday to friday = 0.5 × 6 = 3 cm
Total rainfall in the whole week
= 2 × 7 = 14
∴ rainfall on saturday
= 14 – 3 = 11cm

234. (b) Avg. marks of 35 children is 35
Incorrect marks of a student = 65
then extra number = 65 – 35 = 30
On decreasing average marks of each student
$= \frac{30}{35} = \frac{6}{7} = 0.857$
∴ The correct average of each student = 35 – 0.857
= 34.14

235. (b) Let the age of teacher = x
According to the question,
$36 \times 14 + x = 37 \times 15$
$x = 555 – 504$
$x = 51$ years
∴ Teacher's age = 51 years

236. (b) Average age of the class = 15 years
Avg Age of the class Including teacher = 15 years 3 months
Teacher's age
$= 15 \times 40 + \frac{3}{12} \times 40 - 15 \times 39$
= 610 – 585 = 25 years.

237. (d) middle number
= 8 × 6.5 + 8 × 8.5 – 15 × 7
= 52 + 68 – 105 = 15

238. (d) Arithmetic mean
$= \frac{\text{Total sum}}{\text{Total number}}$
According to the question,
$10 = \frac{7+5+13+x+9}{5}$
50 = x + 34
x = 50 – 34
$\boxed{x = 16}$

239. (a) Weight of the New parcel
= 11 × 1640 – 10 × 1700
= 1040 gm = 1.04 kg

240. (b) Let us take 30 student's average marks = x
then, $30x + (3 \times 85) = 60 \times 65$
$x = 130 – 85$
$x = 45$

241. (a) Actual average
$= 50 - \frac{(64-46)}{10} = 50 - 1.8$
= 48.2

242. (b) Difference = 81 – 18 = 63
So, change in avg. $= \frac{+63}{9} = +7$
Correct avg. = 35 + 7 = 42

243. (c) Mo + Tu + We + Th = 60 × 4
Tu + We + Th + Fr = 63 × 4
Mo – Fr = –12
$21x – 25x = –12$
$4x = 12$
$x = 3$
Fr = 25x = 25 × 3 = 75°

244. (b) Average height of the whole class $= \frac{30\times160+20\times165}{50}$

$= \frac{3\times160+2\times165}{5}$

$= 96 + 66 = 162$ cm

245. (b) difference $= 53 - 83 = -30$

change in average $= \frac{-30}{100}$

$= -0.3$

So, correct average $= 40 - 0.3$

$= 39.7$

246. (d) According to the question,

$a+b+c = 60$

$b+c+d = 75$

$b+c+30 = 75$

$b+c = 45$

$a+b+c = 60$

$a+45 = 60$

$a = 15$

247. (b) Extra salary will be

$= 20000 - 16000 = 4000$

Which will be divided among 20

members $= \frac{4000}{20} = 200$

Then avg. salary of the group

$= 16000 + 200 = 16200$

348. (c) Average of rest of the players

$= \frac{11\times23-113}{10}$

$= \frac{253-113}{10}$

$= \frac{140}{10} = 14$ runs

249. (a) Average age of 10 children $= 9$ years 9 months

sum of ages of 10 children

$= 9 \times 10 + \frac{9}{12} \times 10 = \frac{390}{4}$

Average age of 9 children

$= 8$ years 11 months

sum of age of 9 children

$= 8 \times 9 + \frac{11}{12} \times 9 = \frac{321}{4}$

Age of 10th child $= \frac{390}{4} - \frac{321}{4}$

$= \frac{69}{4} = 17$ years 3 months

250. (a) Average of B = Average of $[(A + B) + (B + C) - (A + B + C)]$

$= [40 \times 2 + 43 \times 2 - 45 \times 3]$

$= 80 + 86 - 135$

$= 31$ kg

251. (d) Max – Min = 172 .....(i)

Max + Min $= 50 \times 40 - 48 \times 38$

$= 2000 - 1824$

Max + Min = 176 ....(ii)

From eq (i) & (ii)

Max = 174

252. (b) Let No. $x, x+1, x+2, x+3, x+4, x+5, x+6$

According to the question

Average $= \frac{1}{7}(x + x + 1 + x + 2 + x + 3x + x + 4 + x + 5 + x + x + 6)$

$7x + 21 = 140$

$7x = 119$

$x = 17$

Largest No. $x + 6 = 17 + 6 = 23$

253. (c) M : S : P

$2_{\times3}$: $1_{\times3}$

3 : 2

6 : 3 : 2 = 11

avg $= \frac{11}{3}$ unit

avg $= \frac{11}{3}$ unit = ₹ 110

1 unit $= 10 \times 3 =$ ₹ 30

∴ Mukesh has = 6 unit

$= 6 \times 30 =$ ₹ 180

254. (c) Let per day Income of Boy, woman, man are = x, $x + 10$, $x + 20$

According to the question

$\frac{7M+11W+2B}{20} = 257.50$

$7(x + 20) + 11(x + 10) + 2x = 257.50 \times 20$

$7x + 140 + 11x + 110 + 2x = 5150$

$20x = 5150 - 250$

$x = \frac{4900}{20} = 245$

Per day income of man

$= x + 20 = 245 + 20 = 265$

255. (c) Let the average of 12 innings = x

If he made x runs in 13th innings his average remain same. But his average increases

13 → x + 5

$13(x + 5) = 96 + 12x$

$13x + 65 - 12x = 96$

$x = 96 - 65 = 31$

Average after 13th ining is x + 5

$= 31 + 5 = 36$ runs

256. (b) Let the average of team is x then total scores is 8x

But, According to question,

$8x - 85 + 92 = 8 \times 84$

$8x = 672 - 7$

$\boxed{8x = 665}$

257. (d) Let the average price of Book is ₹ x/book.

So,

According to question,

$60x + 336 = 64\ (x - 1)$

$64x - 60x = 336 + 64$

$4x = 400$

Initially Book price $\boxed{x = 100}$

258. (d) $E + M + H + D = 50 \times 4 = 200$

$M + S.S + S + C = 70 \times 4 = 280$

$M+(M+E+H+D+S.S+S+C) = 480$

$M + (58 \times 7) = 480$

$M = 480 - 406$

$\boxed{M = 74}$ marks.

259. (c) $A + B + C = 84 \times 3 = 252$ ....(i)

$A + B + C + D = 80 \times 4 = 320$ ..(ii)

On solving equation (i) and (ii)

$D = 320 - 252$

$\boxed{D = 68}$

E's weight $= 68 + 3 = 71$

$B + C + D + E = 79 \times 4$

$B + C + D + 71 = 316$

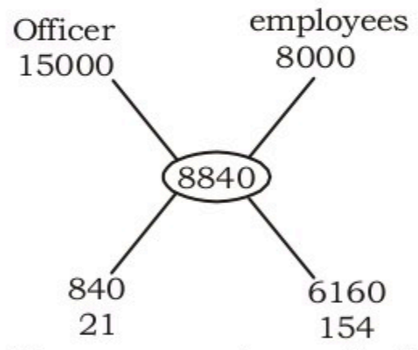
$B + C + D = 316 - 71 = 245$

Now, from equation (ii)

$(A+B+C+D)-(B+C+D) = 320-245$

A = 75 kg

260. (a) By the Alligation method.



Now, percentage of officer

$= \frac{21}{175} \times 100 = 12\%$

261. (a) Remaning question
= 60 – 30 = 30
Remaning minutes = 60 – 25 = 35
Per question time is = $\frac{35}{30}$ min
= $\frac{35}{30}$ ×60 sec = 70 seconds

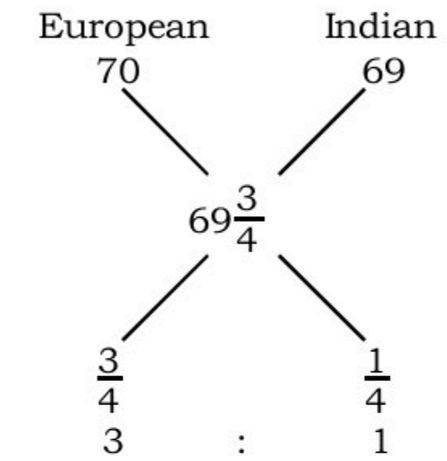
262. (c) Average income of A and B's = 8000
total income of A and B = 80000
× 2 = ₹ 160000
B and C average annual income = 75000
Total income of B and C is
= 75000 × 2 = 15000
C + A total Income is 78000 × 2
= 156000
(A+B)+(B+C)+(C+A) = 160000
= 150000 + 156000
2(A+B+C) = 4.66 lakh
A+B+C = 2.33 lakh
A's income = (A+B+C) – (B+C)
= 2.33 – 1.5
= .83 lakh
= 83000

263. (a) Let distance = LCM (40,60)
= 120
A to B, $T_1 = \frac{120}{40}$ = 3 hours
B → A, $T_2 = \frac{120}{60}$ = 2 hours
Average speed = $\frac{\text{Total distance}}{\text{total time}}$
= $\frac{120+120}{3+2} = \frac{240}{5}$ = 48 km/h

264. (c) Total run till 10 overs is
= 3.2 × 10 = 32
Remaining = runs = 282 – 32
= 250
250 runs make in 40 overs
so average runs per overs
= $\frac{250}{40}$ = 6.25

265. (b) Average amount of saving of 10 students is = 600
total saving of 10 students
= 600 × 10 = 6000
Nihar has = 1300
3 has no saving
so, remaning student is
= 10 – 4 = 6
these 6 student at least has 250
so, these student total amount
= 6 × 250 = 1500
amount after including Nihar is = 1500 + 1300
= 2800
Remaning saving = 6000 – 2800
= 3200
this 3200 amount any one could have. and 250 initially has
so, greatest amount is
= 3200 + 250 = ₹ 3450

266. (a) 1 feet = 12 inches
5 feet 10 inches = 5 × 12 + 10
= 70 inches
5 feet 9 inches = 5 × 12 + 9
= 69 inches
5 feet $9\frac{3}{4}$ inches = 5 × 12 + $9\frac{3}{4}$
= $69\frac{3}{4}$ inches



4 → 12000
1 → 3000

267. (c) Let consecutive even no. x, x +2, x+4
According to the questions
$(x+x+2+x+4) - \frac{(x+x+2+x+4)}{3}$
$\frac{3(3x+6)-(3x+6)}{3}$ = 28
2(3x+6) = 28 × 3
3x + 6 = 42
3x = 36
x = 12
So, smallest no = x = 12

268. (b) Total No. customers
= 15 × 600 = 9000
Now present working theateres
= 15 – 6 = 9
required average = $\frac{9000}{9}$
= 1000