BOOST UP PDFS Quantitative Aptitude Average (Difficult/ Hard Level)

Recommend for SBI PO, SBI Clerk, IBPS RRB/SO/PO/Clerk Exams

Average- Difficult

1. The average weight of 'x' persons is 51 kg. The average weight of (x – 18) women is 50 kg, the average weight of (x – 20) children is 45 kg, and the average weight of (x – 22) men is 60 kg. Find the value of 'x', if total person is the sum of men, women and children.

a) 30

b) 45

c) 48

d) 36

e) 32

2. The average of four numbers is twice the second number. The fourth number is 25% more than that of 1st number. The third number is 52 more than that of the average of all the four numbers. If the 3rd number is 56 more than the 4th number, and 2nd number is 16 less than the 1st number then find the average of all the four numbers.

a) 72

b) 56

c) 64

d) 48

e) 32

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3. The average marks obtained by all the students of a class in Maths is 75. If the marks of 2 students had been less by 18 and 26 respectively, then the average marks had been 2 less. If the marks of all the students are arranged in A.P., then the difference between the consecutive terms came out to be same. If the highest marks obtained is 50% more than the lowest marks obtained, then which of the following can be determined using the given data?

I. Number of students in the class

II. The highest marks obtained by a student

III. The marks obtained by the 15^{th} student

a) Only III

b) Only I and III

c) Only I

d) All I, II and III

e) Only II

4. Four different types (A, B, C and D) of boxes were sold. The number of box 'D' sold is 15 more than the average number of all the boxes sold. The number of box 'B' sold is 120 more than that of 'D'. The number of box 'C' sold is 60 more than that of 'A'. If the average number of box 'A', 'B', 'C' sold is 220, then find the number of box 'A' sold.

a) 120

b) 180

c) 160

d) 100

e) 140

5. Sid, Tony, Paul and Ram paid different fees in a coaching. The fee paid by Sid is equal to the average fee paid by remaining three. The fee paid by Tony is 25% of the fee paid by Tony, Paul and Ram together. Ram paid Rs. 10000 less fee than Paul. If the average fee paid by Sid and Ram is Rs. 23000, then find the fee paid by Paul.

a) Rs. 36000

b) Rs. 24000

c) Rs. 42000

d) Rs. 28000

e) Rs. 32000

6. Four persons 'A', 'B', 'C' and 'D' have different amounts with them. 'D' has twice amount than that of 'A'. The amount 'B' has is 12.5% more than that of 'D'. The amount 'C' has is equal to the average amount all four persons have. If the sum of the average amount all four have and the amount 'A' has is Rs. 660, then find the amount 'B' has.

a) Rs. 480

b) Rs. 540

c) Rs. 360

d) Rs. 420

e) Rs. 620

7. Bumrah's bowling average in some matches was 28. After playing one more match (last match) in which he took 6 wickets by giving 102 runs, his bowling average decreased by 1.65. Find the total number of wickets he had taken in all his matches.

(Bowling average = total number of runs given ÷ total wickets taken)

a) 34

b) 40

c) 36

d) 42

e) None of these

8. Sunil planned to complete 448 pages assignment in a certain number of days. For the first 9 days, he achieved his planned per day target. However, for the remaining days, he increased his efficiency and completed 6 more pages per day than planned. In this way, he completed 456 pages on one day before the planned finish date. What is the overall average number of pages completed per day by Sunil?

a) 30.4 pages

b) 34 pages

c) 29.8 pages

d) 28.5 pages

e) None of these

9. Raj works on day payment method. For the first three days of the week, he got 25% of the amount of the last two days of the week. The fourth and the fifth day collection is 75% of the last two days collection. If the total collection is Rs. 4200 then the average collection of the last two days of week is –

a) Rs. 2500

b) Rs. 1050

c) Rs. 2800

d) Rs. 3500

e) Rs. 1800

10. Average of 17 students in a class is X. When their marks are arranged in ascending order it was found to be in Arithmetic Progression. The class teacher found that rank the students who ranked 15th, 11th, 9th and 7th had copied the exam and hence they are suspended. Now the average of the remaining class is Y. Then

a) X =Y

b) X >Y

c) X<Y

d) X = 2Y

e) Data insufficient

11. In an aptitude exam for a company, there is certain average marks. After recovering quantitative mistakes, the average marks of 125 students got decreased from 80 to 68 and the average marks of all the students is decreased by 10 marks. Find the total number of students.

a) 100

b) 150

c) 250

d) 180

e) 170

12. In a coaching institute in Mukherjee Nagar, there are 252 students, in which the ratio of boys and girls

is 2 : 1. Some more girls are enrolled, and the number of girls become equal to that of the boys. The average age of all the students is now 22 years and the average age of boys is 2 years more than the average age of the girls. Find the average age of boys and girls.

a) 23, 21

b) 23, 31

c) 13, 21

d) 23, 13

e) None of these

13. The overall change in the average due to the dual change is _____ in which average weight of 5 men is decreased by 3 kg when one of them weighing 150 kg, is replaced by another person. This new person is again replaced by another person whose weight is 30 kg lower than the person he replaced.

a) 6 kg

b) 9 kg

c) 12 kg

d) 15 kg

e) 14 kg

14. Rajeev earns 3/2 times in January, April, July and October than his average earning of Rs. 600 per month in the rest of the months. So his savings in the January, April, July and October goes to 5/4 times that of the rest months saving of Rs. 400 per month in the year. The average expenditure of per month is :

a) Rs. 266.66

b) Rs. 250

c) Rs. 233.33

d) Rs. 433.33

e) None of these

15. 10 overs of a cricket match are played by each team A and team B. Average runs of team A is 1.5 times than average runs of B. Combined average of both teams is 25 runs per over. What average of runs is needed to be scored by team A in next 5 overs to score the total runs of 385?

a) 17 runs

b) 15 runs

c) 19 runs

d) 18 runs

e) 13 runs

16. A shop had 2500 raincoats, 1500 schoolbags and 1000 water bottles. Out of this, 60% of raincoats, 75% of schoolbags and 80% of water bottles were sold out. The price of a raincoat, a schoolbag and a water bottle is Rs. 300, Rs. 400 and Rs. 120. Find the average price received by the shop owner per object.

a) Rs. 290.80

b) Rs. 285.60

c) Rs. 310.75

d) Rs. 225.96

e) Rs. 303.63

17. A fish museum is open for all week days (week starting from Monday). For a particular week, the average earning for the first two days of week is Rs.

750 while the sum of total earning of third, fourth and fifth day is 1/3rd of total earning for the last two days. The average earning for last two days is Rs. 1800. Find the average earning of museum for that week.

a) Rs. 1200

b) Rs. 1100

c) Rs. 1500

d) Rs. 900

e) Rs. 500

18. Ram sold certain items in a day. When he calculated his daily earning he came to know that cost of one sold item is wrongly calculated as 150 instead of 250. Due to that the average price of all sold items is decreased by Rs. 10. Find the total number of sold items on that day.

a) 20

b) 5

c) 10

d) 8

e) 15

19. The average of first three of five number arranged in ascending order is 20 less than the average of the last three of these numbers. If the sum of the last three of these numbers is 65. What is the sum of the first three of the numbers?

a) 15

b) 5

c) 12

d) 9

e) 13

20. The average weight of a class including its class teacher is two kg more than that excluding its class teacher. If a new class teacher replaces the old one, the average weight decreases by 0.5 kg. What is the difference of weights of the old class teacher and new class teacher if the strength of class is 20.

a) 10 kg

b) 10.5 kg

c) 21 kg

d) 21.5 kg

e) Insufficient data

21. Akash on his birthday distributed on an average 10 toffees per student. If on the arrival of the teacher and the headmaster to whom Akash gave 15 and 20 toffees respectively, the average toffee distributed per head increases to 11.5, then what is the number of students among whom the sweets were distributed?

a) 8

b) 10

c) 12

d) 9

e) None of these

22. The average weight of 3 men A, B and C is 96kg. Another man D joins the group and the average now becomes now 88 kg. if another man E, whose weight is 4 kg more than that of D, replace A, then the

average weight B, C, D and E becomes 82 kg. The weight of A is:

a) 70 kg

b) 72 kg

c) 92 kg

d) 80 kg

e) None of these

23. A man's average expenditure for the first 5 months of the year was Rs. 175. For the next 3 months the average monthly expenditure was Rs. 27.33 more than what it was during the first 5 months. If the person spent Rs. 693 in all during the remaining 4 months of the year, find what percentage of his annual income of Rs. 2500 he saved in the year.

a) 15%

b) -5.066%

c) 12.5%

d) 13%

e) None of these

24. Average salary of an employee in a company is Rs. 30,000. All the employees are divides into three tiers each have different increments. If the average increment is 6% and the difference in increment in each tier is 1%.What is the average salary after increment if there is equal number of employees in each tier and total employees are 90?

a) 32,000

b) 29,800

c) 31,800

d) 40,000

e) 42,000

25. There are five cricket bats available in a shop. The average price of these 5 bats is Rs. 800. The difference between price of the costliest and cheapest bat is Rs. 1700 and the price of the rest 3 bats are equal. The price of the cheapest bat is a perfect square number and its value is lying between Rs. 350 and Rs 500. Also the price of all the bats is in whole numbers (that is in integer value). Find the price of the costliest bat.

a) Rs. 2400

b) Rs. 2500

c) Rs. 2300

d) Rs. 2100

e) Rs. 2000

26. In a company, ratio of senior employees to junior employees is 9: 10. If the ratio of male to female of Junior employees and senior employees are 2: 3 and 5: 4 respectively and total number of female employees in the company is 820, what is average number of male employees?

a) 369

b) 386

c) 338

d) 339

e) None of these

27. A set of five integers is given. Average of first and last number is middle number. Second number is ten more than first number. Sum of first three numbers is 198. Middle number is (X) and average of five numbers is (Y). Fourth number is 96. What can be the values come in the place of (X) and (Y) respectively?

(A) (72, 50)

(B) (64, 48)

(C) (60, 70)

(D) (124, 102)

(E) (84, 82)

a) Only option A, B, C possible

b) Only option B, D & E possible

c) Only option A, B, D & E possible

d) All of above options are possible

e) Only option C, D & E possible

28. The average earning of all members of a family is Rs. 98 per day. The difference between the highest and lowest amount earned in the family is Rs.140. If highest and lowest earning members are excluded the average earning of the group decreased by Rs. 2. If the minimum earning is more than Rs 45 and is multiple of 7 and the number of members initially was equal to a prime number, with its both digits prime then which of the following will be the initial number of members?

I.23

II.37

III.53

IV. 73

a) Only I

b) Only II

c) Both I and III

d) Both II and III

e) None of the above

29. The product of the first five terms of an increasing arithmetic progression is 40/81. If the 1st, 2nd and 4th terms of the arithmetic progression are in geometric progression, what is the sum of the 1st term and the 5th term of the arithmetic progression?

a) 2/3

b) 3/4

c) 1

d) 2

e) 3

30. In Champions league, Rohit scored an average of 120 runs per match in the first 3 match and an average of 140 runs per match in the last four match. What is Rohit's average runs for the first match and the last two match if his average runs per match for all the five match is 122 and total number of matches are 5?

a) 100

b) 200

c) 150

d) 50

e) None of these

31. The students of a class are divided into 3 groups depending on their performance in a test – the top, middle and bottom. The top group consists of 45% of the students, the middle group consists of 30% of the students and the rest are in the bottom group. The average marks of the bottom group are 20, those of the middle are 25 while the average marks for the entire class are 26. Find the average marks of the top group.

a) 7

b) 12

c) 22

d) 30

e) None of these

32. In a college there are 252 students, in which the ratio of the number of boys and girls is 2 :1. Some more girls are enrolled and the ratio of boys and girls becomes 1 : 1. The average age of all the students now is 22 years and the average age of girls is 2 years less than the average age of the boys.

From the above given information which of the following can be found out.

A. The average age of boys

B. The average age of girls

C. The average age of all the students before enrolment

a) Only A

b) Only B

c) Only C

d) Only A and B

e) Only A and C

33. Average age of a class of 36 students is 18 years. Average age of all the boys in the class is 17 years. If the number of boys in the class is _____, then average age of all the girls in the class is _____ years. Which of the following integral values given in the options are possible in the blanks in same order?

A. 18, 19

B. 20, 20

C. 24, 20

D. 26, 21

E. 27, 21

a) Only B

b) Only A, C and E

c) Only A and C

d) Only D

e) Only A and E

34. In a class, there are 'x' students and the average weight of the students is 'y' kg. If one new student whose weight is 50 kg is added, then average weight of class is increased by 1 kg. If one more student whose weight is 50 kg is added, then the average weight of the class increases by 1.5 kg over the original average. Which of the following can be found according to the given information?

(i) If Anant join the class, the average weight of the class increased by 0.5 kg, find the weight of Anant.

(ii) The number of students in the class.

(iii) Find the value of (y – 3x)

a) Only (i)

b) All (i), (ii) and (iii)

c) Only (ii) and (iii)

d) Only (iii)

e) Only (ii)

35. The number of laptops sold by a company increases by 10% every year. In 2015, the number of laptops sold was 24200. The price of laptop increases by 20% every year. The price of a laptop in 2014 was Rs. 30000. What was the average price of a laptop sold by this company considering years 2014, 2015 and 2016?

a) Rs. 35992.15

b) Rs. 36819.34

c) Rs. 37122.78

d) Rs. 36713.96

e) Cannot be determined

36. The common difference of arithmetic progression is _____ if difference between 66th term and 28th term is 418 and first term of the progression is 25. The average of first 70 terms of the arithmetic progression is _____.

Which of the following options satisfies the two blanks in the question?

A. 11, 404.5

B. 25, 414.5

C. 13, 408.5

D. 15, 407.5

a) Only B

b) Only C

c) Only A

d) Both A and D

e) Only D

37. The average price of a book and a notebook is Rs. 90. The average price of 20 books and 120 notebooks and 10 bags is Rs. 104 and the average price of a bag and a book is Rs. 250. The total price of a notebook and a book is what times the price of a bag?

a) 20/11

b) 9/20

c) 20/6

d) 10/7

e) 9/14

38. The sum of the IQ score of Quant team having 4 SMEs and Average IQ score of Gate team having 3 SMEs were 600 and 170 respectively. Recently, one SME of the Quant team switched to the Gate team and two new SME join the Quant team due to which the average IQ score of Quant team increased by 40% and average IQ score of both the teams becomes equal. Find the IQ score of the SME who switched to the Gate team.

a) 230

b) 330

c) 130

d) 290

e) Can't be determined

39. Average salary of an employee in a company is Rs. 30,000. All the employees are divides into three tiers each have different increments. If the average increment is 6% and the difference in increment in each tier is 1%.What is the average salary after increment if there is equal number of employees in each tier and total employees are 90?

a) 32,000

b) 29,800

c) 31,800

d) 40,000

e) 42,000

40. Mean marks of 10 girls and 12 boys are given as 15 and 12 respectively. Later on it was discovered that one boy scoring 13 and girl scoring 17 marks are taken interchangeably by mistake. If one more girl's marks are taken, new combined mean is 13.5. Calculate the marks scored by new girl.

a) 15

b) 16.5

c) 15.5

d) 16

e) 17

41. A, B, C and D are four salesmen. In the first month they received a commission of Rs. 3200 from their company and divided it in the ratio of 2 : 3 : 4 : 7. In the second month the commission doubled, the amount was divided in the ratio 3 : 4 : 5 : 4. In the third month the commission tripled when compared to the first month and they shared it in the ratio of 4 : 7 : 3 : 2 and in the fourth month the commission became half of the previous month and they shared it in the ratio of 4 : 3 : 5 : 4. What was the average monthly earning of C over the period?

a) Rs. 1,525

b) Rs. 2,552

c) Rs. 1,600

d) Rs. 1,725

e) None of these

42. The average age of all the team mates of a football team is 62.5. The average age of 4 team mates among them are 60. The average age of the remaining team mates are 63. If the team is divided into three categories namely A, B and C and the number of players in category C is 3/8 of the total team mates, then what is the LCM of the number of players in category A and B, given that number of players in A is twice the number of players in B?

a) 20

b) 10

c) 16

d) 27

e) None of these

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43. A group of 10 friends go on a trip and the average age of the group of friends is 25 years. Some more friends join their group and the average age of the group decreases by 1. The sum of, the number of new friends who joined the group later and their average age is 27. Find the total age of the group of friends who joined the group later?

a) 110 years

b) 100 years

c) 105 years

d) 115 years

e) 90 years

44. The average number of goals scored per match by a football player in matches where he was in the team of starting 11 is 1.5 and the average number of goals scored by the player in matches where he came on as a substitute is 0.5. The player scored 390 goals more in matches where he was in the team of starting 11 than in matches in which he came on as a substitute. If he played 388 matches in total, find the average number of goals scored by the player per match?

a) 0.571

b) 1.533

c) 0.528

d) 1.542

e) None of these

45. The average weight of P, Q, R and S is 40 kg. Two new people T and U, whose average weight is 37.5 kg, are also included in the group. Again a new person V replaces P, and then the new average of 6 persons becomes 43 kg. If weight of R is twice the weight of Q and weight of S is half the weight of V then what is the average weight of Q and S?

a) 42 kg

b) 30.5 kg

c) 36 kg

d) 45.5 kg

e) 26 kg

46. The weight of a body as calculated by the average of 7 different experiments is 53.735 gm. The average of the first three experiments is 54.005 gm, of the fourth is 0.004 gm greater than the fifth, while the average of the sixth and seventh experiment was 0.010 gm less than the average of the first three. Find the weight of the body obtained by the fourth experiment.

a) 49.353 gm

b) 51.712 gm

c) 53.072 gm

d) 54.512 gm

e) None of these

47. Sachin Tendulkar has a certain batting average N (a whole number) in his career of 86 innings. In the 87th inning, he gets out after scoring 270 runs which increases his batting average by a whole number. The batting average is calculated by dividing the total number of runs scored by the total number of innings played by the player. How many values of his new average is/are possible?

a) 0

b) 1

c) 2

d) Can't be determined

e) None of these

48. Mr. Anant Roy, the renowned author, recently got his new novel released. To his utter dismay he found that for the 1,007 pages on an average there were 2 mistakes every page. While, in the first 612 pages there were only 434 mistakes, they seemed to increase for the latter pages. Find the average number of mistakes per page for the remaining pages.

a) 6

b) 4

c) 2

d) 8

e) None of these

49. Average age of a man, woman and their son is 30 years. Man's age is two year more than his wife and age of son is 1/4th the sum of age of his mother and father. When two other family members were added, new average becomes 27 years. If difference between age of two new members are one year then find difference between son and the new member who is elder.

a) 7 years

b) 8 years

c) 4 years

d) 2 years

e) 5 years

50. Average weight of group of some children increases by 1 when 2 children join them. If instead of these 2 children another 2 children join the group then average decreased by 1 but total weight becomes more than initial weight. If difference between the sums of weight of 2 children of previous one to later one is 14 then find the initial number of children in group.

a) 7

b) 5

c) 3

d) 6

e) None of these

Solutions and Detailed Explanation :

1. Answer: A)

Total weight of x persons = 51 × x = 51x kg

Total weight of (x – 18) women = 50 × (x – 18) = 50x – 900 kg

Total weight of (x – 20) children = 45 × (x – 20) = 45x – 900 kg

Total weight of (x – 22) men = 60 × (x – 22) = 60x – 1320 kg

According to the question,

$51x = 50x – 900 + 45x – 900 + 60x – 1320$

$51x = 155x – 3120$

$155x – 51x = 3120$

$104x = 3120$

$x = 30$

2. Answer: C)

Let the average of all the four numbers be 2x.

Therefore, 3rd number = 2x + 52

2nd number = x

1st number = (x + 16)

4th number = 1.25(x + 16)

According to the question,

$2x + 52 + x + x + 16 + 1.25x + 20 = 4 \times 2x$

Or, x = 88/2.75 = 32

Therefore, average = 2x = 64

3. Answer: D)

Let there are n students in the class

For I:

According to the question,

$(x_1 + x_2 + ……..+ x_n) = 75n$..... (1)

Also, $(x_1 + x_2 + ……..+ x_n) = 73n + (18 + 26)$..... (2)

On solving equation (1) and (2), we get

Number of students = n = 22

For II:

Also, let the lowest marks be 'y'.

Then, highest marks = 1.5y

So, (y + 1.5y)/2 = 75

y = 60

So, highest marks = 90

For III:

According to the question,

$75 \times 22 = (22/2)\{2 \times 60 + (22 – 1)d\}$

Or, d = 30/21 = 10/7

Marks obtained by the 15th student = $60 + (15 – 1) \times (10/7) = 80$

4. Answer: A)

Let the average number of boxes of all the four types sold be 'x'

Therefore, number of box 'D' sold = (x + 15)

Total number of box A, B and C sold = $220 \times 3 = 660$

Therefore, (660 + x + 15)/4 = x

Or, 3x = 675

Or, x = 675/3 = 225

Therefore, number of box 'D' sold = 225 + 15 = 240

Number of box 'B' sold = 240 + 120 = 360

Let the number of box 'A' sold be 'y'.

Therefore, number of box 'C' sold = (y + 60)

(y + 60) + y = 660 – 360

2y = 240

Or, y = 120

5. Answer: E)

Let the fee paid by Sid be Rs. 'x'

Therefore, fee paid by remaining three = Rs. 3x

Fee paid by Tony = 0.25 × 3 = Rs. 0.75x

Fee paid by Paul and Ram = 3x – 0.75x = Rs. 2.25x

Fee paid by Paul = Rs. (1.125x + 5000)

Fee paid by Ram = Rs. (1.125x – 5000)

According to the question,

1.125x – 5000 + x = 2 × 23000

Or, x = 51000/2.125 = Rs. 24000

Therefore, fee paid by Paul = 1.125x + 5000 = Rs. 32000

6. Answer: B)

Let 'A' has Rs. a

Therefore, amount possessed by 'D' = Rs. 2a

Amount possessed by 'B' = 1.125 × 2a = Rs. 2.25a

Let the average amount possessed by all four be Rs. x

Therefore, amount possessed by 'B' = Rs. x

According to the question,

2.25a + 2a + a = 4x – x

Or, 5.25a = 3x

Or, x/a = 7/4

Therefore, a = 660 × 4/11 = Rs. 240

Amount possessed by 'B' = 2.25a = Rs. 540

7. Answer: B)

Let total runs given and total wickets taken before the last match be 'x' and 'y' respectively.

So, x = 28y

And, (x + 102) = (28 – 1.65) × (y + 6)

x + 102 = 26.35y + 158.1

28y – 26.35y = 56.1

1.65y = 56.1

y = 34

So, total wickets taken by Bumrah = 34 + 6 = 40

8. Answer: A)

Suppose Sunil has planned to complete a number of pages per day and he planned to finish the assignment in n number of days.

∴ 448/a = n

According to the given data.

Pages completed up to 9^{th} day + Pages completed from 10^{th} day to $(n - 1)^{th}$ day = 456

9 × a + (a + 6) × (n - 1 - 9) = 456

⇒ 9a + an + 6n - 10a - 60 = 456

⇒ an - a + 6n = 516

Putting n = 448/a.

⇒ a × (448/a) - a + 6 × (448/a) = 516

⇒ 448 - a + 2688/a = 516

⇒ 448a - a^2 + 2688 = 516a

⇒ a^2 + 68a - 2688 = 0

⇒ (a - 28) (a + 96) = 0

⇒ a = 28

∴ Sunil planned to complete the 28 pages per day.

Planned number of days to complete the assignment = 448/28 = 16

But due to increased efficiency, he completes 456 pages in (16 - 1) = 15 days.

∴ Overall average number of pages completed per day by Sunil = 456/15 = 30.4

9. Answer: B)

Given,

Total collection of seven days of week =

= 1^{st} day + 2^{nd} day + 3^{rd} day + 4^{th} day + 5^{th} day + 6^{th} day + 7^{th} day

Given,

⇒ 1^{st} day + 2^{nd} day + 3^{rd} day = (25/100) × (6^{th} day + 7^{th} day)

⇒ 4^{th} day + 5^{th} day = (75/100) × (6^{th} day + 7^{th} day)

Then,

⇒ 4200 = (6^{th} day + 7^{th} day)/4 + 3(6^{th} day + 7^{th} day)/4 + (6^{th} day + 7^{th} day)

⇒ 4200 = (6^{th} day + 7^{th} day)/4 + 3(6^{th} day + 7^{th} day)/4 + (6^{th} day + 7^{th} day)

Solving,

⇒ 4200 × 4 = (6^{th} day + 7^{th} day) + 3(6^{th} day + 7^{th} day) + 4(6^{th} day + 7^{th} day)

⇒ 4200 × 4 = 8(6^{th} day + 7^{th} day)

⇒ (6^{th} day + 7^{th} day) = 2100

Average collection of the last two days of the week = 2100/2 = Rs. 1050

10. Answer: C)

17X = 17/2 (2a+16d)

X = a+8d

13Y = 17/2(2a+16d) – (4a+26d)

Y = a+8.46d

11. Answer: B)

Let average marks be N.

Total marks of 125 students = 80 × 125 = 10000

After recovering quantitative mistakes, Total marks of 125 students = 68 × 125 = 8500

Average marks are reduced by = 10

Total number of students in an exam = (10000 - 8500)/10

= 150

∴ Required number of students = 150

12. Answer: A)

It is given that the ratio of boys and girls is = 2 : 1

Let the number of boys is 2X and number of girls is X

⇒ 3X = 252

⇒ X = 84

Boys = 168, girls = 84

Let K girls enrolled later then ratio = 1 : 1

⇒ 168/(84 + K) = 1/1

⇒ K = 84

Now average,

[boys(168) + girls(168)]/336 = 22 ----(1)

And it is given that,

Girls(168)/168 + 2 = boys(168)/168 ----(2)

By solving these two equations,

Girls(168) = 3528

Boys(168) = 3864

Average age of girls = 3528/168 = 21

Average age of boys = 3864/168 = 23

13. Answer: B)

In case of replacement this formula can be applied, value of new observation = (a + nb) for increment and (a - nb) for decrement

Here, a = 150, n = 5 and b = 3

So, the weight of new person = a - nb = 150 - 5 × 3 = 135 kg

Again, 135 kg is replaced by a new person whose weight is 30 kg.

So, the weight of the next new person = 135 - 30 = 105 kg

Thus, overall change in average = (150 - 105)/5 = 9 kg

14. Answer: A)

$$\text{Total earning} = 4\left(\frac{3}{2}\times 600\right) + 8\times 600$$
$$= 3600 + 4800$$
$$= 8400 \text{ Rs.}$$
$$\text{Total saving} = 4\times\frac{5}{4}\times 400 + 8\times 400$$
$$= 2000 + 3200$$
$$= 5200 \text{ Rs.}$$
$$\therefore \text{Total expenditure} = 8400 - 5200$$
$$= 3200$$
$$\therefore \text{Required average expenditure} = \frac{3200}{12}$$
$$= 266.66 \text{ Rs.}$$

15. Answer: A)

Let the average run of team B be x runs

Then, the average run of team A will be 1.5x runs

[10x + 15x]/20 = 25

⇒ 25x = 25 × 20

⇒ x = 20

Average runs of team A is 20 runs

Average runs of team B is 20 × 1.5 i.e. 30 runs

Total runs of team A = 15 × 20 = 300 runs

Runs required in next 5 overs = 385 – 300 = 85 runs

Average of runs required in next 5 overs = 85/5 = 17 runs

∴ On an average, 17 runs are required in an over to get 385 runs in next 5 overs

16. Answer: A)

⇒ Average = sum of elements / number of elements

Given

There are 2500 raincoats, 1500 schoolbags and 1000 water bottles were ordered in a month. Out of this, 60% of raincoats, 75% of schoolbags and 80% of water bottles were sold out.

Number of sold raincoats =

= (60/100) × 2500

= 1500

Number of sold schoolbags =

= (75/100) × 1500

= 1125

Number of sold water bottles =

= (80/100) × 1000

= 800

The price of a raincoat, a schoolbag and a water bottle is Rs. 300, Rs. 400 and Rs. 120.

Total price of 300 raincoats = 300 × 1500 = Rs. 450000

Total price of 400 schoolbags = 400 × 1125 = Rs. 450000

Total price of 120 water bottles = 120 × 800 = Rs. 96000

Total price including all three sold items =

= 450000 + 450000 + 96000

= 996000

Total number of items =

= 1500 + 1125 + 800

= 3425

Average income of that shop for that particular month.

= (996000/3425)

= 290.8

Average income of that shop for that particular month is Rs. 290.8

17. Answer: D)

Let the daily earning of museum for that particular week is d_1, d_2, d_3, d_4, d_5, d_6 and d_7 respectively.

Given,

Average earning for the first two days of week is Rs. 750 :

Average = total earning / number of days

⇒ Total earning of first two days of week = 750 × 2 = Rs. 1500

⇒ Total earning of first two days of week = $d_1 + d_2$ = Rs. 1500

Given,

The average earning for last two days is Rs. 1800 :

⇒ Total earning of last two days of week = 1800 × 2 = Rs. 3600

⇒ Total earning of first two days of week = $d_6 + d_7$ = Rs. 3600

Given,

Sum of total earning of third, fourth and fifth day is 1/3rd of total earning for the last two days :

⇒ $(d_3 + d_4 + d_5) = 1/3 \times (d_6 + d_7)$

⇒ $(d_3 + d_4 + d_5) = 1/3 \times (3600)$

⇒ $(d_3 + d_4 + d_5) = 1200$

Total earning for all seven days of week :

⇒ $d_1 + d_2 + d_3 + d_4 + d_5 + d_6 + d_7$

⇒ 1500 + 1200 + 3600

⇒ Rs. 6300

∴ Total earning for all seven days of week is Rs. 6300.

Average earning for a week = total earning for seven days/7

⇒ 6300/7 = 900

∴ Average earning for a week is Rs. 900.

18. Answer: C)

Let the number of items sold by Ram in a day be x and total amount earned after selling all items except one wrongly **calculated** price item be Rs. m.

Average price of all items sold in a day = old average = (total amount earned after selling all items)/number of items

= (m + 150)/x

Given,

The cost of one sold item is wrongly calculated as 150 instead of 250, so average price is decreased by Rs. 10

Average of all items with new price 250 = new average = (total amount earned after selling all items)/(x)

= {(m + 250)/x}

Old average + 10 = new average

⇒ {(m + 150)/x} + 10 = (m + 250)/x

⇒ (m + 150) + 10x = (m + 250)

⇒ 150 + 10x = 250

⇒ 10x = 100

⇒ x = 10

∴ Number of all sold items by Ram in a day is 10.

19. Answer: B)

Let the numbers be p, q, r, s and t

According to question

⇒ (p + q + r)/ 3 = {(r + s + t)/3} – 20

⇒ p + q + r = r + s + t – 60

⇒ p + q = s + t – 60 ….. 1

Given,

⇒ r + s + t = 65

⇒ s + t = 65 – r …….2

Putting the value of s + t in 1 we get

⇒ p + q = 65 – r – 60

∴ p + q + r = 5

20. Answer: B)

Let the average weight of all the students = x kg.

Total weight of students = 20x kg

Average weight of students including class teacher = (x + 2) kg

Total weight of students including class teacher = (x + 2)

× 21 kg = (21x + 42) kg

After replacement, average weight of students including class teacher = (x + 1.5) kg

After replacement, total weight of students including class teacher

= (x + 1.5) × 21 kg

= 21x + 31.5 kg

Difference of total weights = (21x + 42) - (21x + 31.5) kg = 10.5 kg

21. Answer: A)

Let's assume that initial number of students be x.

∴ number of toffees given to x students = 10x

After the arrival of teacher and headmaster, total toffees distributed = 10x + 15 + 20 = 10x + 35

Now, the average becomes 11.5,

∴ 10x + 35 = 11.5 × (x + 2)

⇒ 10x + 35 = 11.5 x + 23

⇒ x = 8

∴ the number of students among whom the sweets were distributed is 8.

22. Answer: C)

Let the weights of A, B, C, D, E be a, b, c, d, e kgs respectively.

We know that, Average = (Sum of all terms)/(Number of terms)

∴ Sum of all terms = Average × number of terms

∵ Average of a, b, c is 96,

a + b + c = 3 × 96 = 288

∵ Average of a, b, c, d is 88,

a + b + c + d = 4 × 88 = 352

∴ d = 352 - 288 = 64

∵e is 4 more than d, e = 64+ 4 = 68

Now, since the average of b, c, d, e is 82,

b + c + d + e = 4 × 82 = 328

∴b + c = 328 - d - e = 328 - 64 – 68

⇒ b + c = 196

a = (a + b + c) - (b + c) = 288 - 196 = 92

Weight of A = 92 Kg

23. Answer: D)

Average expenditure in first 5 months = Rs. 175

Total expenditure in first 5 months = Rs. 175 × 5 = Rs. 875

Average expenditure in next 3 months = Rs. 175 + Rs. 27.33 = Rs. 202.33

Total expenditure in next 3 months = Rs. 202.33 × 3 = Rs. 607

Total Expenditure in last 4 months = Rs. 693

Annual Expenditure = 875 + 607 + 693 = Rs. 2175

Annual Income = 2500

% savings = (Annual Income - Annual Expenditure) × 100/Annual Income

= (2500 – 2175) × (100/2500) = 325/25 = 13%

24. Answer: C)

Total salary of all the employees is Rs. 30,000 × 90 = 27,00,000

Total increment in first section = 30,000 × 30 × 0.05 = 45,000

Total increment in second section = 30,000 × 30 × 0.06 = 54,000

Total increment in third section = 30,000 × 30 × 0.07 = 63,000

Total increment = 1,62,000

Total salary after increment = 27,00,000 + 1,62,000 = 28,62,000

∴ Average salary = 28,62,000/90 = 31,800

25. Answer: D)

Let the price of the costliest bat = x

Let the price of the cheapest bat = y

Let the price of each of the 3 remaining bat = z

Average price of all 5 bats = 800 (given)

Total cost of all the five bats = Average × 5

⇒ 800 × 5 = 4000

⇒ x + y + z + z + z = 4000

⇒ x + y + 3z = 4000 ---- (I)

It is also given the price of the cheapest bat is a perfect square number and greater than 350 and less than 500

Possible values of y = 361, 400, 441, 484

The difference between the price of the costliest bat and the cheapest bat is = 1700 (given)

⇒ x – y = 1700

Taking value of y = 361

⇒ x = y + 1700

⇒ x = 361 + 1700

⇒ x = 2061

Putting values of x and y in (I)

⇒ 2061 + 361 + 3z = 4000

⇒ 3z = 4000 – 2462

⇒ 3z = 1538

⇒ z = 1538/3

⇒ z = 512.667

But the price of all the bats must be in whole numbers (given)

⇒ Value of y can't be = 361

Taking value of y = 400

⇒ x = y + 1700

⇒ x = 400 + 1700

⇒ x = 2100

Putting values of x and y in (I)

⇒ 2100 + 400 + 3z = 4000

⇒ 3z = 4000 – 2100 – 400

⇒ 3z = 1500

⇒ z = 500

The value of z comes out to be = 500, which is a whole number

The price of each of the remaining 3 bats = Rs 500

The price of the costliest bat = Rs. 2100

The price of the cheapest bat = Rs. 400

No other value satisfies the option

∴ The price of the costliest bat = x = Rs. 2100

26. Answer: A)

Let male junior and female junior employees are 2x and 3x respectively

And, male senior and female senior employees are 5y and 4y respectively.

Total number of females in the company = 3x + 4y = 820 ----(1)

And, 5x/9y = 10/9

=> x = 2y ---(2)

From equation (1) and (2), we get

6y + 4y = 820

=> y = 82

So, x = 164

Hence, average number of male employees = (2x + 5y)/2 = (2 * 164 + 5 * 82)/2 = 369

27. Answer: E)

Let first number is 'a'
And, second number be 'a + 10'
Given, third number = 'X'
ATQ
$a + a + 10 + X = 198$
$a = 94 - 0.5X$
So, $a + 10 = 104 - 0.5X$
Let fifth term is 'e'
ATQ
$198 + 96 + e = 5Y$
$e = 5Y - 294$
Given, average of first and last no. is X
$\frac{94-0.5X+5Y-294}{2} = X$
$10Y = 5X + 400$
From option (A)
$10\times 50 \neq 72 \times 5 + 400$
So, option (A) not possible
From option (B)
$48 \times 10 \neq 64 \times 5 + 400$

So, option (B) not possible
From option (C)
$70 \times 10 = 60 \times 5 + 400$

So, option (C) possible
From option (D)
$102 \times 10 = 124 \times 5 + 400$
$1020 = 620 + 400$
So, option (D) possible
From option (E)
$82 \times 10 = 84 \times 5 + 400$
So, option (E) possible
Only option C, D & E possible to come in the place of (X

28. Answer: E)

Let there be n member (initially) in the family, then the total earning of the family= Rs 98n

Let lowest earning in the family be Rs x then the highest earning= Rs (x+140)

$n \times 98 = (n - 2) \times 96 + (2x + 140)$

$\Rightarrow n = x - 26$……..(i)

For possible value of x = 49,56,63,70,77,84,91,98

We have n= 23,30,37,44,51,58,65,72

Required value of n=23 and 37

29. Answer: D)

Let the five terms in the AP be a-2d, a-d, a, a + d and a+
$(a-2d) \times (a-d) \times a \times (a+d) \times (a+2d) = \frac{40}{81}$.....
And $\frac{a-d}{a-2d} = \frac{a+d}{a-d}$
$d \times (3d - a) = 0$
$d = \frac{a}{3}$
Substituting the value of d in (i), we get a=1
Hence, the sum=(a-2d) + (a+2d) = 2a=2

30. Answer: A)

Rohit's average score in the first 3 exams = 120

Let the scores in the 5 exams be denoted by M1, M2, M3, M4, and M5

M1 + M2 + M3 = 120 × 3 = 360 .....(i)

Average of last 4 match = 140

=> (M2 + M3 + M4 + M5)/4 = 140

⇒ M2 + M3 + M4 + M5 = 560 .....(ii)

Average of all the exams

=> (M1 + M2 + M3 + M4 + M5)/5 = 122

∴ M1 + M2 + M3 + M4 + M5 = 122 × 5 = 610 .....(iii)

From solving above equation, we get M1 + M4 + M5 = 300

Required average runs = 300/3 = 100

31. Answer: D)

	Top	Middle	Bottom	Total
Number of student	45	30	25	100
Average	P	25	20	26

Let the total number of students in the class = 100. The data given in the question is shown in the table.

Let average of top group be P

(45 × P) + (30 × 25) + (20 × 25) = (100 × 26)

⇒ P = 30

32. Answer: D)

It is given that the ratio of boys and girls is = 2 : 1

Let the number of boys is 2X and number of girls is X

3X = 252

X = 84

Boys = 168, girls = 84

Let K girls enrolled later then ratio = 1 : 1

168/(84 + K) = 1/1

K = 84

Now average,

[B (168) + G (168)]/336 = 22 -------- (i)

And it is given that,

G(168)/168 + 2 = B(168)/168 ------ (ii)

On solving these two equations,

G(168) = 3528

B(168) = 3864

Average age of boys = 3864/168 = 23 ------(A)

Average age of girls = 3528/168 = 21 ------(B)

For C ,we do not know the average age of boys and girls before enrollment , so the average age of all students before enrollment cannot be found.

33. Answer: B)

Sum of the ages of all the students in the class = 18 × 36 = 648 years

Let the number of boys in the class = x

So, the number of girls in the class = 36 – x

Sum of ages of all the boys in the class = 17x years

Let, the average age of all the girls in the class = y years

Sum of the ages of all the girls in the class = y × (36 – x) = 36y – xy years

∴ Sum of the ages of all the students in class = (17x) + (36y – xy)

For option A :

Sum of the ages of all the students in class = (17 × 18) + (36 × 19 – 18 × 19) = 306 + 684 – 342 = 648 years

So, option A can be the answer

For option B:

Sum of the ages of all the students in class = (17 × 20) + (36 × 20 – 20 × 20) = 340 + 720 – 400 = 660 years

So, option B can't be the answer

For option C:

Sum of the ages of all the students in class = (17 × 24) + (36 × 20 – 24 × 20) = 408 + 720 – 480 = 648 years

So, option C can be the answer

For option D:

Sum of the ages of all the students in class = (17 ×26) + (36 × 21 – 26 × 21) = 442 + 756 – 546 = 652 years

So, option D can't be the answer

For option E:

Sum of the ages of all the students in class = (17 × 27) + (36 × 21 – 27 × 21) = 459 + 756 – 567 = 648 years

So, option E can be the answer

Hence, option B is correct.

34. Answer: B)

Total weight of the class = x × y = xy kg

According to the question,

xy + 50 = (x + 1)(y +1)

xy + 50 = xy + x + y + 1

x + y = 49

x = 49 – y ….1

Again, one student join the class,

xy + 50 + 50 = (x + 2)(y + 1.5)

xy + 100 = xy + 2y + 1.5x + 3

97 = 2y + 1.5x

Putting the value of x:

1.5(49 – y) + 2y = 97

73.5 – 1.5y + 2y = 97

0.5y = 23.5

y = 47

Putting the value of y in equation 1

x = 49 – 47 = 2

(i) If Anant join the class, the average weight of the class increased by 0.5 kg, find the weight of Anant.

Let the weight of Anant = a kg

According to the question,

(47 × 2 + x)/3 = 47.5

94 + x = 142.5

x = 48.5 kg

It can be found.

(ii) The number of students in the class.

The number of students in the class = 2

(iii) Find the value of (y – 3x)

(y – 3x) = (47 – 3 × 2)

= 47 – 6 = 41

It can be found.

35. Answer: B)

The price of a laptop in 2014 was Rs. 30000.

⇒ Price of laptop in 2015 = Rs. 30000 × (1 + 20/100) = Rs. 36000

⇒ Price of laptop in 2016 = Rs. 36000 × (1 + 20/100) = Rs. 43200

In 2015, the number of laptops sold was 24200. The number of laptops sold by a company increases by 10% every year.

⇒ Number of laptops sold in 2014 = 24200/(1 + 10/100) = 22000

⇒ Number of laptops sold in 2016 = 24200 × (1 + 10/100) = 26620

∴ Average price of laptop in 2014, 2015 and 2016 = [(30000 × 22000) + (36000 × 24200) + (43200 × 26620)]/(22000 + 24200 + 26620) = 2681184000/72820 = Rs. 36819.34

36. Answer: C)

Given,

Let a = first term and d = common difference

⇒ N^{th} term = a + (N – 1)d

Given,

⇒ 418 = a + (66 – 1)d – a – (28 – 1)d

⇒ 418 = 65d – 27d

⇒ d = 11

Common difference is 11.

⇒ a = 25

⇒ S_{70} = (70/2) × [2 × 25 + (70 – 1)11]

⇒ S_{70} = (35) × [50 + 69 × 11]

⇒ S_{70} = (35) × [809]

⇒ S_{70} = 28315

∴ Required average = 28315/70

= 404.5

37. Answer: B)

Let price of a book, a notebook and a bag be Rs. M, Rs. N and Rs. P respectively.

Given,

⇒ M + N =

180

⇒ 20M + 120N + 10P = 104 × 150

⇒ 2M + 12N + P = 1560

Given,

⇒ M + P = 500

⇒ M + N = 180

Adding,

⇒ 2M + P + N = 680

Solving,

⇒ 12N + 680 – N = 1560

⇒ 11N = 1560 – 680

⇒ N = 80

⇒ M = 180 – 80 = 100

⇒ P = 500 – 100 = 400

Price of a book, a notebook and a bag is Rs. 100, Rs. 80 and Rs. 400 respectively.

Then,

⇒ (100 + 80) = ? × 400

⇒ ? = 0.45

⇒ ? = 9/20

38. Answer: B)

Average IQ score of Quant team having 4 SMEs = 600/4 = 150

Since average IQ score of Quant team increased by 40% after two new members join the Quant team;

∴ New average IQ score of Quant team = 150 × 1.4 = 210

Since the average IQ score of both the teams becomes equal;

∴ New average IQ score of Gate team when one member of the Quant team switched to the Gate team = 210

∴ IQ score of the SME who switched to the Gate team = 210 × 4 – (170 × 3) = 330

39. Answer: C)

Total salary of all the employees is Rs. 30,000 × 90 = 27,00,000

Total increment in first section = 30,000 × 30 × 0.05 = 45,000

Total increment in second section = 30,000 × 30 × 0.06 = 54,000

Total increment in third section = 30,000 × 30 × 0.07 = 63,000

Total increment = 1,62,000

Total salary after increment = 27,00,000 + 1,62,000 = 28,62,000

∴ Average salary = 28,62,000/90 = 31,800

40. Answer: B)

Let the marks of this new girl be x

⇒ Incorrect total of marks of 10 girls = 15 × 10 = 150

⇒ Correct total of marks of 10 girls = 150 + 17 - 13 = 154

⇒ Incorrect total of marks of 12 boys = 12 × 12 = 144

⇒ Correct total of marks of 12 boys = 144 + 13 - 17 = 140

As we know,

Combined Mean = (Total marks of all girls + Total marks of all boys)/Total number of students

Now, according to the question,

⇒ Total girls = 10 + 1 = 11

⇒ Combined mean = (154 + x + 140) / (11 + 12)

⇒ 13.5 = (294 + x)/23

⇒ 13.5 × 23 = 294 + x

⇒ 310.5 = 294 + x

⇒ x = 310.5 - 294

⇒ x = 16.5

∴ The marks of new girl is 16.5

41. Answer: A)

Total commission in first month = Rs. 3200

Total commission in second month = Rs. 6400

Total commission in third month = Rs. 9600

Total commission in fourth month = Rs. 4800

C's share in the commission = 4/16 of 3200 + 5/16 of 6400 + 3/16 of 9600 + 5/16 of 4800 = 800 + 2000 + 1800 + 1500 = Rs. 6100

C's average monthly earnings = 6100/4 = Rs. 1525.

42. Answer: B)

Total number of team mates: x

Total age of all the team mates = 62.5x

Average age of 4 team mates: 60

Total age of 4 team mates = 60 x 4 = 240

Total age of x – 4 team mates = (x - 4) x63

63(x-4) + 240 = 62.5x

x = 24

Total team mates: 24.

Number of players in category C = 3/8 x 24 = 9

Let the number of players in B be x

Then the number of players in A = 2x

2x + x = 24-9 = 15

x = 5

Number of players in A and B are 10 and 5 respectively.

LCM of 10 and 5 = 10

43. Answer: A)

Let, the number of friends who joined the group later be 'n' and their average age be 'x'.

According to question, n + x = 27

x = 27 – n …. (i)

After the new friends joined the group their average decreases by 1. So, the new average of the total group is 24 years.

(10*25 + n*x)/ (10 + n) = 24

250 + n (27 – n) = 240 + 24n

250 + 27n – n^2 = 240 + 24n

n^2 + 24n – 27n – 250 + 240 = 0

n^2 – 3n – 10 = 0

(n + 2)(n – 5) = 0

So, n = 5

And, x = 27 – 5 = 22

Therefore, total age of the new friends who joined the group later = 22*5 = 110 years

44. Answer: E)

Let the number of matches in which the player was in the team of starting 11 be x and the matches in which the player came on as a substitute be y.

Thus x + y = 388 --- (1)

Number of goals scored in matches in which the player was in the team of starting 11 = Average × number of matches = 1.5x

Number of goals scored in matches in which he came on as a substitute = 0.5y

Thus, 1.5x = 0.5y + 390 --- (2)

Solving both equations for x and y, we have x = 292 and y = 96.

So, the total number of goals scored by the player = 1.5 × 292 + 0.5 × 96 = 486 goals.

Therefore, average number of goals scored per match = 486 ÷ 388 = 1.253

45. Answer: B)

Total weight of P, Q, R and S = 40 × 4 = 160 kg

Total weight of P, Q, R, S, T and U = 160 + 75 = 235kg

Total weight of Q, R, S, T, U and V = 43 × 6 = 258 kg

Total weight of Q, R, S and V = 258 - 75 = 183 kg

According to question,

Q + 2Q + S + 2S = 183

Q + S = 61

Average weight of Q and S = 61/2 = 30.5 kg

46. Answer: C)

Detailed method:- 54.005 – 53.735 = 0.27

$$\text{Avg of Last 4} = 53.735 - \frac{0.27 \times 3}{4} = 53.53$$

avg. 6th and 7th = 54.005 – 0.010 = 53.995

6th + 7th = 53.995 × 2 = 107 .99

Let 4th be x

$x + x - 0.004 + 107.99 = 53.53 \times 2$

$\therefore \quad x = 53.072$

47. Answer: E)

Total number of runs scored till 86the inning = 86N

Now, 86 N + 270 = 87 (N + S), Where S is the increase in batting average.

Different values of 5 possible now S = 0, 1, 2 and 3.

48. Answer: B)

Total mistakes = 1007 × 2 = 2014

Let x be average mistake per page for the remaining pages

434 + 395x = 2014

395x = 1580

x = 4

49. Answer: E)

Let age of man is x years

Age of woman = (x – 2) years

$$\text{Age of son} = \frac{(x+x-2)}{4}$$

$$= \frac{(x-1)}{2} \text{ years}$$

ATQ—

$$\frac{x+(x-2)+\frac{(x-1)}{2}}{3} = 30$$

$$\frac{2x+2x-4+x-1}{2} = 90$$

$5x = 185$

$x = 37$ years

$$\text{son age} = \frac{(37-1)}{2} = 18 \text{ years}$$

let age of two new members be y years ar

ATQ—

$$\frac{90+(y+y-1)}{5} = 27$$

$2y - 1 = 135 - 90$

$$y = \frac{46}{2}$$

Y = 23

Required difference = 23 – 18 = 5 years

50. Answer: B)

Let initial no. of child in group → y

And average weight → x

Average weight increased when, weight of child join, have higher weight.

So,

Weight of 2 children higher than average weight ⇒ (x + 1) (y + 2) – xy …(i)

Weight of 2 child less than average weight ⇒ (x – 1) (y + 2) -xy …(ii)

Now its given

[(x + 1) (y + 2) – xy- ((x – 1) (y + 2) -xy)] = 14

Solving ⇒ y = 5

y = 5