

SOLUTIONS

1. (a) Average weight

$$\frac{1500 + 1250 + 1350 + 750 + 950 + 700 + 400 + 500}{8}$$

$$= \frac{7400}{8} = 925 \text{ gm.}$$

2. (b) Weight of new person

$$= (15 \times 3.2) + 52$$

$$= 48 + 52$$

$$= 100 \text{ kg}$$

3. (d) A : B : C Total
 3 5 7 \rightarrow 15

ATQ,
 Total age = 15 unit $\rightarrow 25 \times 3$
 1 unit = 5

Yongest boys = 3 unit $\rightarrow 15$ yrs.

4. (b) Sale on 5th day = (6050×5)

$$- (5445 + 5937 + 5865 + 6562)$$

$$= (30,250 - 23809)$$

$$= \text{Rs.} 6441$$

5. (c) Weight of new student

$$= 53 - 50 \times \frac{1}{2} = 28 \text{ kg}$$

6. (a) Weight of (A + B + C) = 231
 Weight of (A + B) = 136
 Weight of (B + C) = 166
 Weight of B

$$= [(A + B) + (B + C)] - (A + B + C)$$

$$= 136 + 166 - 231$$

$$= 71 \text{ kg}$$

7. (a) Avg. weight of 16 students

$$= \frac{8 \times 48 + 4 \times 44 + 4 \times 58}{16}$$

$$\Rightarrow \frac{384 + 176 + 232}{16} = \frac{792}{16} = 49.5$$

8. (d) Correct average

$$= 39 + \frac{(65 - 56)}{45} = 39 + \frac{1}{5} = 39.2$$

9. (b) Avg. = $\frac{2 + 3 + 5 + 7 + 11 + 13}{6}$

$$= \frac{41}{6} = 6\frac{5}{6}$$

10. (c) Let, average of 15 members be 'x'

Then,

$$\begin{array}{c} 37500 \quad x \\ \swarrow \quad \searrow \\ 30,000 \end{array}$$

$$\begin{array}{c} 30,000 - x \quad 7500 \\ \swarrow \quad \searrow \\ \text{ATQ,} \end{array}$$

$$\frac{30,000 - x}{7500} = \frac{35}{15} = \frac{7}{3}$$

$$\Rightarrow 90,000 - 3x = 52500$$

$$\Rightarrow 3x = 37500 \Rightarrow x = 12500$$

11. (b)

	Total	Tech	Remaining
Emp:	x	5	x - 5
Avg:	14000	18000	13200
ATQ,	$5 \times 18000 + (x - 5) \times 13200 = x \times 14000$		

On solving, $x = 30$

Method-2

Tech Emp	Non-Tech Emp
18000	13200
14000	
800 1	4000 5

1 Unit = 5

6 units = 30

The total employees = 30

12. (d) Total rings = $6 \times 38 = 228$
 After removing the blue basket,
 Total rings = $34 \times 5 = 170$
 Rings in blue basket = $228 - 170 = 58$

13. (c) 8th Result = $15 \times 21 - (7 \times 21 + 7 \times 20) = 315 - 287 = 28$

14. (d) New Average = $36 + \left(\frac{70 - 36}{17} \right)$

$$= 36 + 2 = 38$$

15. (a) Average of all girls

$$= \frac{25 \times 11.2 + 15 \times 10}{25 + 15} = \frac{430}{40} = 10.75$$

Method-2

Average = $10 + \frac{25 \times 1.2}{40}$

$$= 10 + 0.75 = 10.75 \text{ years}$$

16. (d) Given, ratio = 7 : 8 : 9

Total = 24 units

Total height = $56 \times 3 = 168 \text{ cm}$

24 units = 168 cm

1 units = 7 cm

Hence, The heights of student will be: 49 cm, 56 cm and 63 cm

17. (c) Age of class teacher

$$= 17 + (2 \times 10) = 37 \text{ years}$$

18. (c) Number of people in the group

$$= \frac{83 \text{ kg} - 63 \text{ kg}}{500 \text{ g}} = \frac{20000 \text{ g}}{500 \text{ g}} = 40$$

19. (d)

	Initially	Left	Join
No. of student	45	6	8
Average	52	40	43

New Average

$$\frac{45 \times 52 + (8 \times 43 - 6 \times 40)}{45 - 6 + 8}$$

$$= \frac{2340 + 344 - 240}{47} = \frac{2444}{47} = 52$$

20. (b) Average all student

$$= \frac{95 \times 30 + 85 \times 10}{40} = 92.5$$

21. (d)

	Total	First	Last
No.	12	4	5
Avg.	39	40	35

$$\text{Deviation} = 4 \times 1 + 5 \times (-4) = -16$$

$$V : VI : VII$$

$$(x+5) : (x+11) : x$$

Thus,

$$x + 5 + x + 11 + x = 39 \times 3 + 16$$

$$3x + 16 = 39 \times 3 + 16$$

$$3x = 39 \times 3$$

$$x = 39$$

Average of V and VI number

$$= \frac{x + 5 + x + 11}{2} = x + 8 = 47$$

22. (c) $A + B + C = 65 \times 3 = 195$ kg

$$A + B = 63.5 \times 2 = 127$$
 kg

$$A + C = 67.5 \times 2 = 135$$
 kg

$$A + B + A + C = 127 + 135$$

$$2A + B + C = 262$$
 kg

$$\text{Weight of A} = 262 - 195 = 67$$
 kg

23. (a) $A + B + C = 70 \times 3 = 210$ kg

$$A + B + C + D = 60 \times 4 = 240$$
 kg

$$D = 240 - 210 = 30$$
 kg

$$E = 30 + 5 = 35$$
 kg

$$B + C + D + E = 59 \times 4 = 236$$
 kg

$$B + C = 236 - 30 - 35 = 171$$
 kg

$$A + B + C = 210$$
 kg

$$A = 210 - 171 = 39$$
 kg

24. (d) $A : B : C$

$$x : 2x : 6x$$

$$\frac{x + 2x + 6x}{3} = 30$$

$$9x = 90$$

$$x = 10$$

Difference between A and C

$$= 6x - x = 5x = 50$$

25. (b) $A + B + C = 70 \times 3 = 210$ kg

$$A + B + C + D = 60 \times 4 = 240$$
 kg

$$D = 30$$
 kg

$$E = 35$$
 kg

$$B + C + D + E = 59 \times 4 = 236$$
 kg

$$B + C = 236 - 30 - 35 = 171$$
 kg

$$A = 210 - 171 = 39$$
 kg

$$D = 30$$
 kg

$$E = 35$$
 kg

Average of A, D and E

$$= \frac{39 + 30 + 35}{3} = \frac{104}{3}$$

$$= 34.66 = 35$$
 kg

26. (c) Ratio = 3 : 4 : 7 = 14x

$$14x = 140 \quad 14 \times 3$$

$$x = 3003$$

Heighest price of chair (7)

$$= 3003 \times 7 = \text{Rs.} 21021$$

27. (d) $M + W + F = 41 \times 3 = 123^\circ\text{C}$

$$W + Th + F = 42 \times 3 = 126^\circ\text{C}$$

$$Th = 43^\circ\text{C}$$

$$W + F = 126 - 43 = 83^\circ\text{C}$$

$$M = 123 - 83 = 40^\circ\text{C}$$

28. (b) Total First Last

$$\text{No.} \quad 12 \quad 4 \quad 5$$

$$\text{Avg.} \quad 39 \quad 40 \quad 35$$

$$\text{Deviation} = 4 \times 1 + 5 \times (-4) = -16$$

$$V : VI : VII$$

$$(x+5) : (x+11) : x$$

$$x + 5 + x + 11 + x = 39 \times 3 + 16$$

$$3x + 16 = 39 \times 3 + 16$$

$$x = 39$$

Average of VI and VII Number

$$= \frac{x + 11 + x}{2} = x + 5.5 = 44.5$$

29. (a) $A + B + C = 65 \times 3 = 195$ kg

$$B + C = 61.5 \times 2 = 123$$
 kg

$$A + C = 68.5 \times 2 = 137$$
 kg

$$B + C + A + C = 123 + 137$$

$$A + B + 2C = 260$$
 kg

$$C = 260 - 195 = 65$$
 kg

30. (c) Total age of 40 students

$$= 40 \times 16 = 640$$
 years

$$\text{Total age after joining 10 students}$$

$$= 50 \times 15 = 750$$
 years

$$\text{Total age of 10 students}$$

$$= 750 - 640 = 110$$
 years

$$\text{Total age of 5 students}$$

$$= 5 \times 11 = 55$$
 years

Age of remaining 5 students
= 110 - 55 = 55 years

Average age of remaining 5

$$\text{students} = \frac{55}{5} = 11 \text{ years}$$

31. (a) Number of students

$$= \frac{93 - 63}{0.5} = \frac{30}{0.5} = 60$$

32. (c) Required run rate per over

$$= \frac{282 - (2 \times 4.5)}{30} = \frac{192}{30} = 6.4$$

33. (a) Let the number of students in class is x

$$\text{ATQ, } 60.5x + 8 \times 65 = (60.5 + 0.9)(x + 8)$$

$$\Rightarrow 60.5x + 520 = 61.4(x + 8)$$

$$\Rightarrow 60.5x + 520 = 61.4x + 491.2$$

$$\Rightarrow 0.9x = 28.8 \Rightarrow x = 32$$

The number of student in the class initially was = 32



SMART APPROACH:-

Number of students initially

$$= \frac{(65 - 60.5) \times 8}{0.9} = 32$$

34. (b) Sum of 'N' number = 42x

$$\text{New sum of n number} = 42x +$$

$$\left\{ x \times \frac{3}{4} \times 4 \right\} - \left\{ x \times \frac{1}{4} \times 8 \right\}$$

$$= 42x + 3x - 2x$$

$$= 43x$$

New average of 'x' number

$$= \frac{43x}{x} = 43$$

35. (d) Total First Next

$$\text{No.} \quad 10 \quad 4 \quad 3$$

$$\text{Avg.} \quad 72 \quad 69 \quad 74$$

$$\text{Deviation} = 4 \times (-3) + 3 \times (+2) = -6$$

Let the 9th number is x.

$$\begin{array}{ccc} 8^{\text{th}} & 9^{\text{th}} & 10^{\text{th}} \\ x + 6 & x & x - 6 \end{array}$$

$$\text{So, } 3x = 72 \times 3 + 6$$

$$\Rightarrow x = \frac{222}{3} = 74$$

$$9^{\text{th}} \text{ no.} = 74, 8^{\text{th}} \text{ no.} = x + 6 = 80$$

Avg of 8th and 9th number

$$= \frac{74 + 80}{2} = \frac{154}{2} = 77$$

36. (d)

Boys 69.3		Girls 59.4
63.8		
4.4 4	:	5.5 5

Number of Boys in class

$$= \frac{44}{99} \times 100\% = 44\frac{4}{9}\%$$

37. (b) ATQ,
 $n \times 40 + 1 \times 80 = (n + 1) \times 41$
 $\Rightarrow 40n + 80 = 41n + 41 \Rightarrow n = 39$

38. (c)

	Total	First	Next
No.	11	4	4
Avg.	68	78	63

Deviation = $4 \times (+10) + 4 \times (-5)$
 $= +20$

9 th	10 th	11 th
2x	x - 4	x

A.T.Q, $4x - 4 = 68 \times 3 - 20$
 $\Rightarrow 4x = 184 \Rightarrow x = 47$

Required Average = $\frac{9^{th} + 11^{th}}{2}$
 $= \frac{94 + 57}{2} = 70.5$

39. (b)

Boys 6x		Girls 5x
69		
20		22

ATQ, $20 \times 6x + 22 \times 5x = 42 \times 69$
 $\Rightarrow 120x + 110x = 42 \times 69$
 $\Rightarrow 230x = 42 \times 69$

$$\Rightarrow x = \frac{42 \times 69}{230} = 12.6$$

Avg. score of boys = $6x = 6 \times 12.6$
 $= 75.6$ Marks

40. (d) Given, Batsman scored in 15th Inning = 92

Average score of 14 inning is
 $= 92 - 15 \times 4 = 32$
 New Average = $32 + 4 = 36$

41. (c)

Avg of 19 number = 22.8
 Avg of next 10 number = 18.4
 Avg of last 10 number = 28.6
 Deviation = $-4.4 \times 10 + 5.8 \times 10$
 $= 14$

After Excluding the 10th number,
 the average of remaining number

will be = $22.8 - \frac{14}{18} = 22(\text{Appx.})$

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42. (d) Let the age of teacher = x year
 ATQ, $24 \times 15.5 + 1 \times x = 25(x - 24)$
 $\Rightarrow 372 + 1x = 25x - 600$
 $\Rightarrow 972 = 24x$
 $\Rightarrow x = 40.5$

43. (a)

	Total	First	Next
No.	12	5	4
Avg.	58	56	60

Deviation = $5 \times (-2) + 4 \times (+2)$
 $= -2$

10 th	11 th	12 th
x + 4	x	x + 1

So, $3x + 5 = 58 \times 3 + 2$
 $\Rightarrow 3x + 5 = 174 + 2$
 $\Rightarrow 3x = 176 - 5$
 $\Rightarrow x = 57$

Avg. of 10th and 12th number
 $= \frac{61 + 58}{2} = \frac{119}{2} = 59.5$