AVERAGE

(#) 84, 97, 53, 59, 79. let Avg = 60

+24 +37 −7 −1 +19 +14.4

74.4 Ans

$\frac{72}{5} = 14.4$

(1) If the Avg score of 42 boys of a school is 137. while the avg score of 98 girls is 124 of the same class. find the combined average of the class.

137 124

127.9

3.9

3 : 7

42 : 98

13

3 : 7

10 → 13

1 → 1.3

OR

137 • 124 — 130

+7 −6 — +0.5

⇒ 130.5

$\frac{1}{2} = +0.5$

OR

42 : 98

3 : 7

137 124

+7×3 −6×7

21 −42

let Avg = 130

− 2.1

127.9

Ans

$\frac{-21}{10} = -2.1$

(#) 4 : 3 : 2

129 137 124

−4 +21 −12

Avg = 130 $+\frac{5}{9}$ =

$130 + \frac{5}{9} = 130\frac{5}{9}$

(#) No. of students 39 : 91 : 52

3 7 4

Avg score 79 56 70

find avg score of All. +7×3 −14×7 0

+27 −98

let Avg = 70

− 5.07

64.93

Ans

$\frac{-71}{14} = 5.07$

(2)

	X	Y	Z
Students	~~27~~ 3	: ~~36~~ 4	: ~~45~~ 5
Avg score	83	76	85
	+9	−16	+25

$\frac{+18}{12} = +1.5$

find avg of 3 classes

let avg = 80
+ 1.5
81.5 Ans

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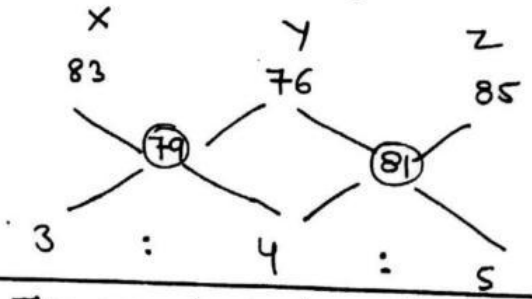
(3) The avg marks of the class X, Y, Z is calculated. The avg score of class X, Y, Z are 83, 76, 85. The avg score of class X & Y is 79 while the avg score of Y & Z is 81. find the avg score of all the three classes.



Avg of X, Y, Z = 81.5
(Soln in above Ques)

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(4) The avg of 9 observations is 87. if the avg of first five observations is 79 and the avg of next three is 92. find the 9th observation.

1 — — 5 | 6 — — 8 | — = 87
79 92

$87 \times 9 = 783$

$79 \times 5 = 395$

$92 \times 3 = 276$

671

$\frac{-671}{112}$ Ans

OR

79 | 92 | — = 87

-8×5 $+5 \times 3$

-40 $+15$

-25

$87 + 25 = 112$ Ans

(Avg से 9th no 25 कम है 25 होगा).

(#) [1 — 3] [4 — 7] — = 117

110 130

−21 +52 (−31)

+31

117
−31
86

(5) The avg. of 7 data is 34 and the avg of first three data is 28 and the avg of next two data is 47. find the avg of last two data.

[1 — 3] [4·5] [— —] = 34

28 47

−18 +26 $\frac{-8}{2} = -4$ 34 − 4 = 30 Ans

+8

(6) The avg. age of 30 students of a class is 14 years 4 months Due to admission of 5 new students the avg. becomes 13 years 9 months, while the age of the younger one in new 5 students is 9 years 11 months. find the avg of remaining four new students.

[- - - - - - - - -] [— — — — —] = 13−9

14−4 → Avg of these 5 students = 10.3

7×30 (+210) months.

$\frac{-210}{5} = -42\ (-3.6)$

13·9
− 3·6
10.3

[— — — —] = 10.3

10.4 Ans

9−11 $\frac{+4}{4} = (+1)$

(−4)

(7) The avg of 9 data is 79. The avg of first 2 data is 75. if the avg of next four data is 87. if the 8th data is 5 more than 7th data and one more than 9th data. Calculate 9th observation.

| — — | — — — — | — — — | = 79
| 75 | 87 | 71 |

| −8 | +32 |
| +24 |

$\frac{-24}{3} = -8$ $\quad 79 - 8 = 71$

68	73
7th	8th	9th
x	x+5	x+4
71		

$\Rightarrow 3x + 9 = 71 \times 3$

$x = 68$

OR Avg = x

$x + 3 = 71$

$x = 68$

---

(8) Avg. of 8 nos is 20. The avg of first two no's is 15.5 and the avg of next three no's is $21\frac{1}{3}$. if the 6th no. is 4 & 7 less by the 7th & 8th no. find the 8th no.

| — — | — — — | — — — | = 20
| 15.5 | $21\frac{1}{3}$ | $21\frac{2}{3}$ |

(−9) ⌣ (+4)

−5

$\frac{+5}{3} = 1\frac{2}{3}$

| 6th | 7th | 8th |
| x | x+4 | x+7 |

$\frac{11}{3} = 3\frac{2}{3}$

$x + \frac{11}{3} = 21\frac{2}{3}$

$\boxed{x = 18}$

8th = 25 Ans

CLASS 29

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(9) 9 girls and 1 boy go to a restaurent for lunch. If each girl spent Rs 30 and boy spent Rs 72,000 more than the avg of expenditure of all. find the amount spent by the boy?

| 1 | Girls | | | 9 | Boy |
| 30 | 30 | 30 | — | 30 | A + 72000 |

A → Avg.

+8000

8030

$\frac{A + 72000}{9}$

$A + 8000$

Boy = 8030 + 72000

= 80030.

(10) Five year ago the avg age of Husband & wife was 23 years today the avg age of Husband, wife & child is 20 years. How old is the child ?

H w C = 20

(4)

28

+16 −16

---

(11) 3 years ago the avg. of family of five members was 17 years. A baby having been born the avg. age of the family is the same today. find the age of the child ?

- - - - - - = 17

20 (2)

+3×5 age of child = 2

+15 −15

---

(12) The avg ~~weight of A, B & C is~~ age of mother, father & son was 42 years at the time of the marriage of the son. After 1 year an infant was born and after 6 years of marriage the avg age of the family becomes 36 years. find the age of the bride at the time of the marriage.

S M F Bride Baby = 36 Y

48 Y 18 Y

SMF → Avg after 6 years = 44+6 = 48

+12×3

+36 $\frac{-36}{2} = -18$

Bride + Baby = 36 Y

31 Y 5 Y

(−6

25 Y

Bride + Baby का avg 18 means

Bride + Baby की age = 36

---

(13) The avg. weight of A, B & C is 84 kg. if D join the avg wt becomes 80 kg. if another person E who is 3 kg heavier than D replaces A, then the avg weight of B, C, D & E becomes 79 kg. find the weight of A.

A, B, C , D = 80 kg D = 68
84 68kg E = 71

+4 x 3
= +12

B, C, D, E = 79

A + B + C + D = 80 x 4
B + C + D + E = 79 x 4
A - E = 4

A = 4 + E
A = 75

---

(14) The avg temp of mon, tue, wed & Thu is 31°C & the avg temp of Tue, wed, thu & fri is 29.5°C. if the avg temp of mon was 37½% more than the avg temp of friday. find the temp of monday?

M + T + W + Th = 31 x 4
T + W + Th + F = 29.5 x 4
M - F = 6

37½% = +3/8

M F
11 8
3 unit ——— 6
1 ——→ 2

M = 22°C
F = 16°C

---

(15) The avg temp from mon to wed is 37°C while the avg temp from tue to thu is 34°C. The temp of thu. is 4/5 times that of mon. find the temp of thu?

M - THU = 9

TH = 4/5 M

TH/M = 4/5

THU M
4 5
1 unit ——→ 9

THU = 4 x 9 = 36°C Ans

a, b, c की separate value नहीं पूछेगा। ये इतने Assume की हैं।

$a+b+2c = 24\times2$

$a+b+c+c = 24\times2$

$c = 24\times2-31 = 17$

$a = 20\times2-31 = 9$

$b = 18\times2-31 = 5$

---

(19) There are 4 natural no°. if avg of any 3 no's is added with the 4th no° 29, 23, 21 & 17 will be obtained. find all 4 natural no's?

$\frac{a+b+c}{3}+d = 29$

$a+b+c+3d = 29\times3$

$\frac{a+b+c+d}{45}+2d = 29\times3$

$2d = 29\times3-45$

$d = \frac{29\times3-45}{2}$

$\frac{29\times3-45}{2} = 21$

$\frac{23\times3-45}{2} = 12$

$\frac{21\times3-45}{2} = 9$

$\frac{17\times3-45}{2} = 3$

---

(20) In an examination, the avg of 40 students is 72. Afterwards it is found that the marks of three students are misread as 68, 75 & 73 instead of 64, 62 & 84 resp. find the correct avg.

(✗) $68+65+73 = 206$

(✓) $64+62+84 = 210$) $+4$

$A = 72$

$\frac{+4}{40} = +0.1$

New $A = 72+0.1 = 72.1$

$\frac{72\times40+4}{40} = 72.1$

(21) The avg of 100 numbers is 46 but it was found that 2 numbers 16 & 43 are mistakenly calculated as 61 & 34. find the correct avg if it was also found that total no. are only 90.

Total = 100×46
$= 4600$

(✗) 61 34 = 95
(✓) 16 43 = 59
$\Delta = 36$

$4600 - 36 = 4564$

Correct avg $= \frac{4564}{90} = 50.7$

OR

correct avg = $46 - 0.36$
$= 45.64$

$\frac{-36}{100} = -0.36$

Total $= 45.64 \times 100 = 4564$

avg of 90 nos $= \frac{4564}{90} = 50.7$ Ans

(22) The avg weight of some students in a class is 43 kg. When 4 new students are included the avg weight becomes 42.5 kg and the weight of these 4 students are 42, 36.5, 39 & 42.5. find the total no. of students in the class?

Total student $= x$

Avg $= 43x$

$43x + 160 = (x+4) \times 42.5$

↑ new avg ↑ new avg

$x = 20.$

42
36.5
39
42.5
160

OR

| - - - - - - - - - - | : | - - - - | = 42.5
43 | | 40

-2.5×4
$= -10$

$+0.5x = 10$

$x = 20$

(23) The avg of batsmen in some innings is 21.75 & he scores in next 3 innings – 28, 34 & 37 runs resp. Therefore avg ↑ by 1.125, find the no. of innings played by him?

| - - - - - | | - - - | = 22.875
21.75 | | 33

$-1.125x = -30.375$

$+10.125 \times 3$
$+30.375$

$x = \frac{30.375}{1.125} = 27$

No of innings currently $= x + 3 = 30$ Ans

28
34
37
99

Total innings = x

$21.75x + 99 = 22.875(x+3)$

$x = 27$

28
34
37
99

(24) A batsman scores 87 runs in his 17th innings, due to this his avg ↑ by 3 runs. find his current avg.

– 16 innings avg = x

$16x + 87 = (x+3) \times 17$

$x = 36$ current avg = $36+3 = 39$

OR

$87 - 51 = 36$

$3 \times 17 = 51$

(25) A batsman has certain avg in his 11 innings. He scores 90 runs in 12th innings, due to this his avg ↓ by 5 runs

– $11x + 90 = (x-5) \times 12$

$x = 150$

current = 145

90
+60
150

$12 \times 5 = 60$

current = 145

(26) The batting avg. of a batsmen in ~~some~~ 40 (forty) innings is 50 runs, if the diff b/w his highest & lowest score is 172. if these both innings are excluded his avg becomes 48. find his highest score?

– 40 innings ⟶ $40 \times 50 = 2000$

38 innings ⟶ $48 \times 38 = 1824$

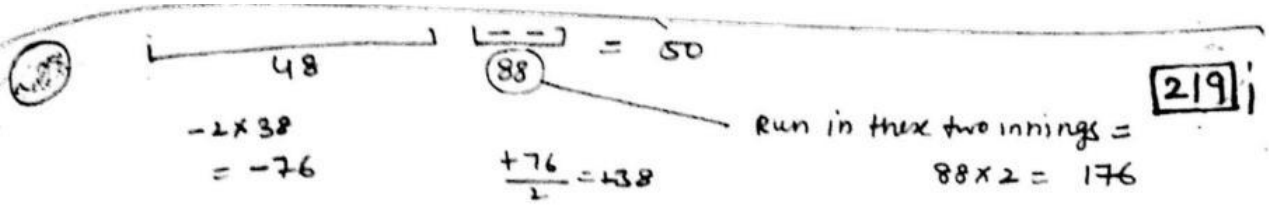
176

$H + L = 176$

$H - L = 172$

$H = 174$

$L = 2$



219

(27) A batsman has an avg of 30 runs in his 42 innings. The diff b/w his max. & min score is 100. if these two innings are removed his avg for 40 innings comes down to 28. what is his maximum score?

42 innings ⟶ 30×42 = 1260

40 innings ⟶ 28×40 = 1120

140

H + L = 140

H − L = 100

H = 120

L = 20.

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(28) If the bowling avg of bowler is 12.4 runs per wicket. He takes 10 wickets in his next innings by giving 52 runs, due to this his bowling avg improved by 0.4 run per wicket. find the total no. of wickets taken by him at present?

- wickets = x

A = 12.4 Runs/wickets

Runs = 12.4x

$$\frac{12.4x + 52}{x + 10} = 12$$

$$x = 170$$

Bowling Avg = Total Run / Total wicket

wickets at present = 170 + 10 = 180.

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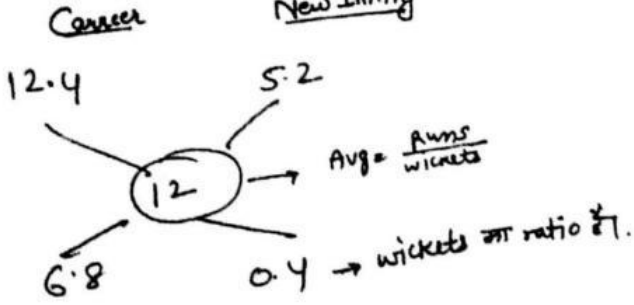
OR



17 : 1

×10 ×10

170 10

wickets at present = 170 + 10 = 180 Ans

(29) in a class the avg of boys & girls is 'A'. The ratio of no. of boys and no. of girl is 3:1. and the avg of the boys is A+1. find the avg of girls.

Boys Girls

A+1 A-3

A

3 : 1

3 : 1

Boys Girls = A

A+1 A-3 Ans

+1×3

+3 −3×1 = −3

(30) The avg ~~rate~~ weight of 8 persons is increased by 2.5 kg when one of them who weighs 56 kg is replaced by a new man. find the weight of new man.

56 kg

2.5×8 = 20

+ 20

76 kg.