Averages :-

- A number that adequately helps you represent all of these numbers

$$\text{Average} = \frac{\text{Sum of NOS}}{\text{No. of Numbers}}$$

Ex: 10, 15, 27, 33, 18, 32

Sol $\frac{136}{6} = 21.666$

- Measure of central tendency

Mean (Average)
Median (central value), Mode

Ex- 2, 3, 10, 15, 22

Median = 10

1) The average of all odd number blw 20 & 30 is

a) 23 b) 21 c) 25 d) 25

$\frac{21 + 23 + 25 + 27 + 29}{5}$

2) Average of 20 multiples of 4 is:

a) 40 b) 42 c) 44 d) 48

0, 4, 8, 12, 16, 20, 24, 28, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, ...

Assumed Average Approach

		Deviations
5	6	+1
9	6	−3
6	6	0
4	6	+2

SOM = $\frac{24}{4} = 6$

2)

	Assume Avg	Deviation
5	7	
9	7	-2
6	7	+2
4	7	-1
		-3
		Total = -4

Then Avg Devial $= \frac{T.D}{no\ of\ no's}$

$= \frac{-4}{4} = -1$

Then {Average = Assumed Avg − Avg Deviation}

$= 7 + (-1)$

$= 6$

3)

37	60	~~-23~~
72	60	+12
83	60	~~+23~~
94	60	+34
46	60	-14
		32

$AVD = \frac{32}{5} = 6.4$

Avg = 60 + 6.4

= 66.4

4) The Average of following numbers

1001, 1002, 1003, 1006, 1009

Sol

	Assume	Deviation
1001	1004	-3
1002	1004	~~-2~~
1003	1004	-1
1006	1004	~~+2~~
1009	1004	+5
		1

$Avg = \frac{TD}{No.\ of\ no.s}$

$= \frac{1}{5} = 0.2$

Then Average = 1004 + 0.2 = 1004.2

5) The average of the following numbers

1911, 1922, 1919, 1916, 1920

Actual	Assumed	Deviation
1911	1912	-1
1922	1912	+10
1915	1912	+3
1916	1912	+4
1920	1912	+8
		24

Avg = TD / No. of nums

$= \frac{24}{5} = 4.8$

Then Avg = Assumed + TD Avg

$= 1912 + 4.8$

$= 1916.8$

* The 'avg' of 'n' numbers is 'x'

Eg: 5 nums Avg is 12

1st standard - $12 \times 5 = 60$

6) The Avg score of a batsman after 9 min is x in the 10 min he scores 100 & increases his Avg by 8 runs.

a) Find original Avg?

$9x + 100 = 10(x+8)$

$x = 20$

b) New Avg

$x + 8 = 28$

7) A Boy earned an Avg salary of ₹ 4200 per month during his first 11 months in US. He want to ensure an annual of Avg income of ₹ 5000 per month How much he earn in 12th month.

Sol) $48,000 \times 11 = 46,800$ & 13,200 is his 12th month salary

$12 \times 5000 = 60,000$

8) Sachin has an average of 90 after ten innings. If he scored 50 runs in the 11th inning then what is the avg after 11 innings?

a) 86.36
b) 80.45
c) 89.87
d) None of these

$90x = 11(x + 50)$

$10x = 11x + 550$

$x = 550$

$9 \times 10 = 900$

$900 + 50 = 950$

$\text{Avg} = \frac{950}{11} = 86.36$