

Average

$$\frac{\text{Sum of term}}{\text{No. of term}}$$


Eg

$$A = \frac{25 + 35 + 60 + 75 + 90}{5}$$
$$= \frac{285}{5} = 57$$

$$50 - 25 - 15 + 10 + 25 + 40$$
$$= 35$$
$$\frac{35}{5} = 7$$

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Ex

$$\begin{aligned} & 30, 70, 120, 145, 200, \underline{250} \\ & 150 \quad -120 - 80 - 60 - 5 + 80 + 190 = (-85) \\ & -\frac{85}{6} = -14.166 \\ & 135.83 \end{aligned}$$



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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

1) The average ~~sum~~ of 20 numbers is zero. Of them, at ~~maximum~~ how many numbers can be greater than zero?

- A) 10 B) 12 C) 15 D) 19

$$\frac{D + D + D + D + \dots + D + D + D}{20} = 0$$

$$D + D + D + \dots + D + D + D = 20$$

+ve -ve
x -x

USE CODE **AVILIVE** TO GET **MAX DISCOUNT** ON 



Special Case:-

Ex



$$\textcircled{1} \quad A = \frac{4+6+8+10+12}{5} = \frac{40}{5} = \textcircled{8}$$

$$\textcircled{2} \quad \frac{4+12}{2} = \frac{16}{2} = \textcircled{8}$$



Special Case:-

CQ No of term odd
 $4, 6, \boxed{8}, 10, 12 \rightarrow AP$

① $A = \frac{4+6+8+10+12}{5} = \frac{40}{5} = \underline{\underline{8}}$

② $\frac{4+12}{2} = \frac{16}{2} = \underline{\underline{8}}$



CQ $32, 36, \boxed{40}, 44, 48$
4AP $A = \underline{\underline{40}}$



Special Case:-

② No of term Even

~~Ex~~ 12, 14, 16, 18 → AP +

① $A = \frac{12+14+16+18}{4} = \frac{60}{4} = 15$

✓② $n = \frac{12+18}{2} = \frac{30}{2} = 15$



Special Case:-

② No of term Even

~~Ex~~ 12, 14, 16, 18 → AP

① $A = \frac{12+14+16+18}{4} = \frac{60}{4} = 15$

✓ ② $A = \frac{12+18}{2} = \frac{30}{2} = 15$



G
64, 68, 72, 76
+4 +4 +4
70
 $\frac{64+76}{2} = 70$

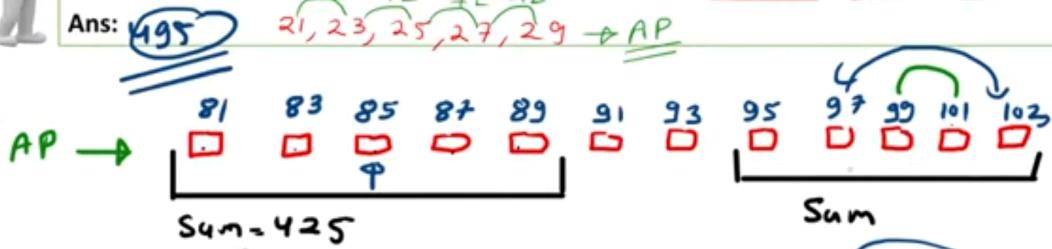




Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

2) In sequence of 12 consecutive odd numbers, the sum of the first 5 numbers is 425. What is the sum of the last 5 numbers in the sequence? [GATE 2014, 1 MARK (ME, EC)]

Ans: 495



$$\frac{425}{5} = 85$$



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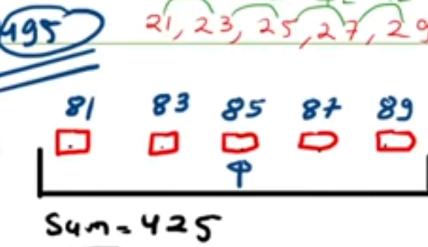


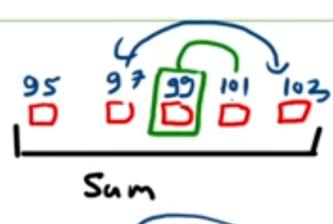


Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

2) In sequence of 12 consecutive odd numbers, the sum of the first 5 numbers is 425. What is the sum of the last 5 numbers in the sequence? [GATE 2014, 1 MARK (ME, EC)]

Ans: 495

AP → 
Sum = 425

AP → 
Sum

$$\frac{425}{5} = 85$$

$$99 \times 5 = \underline{\underline{495}}$$



USE CODE **AVILIVE** TO GET **MAX DISCOUNT ON** 

Special Case:-

② No of term Even

~~Ex~~ 12, 14, 16, 18 → AP

① $A = \frac{12+14+16+18}{4} = \frac{60}{4} = 15$

✓ ② $A = \frac{12+18}{2} = \frac{30}{2} = 15$

G
64, 68, 72, 76
 $\frac{64+76}{2} = 70$



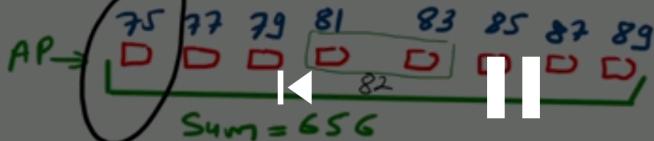


Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

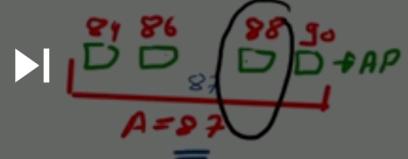
Q. The sum of eight consecutive odd numbers is 656. The average of four consecutive even numbers is 87. What is the sum of the smallest odd number and second largest even number?

Ans:

163



$$A = \frac{656}{8} = \underline{\underline{82}}$$



$$75 + 88 = \underline{\underline{163}}$$

51:15 / 57:42

GATE 2021

27

GATE 2021

28

ELITE BATCH

GEOTECHNICAL





Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

Q) What is average of all multiples of 10 from 2 to 198?

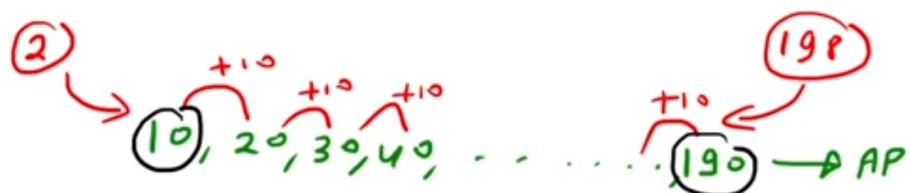
[GATE 2014, 1 MARK (EE)]

A) 90

B) 100

C) 110

D) 120



$$\frac{190 + 10}{2} = \frac{200}{2} = 100$$



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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

1) The average of 5 sisters is 15 years. The youngest sister is 6 year old. When she was born, the average age of the remaining sisters was 14 years. What is the average age of the sisters excluding the youngest sister?

- A) 15.50 B) 13.50 C) 17.25 D) 16.25

$$\frac{15 \times 5 - 6}{5 - 1} = \frac{75 - 6}{4} = \frac{69}{4} = \underline{\underline{17.25}}$$



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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

2) Rajeev age after 15 years will be 5 times his age 5 year back. What is the present age of Rajeev?

A) 6 year B) 10 year C) 12 year D) 16 year

Past

$$x-5$$

Present

$$\textcircled{x}$$

Future

$$x+15$$

$$x+15 = 5(x-5)$$

$$x+15 = 5x - 25$$

$$4x = 40$$

$$\textcircled{x} = 10$$

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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

3) Average age of a husband and wife was 27 years when they married 4 year ago. The average age of the husband, wife & a new born child is 21 years now. The present age of new born?

A) 1

B) 2

C) 3

D) 4

<u>Past</u>	<u>Present</u>	<u>Future</u>
$x - 4 \checkmark$	x	
$y - 4 \checkmark$	y	
$\frac{(x-4) + (y-4)}{2} = 27$	z	
$x + y = 62$		

<u>Past</u>	<u>Present</u>	<u>Future</u>
$x - 4 \checkmark$	x	
$y - 4 \checkmark$	y	
$\frac{x+y+z}{3} = 21$		
$x+y+z = 63$		

$$\begin{aligned}x+y+z &= 63 \\62+z &= 63 \\z &= 1\end{aligned}$$

USE CODE **AVILIVE** TO GET **MAX DISCOUNT ON** 





Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

4) The average age of Mr Sharma ~~3 children~~ is 8 years. A new baby is born. Find the average age of all his children?

- A) 5 years B) 7 years C) 8 years D) 6 years

$$\frac{3 \times 8 + 0}{3+1} = \frac{24}{4} = \underline{\underline{6}}$$



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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

5) 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

[WIZAG STEEL PLANT, 2015]

A) 15

B) 20

C) 40

D) 35

Past

$$P - 5$$

$$Q - 5$$

$$\frac{(P-5) + (Q-5)}{2} = 25$$

$$P + Q = 60$$

Present

$$P$$

$$Q$$

$$R = 15$$

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

$$P + Q + R = 75$$

$$60$$

Future

$$\frac{20}{15+5}$$

$$R = 15$$



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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

- Q) The average of seven numbers is 24, while the average of nine numbers including these seven is 25. If the additional two numbers be in the ratio of 1:2, what is the smaller of these?
- [VIZAG STEEL PLANT, 2015]
- A) 16 B) 17 C) 38 D) 19

$$\frac{7 \times 24 + a+b}{7+2} = 25 \Rightarrow 168 + a+b = 225$$
$$a+b = 57$$
$$\frac{a:b}{3:1} = 1:2$$
$$\left. \begin{array}{l} a=19 \\ b=38 \end{array} \right\}$$

$a=19, b=2 \times 19 = 38$

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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

7) The average of a batsman in 16 innings is 36. In the next inntings he is scoring 70 runs.

What will be his new average?

A) 44

B) 38

C) 40

D) 48

$$\text{M-1} \quad \frac{16 \times 36 + 70}{16 + 1} = \underline{\underline{38}}$$

$$\text{M-II}$$

16 inning $\rightarrow \underline{36}$
17th Match $\rightarrow 36 + \underline{34}$ $\frac{34}{17} = \underline{2}$

$\boxed{36} + 2 = \underline{\underline{38}}$



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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

8) The average marks of 19 children in a particular school is 50. When a new student with marks 75 joins the class, what will be the new average of the class?

A) 51.25

B) 48.75

C) 50.75

D) 50.25

$$\begin{array}{l} \text{19 children} \rightarrow 50 \\ \text{1 child} \rightarrow 50 + 25 \\ \hline \text{20} \end{array}$$

$\frac{25}{20} = 1.25$

$50 + 1.25$

$= 51.25$



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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Average

9) The average age of 29 students is 18. If the age of the teacher is also included the average age of the class becomes 18.2. Find the age of the teacher?

- A) 26 B) 24 C) 28 D) NOTA

$$\begin{array}{l} \text{29 students} \rightarrow 18 \\ \text{1 teacher} \rightarrow 18 \\ \hline \text{30} \end{array}$$
$$18 + \frac{1}{2} \times 30 = 24$$

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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic Average

10) Average money of 20 students is ₹30. If 1 new student joins then new average becomes ₹29. Then find the amount which bring in by new student?

- A) 9 B) 29 C) 10 D) NOTA

$$\begin{array}{l} \text{20 Students} \rightarrow 30 \\ \text{1 Student} \rightarrow 30 \\ \hline 21 \end{array}$$
$$30 - 29 = 1$$

$$30 - 21 = 9$$



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Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic Average

10) Average money of 20 students is ₹30. If 1 new student joins then new average becomes ₹29. Then find the amount which bring in by new student?

A) 9

B) 29

C) 10

D) NOTA

$$\begin{array}{l} \text{(M-1)} \quad 20 \text{ Students} \rightarrow 30 \\ \text{1 Student} \rightarrow \begin{array}{l} 30 \\ 30 \\ - 29 = 1 \end{array} \\ \hline \text{(M-11)} \quad \frac{20 \times 30 + x}{20 + 1} = 29 \\ x = 9 \end{array}$$

$$30 - 29 = 1$$

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MAX DISCOUNT ON

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