

01

Find $1 + 2 - 3 - 4 + 5 + 6 - 7 - 8 + 9 + 10 - \dots - 2020 + 2021$

$$\begin{aligned} & \textcircled{1} + \underbrace{2 - 3}_{-1} - \underbrace{4 + 5}_{+1} + \underbrace{6 - 7}_{-1} - \underbrace{8 + 9}_{+1} + 10 - \dots - \underbrace{2020 + 2021}_{+1} \\ & = 1 + [-1 + 1 - 1 + 1 \dots -1 + 1] \\ & = 1 + [0 + 0 + 0 \dots 0] = 1 \end{aligned}$$

02

If the sum of four consecutive odd integers is 's' then, in terms of 's', what is the greatest of these integers ?

Key : (C)

Let $n, n + 2, n + 4,$ and $n + 6$ be four consecutive odd integers, and let s be their sum, then

$$s = n + (n + 2) + (n + 4) + (n + 6) = 4n + 12$$

$$\text{Therefore, } n = \frac{s - 12}{4} \Rightarrow n + 6 = \frac{s - 12}{4} + 6$$

$$\frac{s - 12}{4} + \frac{24}{4} = \frac{s + 12}{4}$$

03 The average of 10 numbers is -10 . If the sum of six of them is 100, what is the average of the other four ?

Since, the average of all 10 numbers is negative, so is their sum. However, the sum of the first six is positive, so the sum (and the average) of the others must be negative. The answer is B

04 In a magic square, all rows, columns, and diagonals have the same sum. The magic square shown uses each of the integers from -6 to $+2$. What is the value of Y ?

+1		Y
-4		
-3		-5

First we must find the magic constant, that is, the sum of each row, column and diagonal. From column one, we find that the magic constant is $(+1) + (-4) + (-3) = -6$

+1	-6	-1
-4	-2	0
-3	+2	-5

05

A lift descend into an underground floor at the rate of 6 metres per minute. If the descent starts from 10 metres above the ground level, how many time will it take to descend 350 metres ?

Total distance to be covered = $(10 + 350)$ mts

$$\therefore \text{Time taken to cover 360 m} = \frac{360}{6} = 60 \text{ min} = 1 \text{ hour}$$