



Exercise 10C

Question 1:

Here $a = 2$, $d = (7 - 2) = 5$, and $n = 19$

Using the formula

$$S_n = \frac{n}{2}[2a + (n - 1)d], \text{ we get}$$

$$\begin{aligned} S_{19} &= \frac{19}{2}[2 \times 2 + (19 - 1) \times 5] \\ &\quad [\because a = 2, d = 5, n = 19] \\ &= \frac{19}{2}(4 + 90) = 893 \end{aligned}$$

Hence, the sum of first 19 terms of the given AP is 893.

Question 2:

Here, $a = 1$, $d = (3 - 1) = 2$ and $n = 26$

Using the formula

$$S_n = \frac{n}{2}[2a + (n - 1)d], \text{ we get}$$

$$\begin{aligned} S_{26} &= \frac{26}{2}[2 \times 1 + (26 - 1) \times 2] \\ &\quad [\because a = 1, d = 2 \text{ and } n = 26] \\ &= 13[2 + 50] = 676 \end{aligned}$$

Hence, the sum of first 26 terms of the given AP is 676.

Question 3:

Here, $a = 9$, $d = (7 - 9) = -2$ and $n = 18$

Using the formula

$$S_n = \frac{n}{2}[2a + (n - 1)d], \text{ we get}$$

$$\begin{aligned} S_{18} &= \frac{18}{2}[2 \times 9 + (18 - 1) \times (-2)] \\ &\quad [\because a = 9, d = -2, n = 18] \\ &= 9[18 - 34] = -144 \end{aligned}$$

Hence the sum of first 18 terms of the given AP is - 144.

Question 4:

Here $a = 5$, $d = (13 - 5) = 8$, and $l = 181$

Let the total number of terms be n , then

$$T_n = 181$$

$$\Rightarrow a + (n - 1) d = 181$$

$$\Rightarrow 5 + (n - 1) \times 8 = 181$$

$$\Rightarrow (n - 1) \times 8 = 176$$

$$\Rightarrow 8n - 8 = 176$$

$$\Rightarrow 8n = 184$$

$$\Rightarrow n = 23$$

$$\begin{aligned} \text{Required sum} &= \frac{n}{2}(a + l) \\ &= \frac{23}{2}(5 + 181) = 23 \times 93 = 2139 \end{aligned}$$

Hence, the required sum is 2139.

Question 5:

Here $a = 5$, $d = (9 - 5) = 4$, and $l = 81$

Let the total number of terms be n , then

$$T_n = 81$$

$$\Rightarrow a + (n - 1) d = 81$$

$$\Rightarrow 5 + (n - 1) \times 4 = 81$$

$$\Rightarrow 4(n - 1) = 76$$

$$\Rightarrow n - 1 = 19$$

$$n = 20$$

81 is 20th term.

$$\begin{aligned} \text{Required sum} &= \frac{20}{2}(a + l) \\ &= \frac{20}{2}(5 + 81) = 20 \times 43 = 860 \end{aligned}$$

Hence sum of first 20th terms of the given AP is 860.

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