



Arithmetic Progressions Ex 19.4 Q27

Let the number of terms is  $n$ .

Now the sum of the series is:

$$1 + 3 + 5 + \dots + 2001$$

Here  $l = 2001$  and  $d = 2$ .

Therefore

$$l = a + (n-1)d$$

$$2001 = 1 + (n-1) \cdot 2$$

$$2(n-1) = 2000$$

$$n-1 = 1000$$

$$n = 1001$$

Therefore the sum of the series is:

$$S = \frac{1001}{2} [2 + (1001-1)2]$$

$$= 1001^2$$

$$= 1002001$$

Arithmetic Progressions Ex 19.4 Q28

Let the number of terms to be added to the series is  $n$ .

Now  $a = -6$  and  $d = 0.5$ .

Therefore

$$-25 = \frac{n}{2} [2(-6) + (n-1)(0.5)]$$

$$-50 = n[-12 + 0.5n - 0.5]$$

$$-12.5n + 0.5n^2 + 50 = 0$$

$$n^2 - 25n + 100 = 0$$

$$n = 20, 5$$

Therefore the value of  $n$  will be either 20 or 5.

Arithmetic Progressions Ex 19.4 Q29

Here the first term  $a = 2$ . Let the common difference is  $d$ .

Now

$$\frac{5}{2}[2a + (5-1)d] = \frac{1}{4}\left[\frac{5}{2}[2(a+5d) + (5-1)d]\right]$$

$$\frac{5}{2}[2 \cdot 2 + 4d] = \frac{5}{8}[2 \cdot 2 + 14d]$$

$$10 + 10d = \frac{5}{2} + \frac{35}{4}d$$

$$\frac{5}{4}d = -7.5$$

$$d = -6$$

The 20<sup>th</sup> term will be:

$$\begin{aligned}a + (n-1)d &= 2 + (20-1)(-6) \\ &= -112\end{aligned}$$

Hence it is shown.

Arithmetic Progressions Ex 19.4 Q30

$$S_{(2n+1)} = S_1 = \frac{(2n+1)}{2}[2a + (2n+1-1)d]$$

$$S_1 = \frac{(2n+1)}{2}[2a + 2nd]$$

$$= (2n+1)(a + nd) \quad \text{--- (i)}$$

Sum of odd terms =  $S_2$

$$S_2 = \frac{(n+1)}{2}[2a + (n+1-1)(2d)]$$

$$= \frac{(n+1)}{2}[2a + 2nd]$$

$$S_2 = (n+1)(a + nd) \quad \text{--- (ii)}$$

From equation (i) and (ii),

$$S_1 : S_2 = (2n+1)(a + nd) : (n+1)(a + nd)$$

$$S_1 : S_2 = (2n+1) : (n+1)$$

\*\*\*\*\* END \*\*\*\*\*