



Arithmetic Progressions Ex 9.5 Q43

Answer :

In the given problem, we have the first and the last term of an A.P. along with the common difference of the A.P. Here, we need to find the number of terms of the A.P. and the sum of all the terms.

Here,

The first term of the A.P (a) = 17

The last term of the A.P (l) = 350

The common difference of the A.P. = 9

Let the number of terms be n .

So, as we know that,

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

We get,

$$350 = 17 + (n-1)9$$

$$350 = 17 + 9n - 9$$

$$350 = 8 + 9n$$

$$350 - 8 = 9n$$

Further solving this,

$$n = \frac{342}{9}$$

$$n = 38$$

Using the above values in the formula,

$$\begin{aligned} S_n &= \left(\frac{n}{2}\right)(a+l) \\ &= \left(\frac{38}{2}\right)(17+350) \\ &= (19)(367) \\ &= 6973 \end{aligned}$$

Therefore, the number of terms is $n = 38$ and the sum $S_n = 6973$.

Arithmetic Progressions Ex 9.5 Q44

Answer :

In the given problem, we have the first and the last term of an A.P. along with the sum of all the terms of A.P. Here, we need to find the common difference of the A.P.

Here,

The first term of the A.P (a) = 2

The last term of the A.P (l) = 29

Sum of all the terms (S_n) = 155

Let the common difference of the A.P. be d .

So, let us first find the number of the terms (n) using the formula,

$$155 = \left(\frac{n}{2}\right)(2+29)$$

$$155 = \left(\frac{n}{2}\right)(31)$$

$$155(2) = (n)(31)$$

$$n = \frac{310}{31}$$

$$n = 10$$

Now, to find the common difference of the A.P. we use the following formula,

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

We get,

$$29 = 2 + (10-1)d$$

$$29 = 2 + (9)d$$

$$29 - 2 = 9d$$

$$d = \frac{27}{9}$$

$$d = 3$$

Therefore, the common difference of the A.P. is $d = 3$.

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