



Arithmetic Progressions Ex 19.2 Q15

(i) A.P is 3, 5, 7, 9, ..., 201.

Here, $a = 3$

$$d = 2$$

n th term from the end is $l - (n - 1)d$

i.e. $201 - (n - 1)2$ or $203 - 2n$

---(i)

12th term from end is

$$203 - 2(12) = 179$$

(ii) A.P is 3, 8, 13, ..., 253.

Then, 12th term from end is $l - (n - 1)d$ i.e.,

$$= 253 - (12 - 1)5$$

$$= 253 - 55$$

$$= 198$$

(iii) A.P is 1, 4, 7, 10, ..., 88

Then, 12th term from end is $l - (n - 1)d$

$$= 88 - (12 - 1)3$$

$$= 88 - 33$$

$$= 55$$

Arithmetic Progressions Ex 19.2 Q16

Given,

$$a = 3a_1 \quad \text{---(i)}$$

$$a_7 = 2a_3 + 1 \quad \text{---(ii)}$$

Expanding (i) and (ii)

$$a + 3d = 2a$$

$$\therefore 2a = 3d \text{ or } a = \frac{3d}{2} \quad \text{---(iii)}$$

$$a + 6d = 2a + 4d + 1$$

$$a + 1 = 2d \quad \text{---(iv)}$$

From (iii) and (iv)

$$a = 3 \text{ and } d = 2$$

\therefore 1st term of the given A.P is 3, and common difference is 2.

Arithmetic Progressions Ex 19.2 Q17

$$a_6 = a + 5d = 12 \quad \text{---(i)}$$

$$a_8 = a + 7d = 22 \quad \text{---(ii)}$$

Solving (i) and (ii)

$$a = -13 \text{ and } d = 5$$

Then,

$$\begin{aligned} a_n &= a + (n - 1)d \\ &= -13 + (n - 1)5 \\ &= 5n - 18 \end{aligned}$$

and

$$\begin{aligned} a_2 &= a + (2 - 1)d \\ &= -13 + 5 \\ &= -8 \end{aligned}$$

Arithmetic Progressions Ex 19.2 Q18

The first two digit number divisible by 3 is 12.
and last two digit number divisible by 3 is 99.

So, the required series is 12, 15, 18, ... 99.

Let there be n terms then n th term = 99

$$\Rightarrow 99 = a + (n - 1)d$$

$$\Rightarrow 99 = 12 + (n - 1)3$$

$$\Rightarrow n = 30$$

30 two digit numbers are divisible by 3.

***** END *****