Arithematic Progressions Ex 19.2 Q15

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

Here, $a = 3$

$d = 2$

nth 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 $3, 8, 13, \ldots, 253$.

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

$= 253 - (12-1)5$

$= 253 - 55$

$= 198$

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

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

$= 88 - (12-1)3$

$= 88 - 33$

$= 55$

Arithematic Progressions Ex 19.2 Q16

Given,

$a = 3a_1$ ---(i)

$a_7 = 2a_3 + 1$ ---(ii)

Expanding (i) and (ii)

$a + 3d = 2a$

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

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

$a + 1 = 2d$ ---(iv)

From (iii) and (iv)

$a = 3$ and $d = 2$

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

Arithematic Progressions Ex 19.2 Q17

$a_6 = a + 5d = 12$ ---(i)

$a_8 = a + 7d = 22$ ---(ii)

Solving (i) and (ii)

$a = -13$ and $d = 5$

Then,

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

$= -13 + (n-1)5$

$= 5n - 18$

and

$a_2 = a + (2-1)d$

$= -13 + 5$

$= -8$

Arithematic 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 $12, 15, 18, \ldots 99$.

Let there be n terms then nth term = 99

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

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

$\Rightarrow \quad n = 30$

30 two digit numbers are divisible by 3.

********** END **********