ARITHMETIC PROGRESSIONS

Progression

An orderly arrangement of numbers according to certain rule is called progression or sequence.

Ex :

i. **1, 2, 3, 4, . . .**

Here, each term is **1 more than** the term preceding it.

ii. **100, 80, 60, 40, . . .**

Here, each term is **20 less than** the term preceding it.

iii. 1, 2, 4, 8, 16, 32. . . .

Here, each term is **multiplied by 2 to** the term preceding it.

can you write the next term in each of the lists above?

Arithmetic progression

An arithmetic progression is a list of numbers in which the difference between any two consecutive terms is constant.

Ex: 3, 5, 7, 9, ……. 31

Here, 3 – First term (a)

5 - Second term (a2)

a2-a1=d – common difference (d)

31 - last term (l) or (an)

n - number of terms

- Each number in the progression is called **term** of the progression
- In an AP the difference between any two consecutive terms is constant is called **common difference**
- An arithmetic progression (AP) having finite number of terms is called a **finite AP.**

  Ex: 15, 20, 25, ... 70
- An arithmetic progression (AP) having infinite number of terms is called a **infinite AP**. These APs do not have a last term.

  Ex: 1, 2, 3, 4 . . . . . .