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Arithmetic Progression (A.P)

Sequence and series are the basic topics in Arithmetic. An itemised collection of elements in which repetitions of any sort are allowed is known as a sequence, whereas a series is the sum of all elements. An arithmetic progression is one of the common examples of sequence and series.

In short, a sequence is a list of items/objects which have been arranged in a sequential way.

A series can be highly generalised as the sum of all the terms in a sequence. However, there has to be a definite relationship between all the terms of the sequence.

The fundamentals could be better understood by solving problems based on the formulas. They are very similar to sets but the primary difference is that in a sequence, individual terms can occur repeatedly in various positions. The length of a sequence is equal to the number of terms and it can be either finite or infinite. This concept is explained in a detailed manner in Class 11 Maths. With the help of definition, formulas and examples we are going to discuss here the concepts of sequence as well as series.

Sequence and Series Definition

A sequence is an arrangement of any objects or a set of numbers in a particular order followed by some rule. If $a_1, a_2, a_3, a_4, \dots$ etc. denote the terms of a sequence, then $1, 2, 3, 4, \dots$ denotes the position of the term.

A sequence can be defined based on the number of terms i.e. either finite sequence or infinite sequence.

If $a_1, a_2, a_3, a_4, \dots$ is a sequence, then the corresponding series is given by

$$SN = a_1 + a_2 + a_3 + \dots + a_N$$

Note: The series is finite or infinite depending if the sequence is finite or infinite.

Types of Sequence and Series

Some of the most common examples of sequences are:

- Arithmetic Sequences
- Geometric Sequences
- Harmonic Sequences
- Fibonacci Numbers
- Arithmetic Sequences

A sequence in which every term is created by adding or subtracting a definite number to the preceding number is an arithmetic sequence.