# Alphabetical and numerical series

It enhances cognitive flexibility, brainstorming skills, and logical reasoning, boosting performance in placement exams. Commonly asked in companies like Accenture, DXC, Infosys, Cognizant, Tech Mahindra, Google, Wipro, Deloitte, Amazon, etc.

## Types of series:

(1) Number series

(2) Alphabetical series

## Types of number series

### 1. Arithmetic Series

An arithmetic series is a sequence of numbers in which the difference between consecutive terms is constant.

- **Example**: 2, 5, 8, 11, 14, …
- **Pattern**: The common difference is +3 (each term increases by 3).

### 2. Geometric Series

In a geometric series, each term is found by multiplying the previous term by a fixed number, called the "common ratio."

- **Example**: 3, 6, 12, 24, 48, …
- **Pattern**: The common ratio is 2 (each term is multiplied by 2 to get the next term).

### 3. Fibonacci Series

In a Fibonacci series, each term is the sum of the two preceding terms.

- **Example**: 0, 1, 1, 2, 3, 5, 8, 13, 21, …
- **Pattern**: Sum of previous two term leads to the next term.

### 4. Square Numbers Series

In this series, each term is the square of a natural number.

- **Example**: 1, 4, 9, 16, 25, …
- **Pattern**: The numbers given are the squares of the natural numbers, also there can be n number of pattern in square number series, square number can be added or subtracted to a certain number.

### 5. Cubic Numbers Series

In this series, each term is the cube of a natural number.

- **Example**: 1, 8, 27, 64, 125, …

- **Pattern**: The numbers given are the cubes of the natural numbers, also there can be n number of pattern in Cubic number series, cubic numbers can be added or subtracted to a certain number.

## 6. Prime Numbers Series

This series consists of prime numbers, which are numbers greater than 1 and divisible only by 1 and themselves.

- **Example**: 2, 3, 5, 7, 11, 13, 17, …
- **Pattern**: The terms are numbers that have no divisors other than 1 and themselves.

## 7. Factorial Numbers Series

In this series, each term is the factorial of a natural number. The factorial of a number n is the product of all positive integers less than or equal to n.

- **Example**: 1, 2, 6, 24, 120, 720, …
- **Pattern**: The nth term is $n!=n\times(n-1)\times\cdots\times1n!$

## 8. Alternate Series

In this type of series, the terms alternate between positive and negative numbers, often following an arithmetic or geometric progression.

- **Example**: 1, -2, 3, -4, 5, -6, …
- **Pattern**: The numbers alternate signs and follow an arithmetic pattern.

## 9. Cumulative Sum Series

This series involves adding up the terms as you go along.

- **Example**: 1, 3, 6, 10, 15, 21, …
- **Pattern**: The nth term is the cumulative sum of the previous terms (the sum of the first $nnn$ natural numbers).

## 10. Exponential Series

Each term in the exponential series is a number raised to a power.

- **Example**: 2, 4, 8, 16, 32, 64, …
- **Pattern**: The patter is defined taking $2^{n}$.

# Types of alphabetical series

### 1. Simple Alphabetical Series

In this type of series, the letters follow a basic pattern where each letter is assigned a number corresponding to its position in the alphabet (A = 1, B = 2, C = 3, etc.), and the sequence progresses by a fixed number of steps.

- **Example**: A, B, C, D, E, F, G, …
- **Pattern**: Each letter is one step ahead of the previous letter in the alphabet.

## 2. Reverse Alphabetical Series

Here, the letters are arranged in reverse order, and the series progresses backward through the alphabet.

- **Example**: Z, Y, X, W, V, U, T, …
- **Pattern**: The letters decrease by one step from the end of the alphabet.

## 3. Alternating Alphabetical Series

In an alternating alphabetical series, the letters alternate between forward and backward movement through the alphabet, or follow any alternating pattern.

- **Example**: A, C, E, G, I, …
- **Pattern**: The letters increase by two steps each time.
- **Example**: Z, X, V, T, R, …
- **Pattern**: The letters decrease by two steps each time.

## 4. Skipping Alphabetical Series

In this type of series, letters skip a set number of positions in the alphabet between each term.

- **Example**: A, D, G, J, M, …
- **Pattern**: Each letter is 3 steps ahead of the previous letter (A + 3 = D, D + 3 = G, etc.).

## 5. Alphabetical Series with Numbers

Sometimes, a number might be paired with a letter, where the letter's position in the alphabet and the number follow a specific pattern.

- **Example**: A1, B2, C3, D4, E5, …
- **Pattern**: Each letter increases by one step in the alphabet, and the number increases by one.

## 7. Vowel and Consonant Series

In this type of series, only vowels or consonants from the alphabet are used, following a specific pattern.

- **Vowel Series Example**: A, E, I, O, U, …
- **Pattern**: The vowels of the alphabet are used in order.
- **Consonant Series Example**: B, D, F, H, J, …
- **Pattern**: The consonants of the alphabet are used in order.