■ DSA-■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■:■

1. Arithmetic Series (AP): a, a+d, a+2d, ...
   - Time Complexity: O(n)
   - Use: Simple loops, brute force■
2. Geometric Series (GP): a, ar, ar^2, ...
   - Time Complexity: O(log n)
   - Use: Binary Search, Divide & Conquer■
3. Harmonic Series: 1 + 1/2 + 1/3 + ... + 1/n
   - Time Complexity: O(log n)
   - Use: Hashing, Union-Find with path compression■
4. Fibonacci Series: 0, 1, 1, 2, 3, 5, ...
   - Time Complexity: Recursive O(2^n), DP O(n)
   - Use: DP, Matrix Exponentiation■
5. Square Series: 1^2 + 2^2 + ... + n^2
   - Time Complexity: O(1)
   - Use: Math, Range Queries■
6. Cubic Series: 1^3 + 2^3 + ... + n^3
   - Time Complexity: O(1)
   - Use: Sum-based math problems■
7. Logarithmic Series: log(n), log(log(n))
   - Use: Heap, BST, Bit manipulation■
8. Exponential Series: 2^0 + 2^1 + ... + 2^n
   - Time Complexity: O(2^n)
   - Use: Recursion, Backtracking■
9. Catalan Numbers: Cn = (1/(n+1)) * (2n choose n)
   - Use: Parentheses match, Trees, BSTs■
10. Triangular Numbers: n(n+1)/2
    - Use: Loop sums, Grid traversal■

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- Binary Search → Geometric Series (O(log n))
- QuickSort (avg case) → Harmonic Series
- Tower of Hanoi → Exponential Series (2^n)
- Fibonacci → Recursion/DP
- Matrix Chain Multiplication → Catalan Numbers
- Merge Sort → Geometric Series (O(n log n))