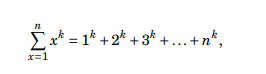
**Competitive Programming**

1. A.P: Arithmetic Progression, to get the sum of numbers where the diff is constant.





and for xk



There’s a general formula for sums, Faulhaber’s formula.

General formula for AP series:



1. G.P: A geometric progression is a series when ratio between any 2 consecutive numbers is constant.





1. Harmonic Sum: …
2. Set Theory:
3. log:
4. function:
5. logic:
6. Time Complexity: Denoted by O(…).

… can be

1: Constant time, no matter input size, output will take same time.

log2n: meaning the alg. halves the inp size at each step.

n1/2

n: linear time, for big inputs this is usually the most efficient alg as this means 1 loop for input, 1 for processing and 1 loop for output and all go n times.

nlogn: Indicates sorting alg, as the alg takes log n time on each element.

nk: k loops

2n: Indicates alg iterates through all subsets of the input set.

n!: Indicates alg iterates through all permutations of the input.

An alg is polynomial if at most it takes O(nk) time.

* 1. Inp Size and Required time complexity of the alg:

