

Number Theory/Math

Prime Generation, Sieve and How to Optimize

Bitwise Sieve

Modular Arithmetic (+ - *)

Modular Inverse (/)

Big Mod ($a^b \% p$)

Extended Euclid

Euler Phi

Inverse phi

Prime Factorization

Number of Divisor

Sum of Divisor

Factorizing n!

Shanks Algorithm

Probability Theory (Topcoder)

Dilworth's theorem

Chinese Remainder Theorem

Gaussian Elimination

Burnside Lemma

Finding Real roots of an n degree Equation

Given sum of divisors find possible n

Miller Rabin primality test

Pollard's rho algorithm

Taking modulo of Power ($a^{(b \% MOD)} \% MOD$)

Lukas Theorem

Inclusion Exclusion

Mobius

Floyds Cycle Finding Algorithm

Here in the Programming Contest Syllabus type collection

https://docs.google.com/document/d/1_dc3lfg7Gg1LxhiqMMmE9UbTsXpdRiYh4pKILYG2eA4/edit?fbclid=IwAR08obO14lTexTSrQDBvrfJbclbmuD7KxcdvG4gYrFCfusmNZXqluaJpe0g

In here in Number Theory part, there is sum references but I did not actually read most of them

You can check some of the topics from here

<https://cp-algorithms.com/>

Also they are available in Geeks for geeks site here

<https://www.geeksforgeeks.org/mathematical-algorithms/>

Although I did not read it as it is relatively new site but I heard it is good

The main strategy for you can be select a topic from the list, look at the resources or google about it, read it, solve 5-6 problem of it from lightoj and uva.

Then move to next topic

Like for Prime Generation, Sieve and How to Optimize & Bitwise Sieve, read about them from wikipedia, geeks for geeks and other side. Then solve from lightoj's category or uhunt.

For any topic, if you can't understand the topic or have problem getting resources or problem, ask me.

Also if anybody is just starting like 1-3 semester students, can start to learn math and number theory by doing <https://projecteuler.net/>

For you I won't say it as you have experience and basic understandings

the starting problems will be waste of time for you

<https://www.topcoder.com/community/competitive-programming/tutorials/>