**Topic :**

* [GCD and LCM](https://www.geeksforgeeks.org/mathematical-algorithms/#gcd)
* [Prime Factorization and Divisors](https://www.geeksforgeeks.org/mathematical-algorithms/#factors)
* [Fibonacci Numbers](https://www.geeksforgeeks.org/mathematical-algorithms/#fibonacci)
* [Catalan Numbers](https://www.geeksforgeeks.org/mathematical-algorithms/#catalan)
* [Modular Arithmetic](https://www.geeksforgeeks.org/mathematical-algorithms/#modular)
* [Euler Totient Function](https://www.geeksforgeeks.org/mathematical-algorithms/#euler)
* [nCr Computations](https://www.geeksforgeeks.org/mathematical-algorithms/#computation)
* [Set Theory](https://www.geeksforgeeks.org/mathematical-algorithms/#Set%20Theory)
* [Chinese Remainder Theorem](https://www.geeksforgeeks.org/mathematical-algorithms/#remainder)
* [Factorial](https://www.geeksforgeeks.org/mathematical-algorithms/#factorial)
* [Prime numbers and Primality Tests](https://www.geeksforgeeks.org/mathematical-algorithms/#prime)
* [Sieve Algorithms](https://www.geeksforgeeks.org/mathematical-algorithms/#sieve)
* [Divisibility and Large Numbers](https://www.geeksforgeeks.org/mathematical-algorithms/#divisibility)
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* [Number Digits](https://www.geeksforgeeks.org/mathematical-algorithms/#number)
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* [Misc](https://www.geeksforgeeks.org/mathematical-algorithms/#Misc)
* [Quick Links](https://www.geeksforgeeks.org/mathematical-algorithms/#ql)

**GCD and LCM :**

1. [GCD and LCM](https://www.geeksforgeeks.org/c-program-find-lcm-two-numbers/)
2. [LCM of array](https://www.geeksforgeeks.org/lcm-of-given-array-elements/)
3. [GCD of array](https://www.geeksforgeeks.org/gcd-two-array-numbers/)
4. [Basic and Extended Euclidean algorithms](https://www.geeksforgeeks.org/basic-and-extended-euclidean-algorithms/)
5. [Product of given N fractions in reduced form](https://www.geeksforgeeks.org/product-given-n-fractions-reduced-form/)
6. [GCD of two numbers when one of them can be very large](https://www.geeksforgeeks.org/gcd-of-two-numbers-when-one-of-them-can-be-very-large-2/)
7. [Stein’s Algorithm for finding GCD](https://www.geeksforgeeks.org/steins-algorithm-for-finding-gcd/)
8. [GCD, LCM and Distributive Property](https://www.geeksforgeeks.org/gcd-lcm-distributive-property/)
9. [Replace every matrix element with maximum of GCD of row or column](https://www.geeksforgeeks.org/replace-matrix-element-maximum-gcd-row-column/)
10. [GCD of two numbers formed by n repeating x and y times](https://www.geeksforgeeks.org/gcd-two-numbers-formed-n-repeating-x-y-times/)
11. [Count number of pairs (A <= N, B <= N) such that gcd (A , B) is B](https://www.geeksforgeeks.org/count-number-pairs-n-b-n-gcd-b-b/)
12. [Array with GCD of any of its subset belongs to the given array](https://www.geeksforgeeks.org/array-gcd-subset-belongs-given-array/)
13. [First N natural can be divided into two sets with given difference and co-prime sums](https://www.geeksforgeeks.org/first-n-natural-can-be-divided-into-two-sets-with-given-difference-and-co-prime-sums/)
14. [Minimum gcd operations to make all array elements one](https://www.geeksforgeeks.org/minimum-gcd-operations-make-array-elements-one/)
15. [Program to find GCD of floating point numbers](https://www.geeksforgeeks.org/program-find-gcd-floating-point-numbers/)
16. [GCD of digits of a given number](https://www.geeksforgeeks.org/gcd-digits-given-number/)
17. [Series with largest GCD and sum equals to n](https://www.geeksforgeeks.org/series-largest-gcd-sum-equals-n/)
18. [Find pair with maximum GCD in an array](https://www.geeksforgeeks.org/find-pair-maximum-gcd-array/)
19. [GCD of elements in a given range](https://www.geeksforgeeks.org/gcd-elements-given-range/)
20. [Minimum operations to make GCD of array a multiple of k](https://www.geeksforgeeks.org/minimum-operations-make-gcd-array-multiple-k/)
21. [Largest Subset with GCD 1](https://www.geeksforgeeks.org/largest-subset-gcd-1/)
22. [Queries for GCD of all numbers of an array except elements in a given range](https://www.geeksforgeeks.org/queries-gcd-numbers-array-except-elements-given-range/)
23. [Summation of GCD of all the pairs up to N](https://www.geeksforgeeks.org/summation-gcd-pairs-n/)
24. [Largest subsequence having GCD greater than 1](https://www.geeksforgeeks.org/largest-subsequence-gcd-greater-1/)
25. [Largest subarray with GCD one](https://www.geeksforgeeks.org/largest-subarray-gcd-one/)

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**Prime Factorization and Divisors :**

1. [Prime factors](https://www.geeksforgeeks.org/print-all-prime-factors-of-a-given-number/)
2. [Smith Numbers](https://www.geeksforgeeks.org/smith-number/)
3. [Sphenic Number](https://www.geeksforgeeks.org/sphenic-number/)
4. [Hoax Number](https://www.geeksforgeeks.org/hoax-number/)
5. [k-th prime factor of a given number](https://www.geeksforgeeks.org/k-th-prime-factor-given-number/)
6. [Pollard’s Rho Algorithm for Prime Factorization](https://www.geeksforgeeks.org/pollards-rho-algorithm-prime-factorization/)
7. [Prime Factorization using Sieve O(log n) for multiple queries](https://www.geeksforgeeks.org/prime-factorization-using-sieve-olog-n-multiple-queries/)
8. [Find politeness of a number](https://www.geeksforgeeks.org/find-politeness-number/)
9. [Find sum of even factors of a number](https://www.geeksforgeeks.org/find-sum-even-factors-number/)
10. [Find sum of odd factors of a number](https://www.geeksforgeeks.org/find-sum-odd-factors-number/)
11. [Find largest prime factor of a number](https://www.geeksforgeeks.org/find-largest-prime-factor-number/)
12. [Find minimum sum of factors of number](https://www.geeksforgeeks.org/find-minimum-sum-factors-number/)
13. [Finding power of prime number p in n!](https://www.geeksforgeeks.org/finding-power-prime-number-p-n/)
14. [Find all divisors of a natural number | Set 1](https://www.geeksforgeeks.org/find-divisors-natural-number-set-1/)
15. [Find all divisors of a natural number | Set 2](https://www.geeksforgeeks.org/find-all-divisors-of-a-natural-number-set-2/)
16. [Find all divisors of a natural number](https://www.geeksforgeeks.org/find-divisors-natural-number-set-1/)
17. [Find numbers with n-divisors in a given range](https://www.geeksforgeeks.org/find-numbers-n-divisors-given-range/)
18. [Find minimum number to be divided to make a number a perfect square](https://www.geeksforgeeks.org/find-minimum-number-divided-make-number-perfect-square/)
19. [Sum of all proper divisors of a natural number](https://www.geeksforgeeks.org/sum-of-all-proper-divisors-of-a-natural-number/)
20. [Sum of all the factors of a number](https://www.geeksforgeeks.org/sum-factors-number/)
21. [Sum of largest prime factor of each number less than equal to n](https://www.geeksforgeeks.org/sum-largest-prime-factor-number-less-equal-n/)
22. [Sum of all divisors from 1 to n](https://www.geeksforgeeks.org/sum-divisors-1-n/)
23. [Check for Amicable Pair](https://www.geeksforgeeks.org/check-amicable-pair/)
24. [Prime Factorization using Sieve O(log n) for multiple queries](https://www.geeksforgeeks.org/prime-factorization-using-sieve-olog-n-multiple-queries/)
25. [Prime factors of a big number](https://www.geeksforgeeks.org/prime-factors-big-number/)

[More >>](https://www.geeksforgeeks.org/mathematical-algorithms/mathematical-algorithms-prime-factorization-divisors/)

**Fibonacci Numbers :**

1. [Fibonacci Numbers](https://www.geeksforgeeks.org/program-for-nth-fibonacci-number/)
2. [Interesting facts about Fibonacci numbers](https://www.geeksforgeeks.org/interesting-facts-fibonacci-numbers/)
3. [How to check if a given number is Fibonacci number?](https://www.geeksforgeeks.org/check-number-fibonacci-number/)
4. [Zeckendorf’s Theorem (Non-Neighbouring Fibonacci Representation)](https://www.geeksforgeeks.org/zeckendorfs-theorem-non-neighbouring-fibonacci-representation/)
5. [Finding nth Fibonacci Number using Golden Ratio](https://www.geeksforgeeks.org/find-nth-fibonacci-number-using-golden-ratio/)
6. [Matrix Exponentiation](https://www.geeksforgeeks.org/matrix-exponentiation/)
7. [Fibonacci Coding](https://www.geeksforgeeks.org/fibonacci-coding/)
8. [n’th multiple of a number in Fibonacci Series](https://www.geeksforgeeks.org/nth-multiple-number-fibonacci-series/)
9. [GCD and Fibonacci Numbers](https://www.geeksforgeeks.org/gcd-and-fibonacci-numbers/)
10. [Cassini’s Identity](https://www.geeksforgeeks.org/cassinis-identity/)
11. [N-bonacci Numbers](https://www.geeksforgeeks.org/n-bonacci-numbers/)
12. [Space efficient iterative method to Fibonacci number](https://www.geeksforgeeks.org/space-efficient-iterative-method-fibonacci-number-set-2/)
13. [The Magic of Fibonacci Numbers](https://www.geeksforgeeks.org/magic-fibonacci-numbers/)
14. [Program to print Fibonacci Triangle](https://www.geeksforgeeks.org/program-print-fibonacci-triangle/)
15. [Factorial of each element in Fibonacci series](https://www.geeksforgeeks.org/factorial-element-fibonacci-series/)
16. [Fibonomial coefficient and Fibonomial triangle](https://www.geeksforgeeks.org/fibonomial-coefficient-fibonomial-triangle/)
17. [Hosoya’s Triangle](https://www.geeksforgeeks.org/hosoyas-triangle/)
18. [Prime numbers and Fibonacci](https://www.geeksforgeeks.org/prime-numbers-fibonacci/)
19. [Leonardo Number](https://www.geeksforgeeks.org/leonardo-number/)
20. [Fibonacci number in an array](https://www.geeksforgeeks.org/fibonacci-number-array/)
21. [Fibonacci modulo p](https://www.geeksforgeeks.org/fibonacci-modulo-p/)
22. [An efficient way to check whether n-th Fibonacci number is multiple of 10](https://www.geeksforgeeks.org/efficient-way-check-whether-n-th-fibonacci-number-multiple-10/)
23. [Find Index of given fibonacci number in constant time](https://www.geeksforgeeks.org/find-index-given-fibonacci-number-constant-time/)
24. [Tail Recursion for Fibonacci](https://www.geeksforgeeks.org/tail-recursion-fibonacci/)
25. [Large Fibonacci Numbers in Java](https://www.geeksforgeeks.org/large-fibonacci-numbers-java/)
26. [Even Fibonacci Numbers Sum](https://www.geeksforgeeks.org/even-fibonacci-numbers-sum/)
27. [Nth Even Fibonacci Number](https://www.geeksforgeeks.org/nth-even-fibonacci-number/)
28. [Finding number of digits in n’th Fibonacci number](https://www.geeksforgeeks.org/finding-number-of-digits-in-nth-fibonacci-number/)
29. [Non Fibonacci Numbers](https://www.geeksforgeeks.org/nth-non-fibonacci-number/)
30. [Sum of Fibonacci Numbers](https://www.geeksforgeeks.org/sum-fibonacci-numbers/)
31. [Count ways to reach the n’th stair](https://www.geeksforgeeks.org/count-ways-reach-nth-stair/)
32. [Count Possible Decodings of a given Digit Sequence](https://www.geeksforgeeks.org/count-possible-decodings-given-digit-sequence/)
33. [Program to print first n Fibonacci Numbers | Set 1](https://www.geeksforgeeks.org/program-to-print-first-n-fibonacci-numbers/)

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**Modular Arithmetic :**

1. [Modular Exponentiation (Power in Modular Arithmetic)](https://www.geeksforgeeks.org/modular-exponentiation-power-in-modular-arithmetic/)
2. [Modular multiplicative inverse](https://www.geeksforgeeks.org/multiplicative-inverse-under-modulo-m/)
3. [Modular Division](https://www.geeksforgeeks.org/modular-division/)
4. [Multiplicative order](https://www.geeksforgeeks.org/multiplicative-order/)
5. [Find Square Root under Modulo p | Set 1 (When p is in form of 4\*i + 3)](https://www.geeksforgeeks.org/find-square-root-under-modulo-p-set-1-when-p-is-in-form-of-4i-3/)
6. [Find Square Root under Modulo p | Set 2 (Shanks Tonelli algorithm)](https://www.geeksforgeeks.org/find-square-root-modulo-p-set-2-shanks-tonelli-algorithm/)
7. [Euler’s criterion (Check if square root under modulo p exists)](https://www.geeksforgeeks.org/eulers-criterion-check-if-square-root-under-modulo-p-exists/)
8. [Multiply large integers under large modulo](https://www.geeksforgeeks.org/multiply-large-integers-under-large-modulo/)
9. [Find sum of modulo K of first N natural number](https://www.geeksforgeeks.org/find-sum-modulo-k-first-n-natural-number/)
10. [How to compute mod of a big number?](https://www.geeksforgeeks.org/how-to-compute-mod-of-a-big-number/)
11. [Modulo 10^9+7 (1000000007)](https://www.geeksforgeeks.org/modulo-1097-1000000007/)
12. [How to avoid overflow in modular multiplication?](https://www.geeksforgeeks.org/how-to-avoid-overflow-in-modular-multiplication/)
13. [Find (a^b)%m where ‘a’ is very large](https://www.geeksforgeeks.org/find-abm-large/)
14. [Find power of power under mod of a prime](https://www.geeksforgeeks.org/find-power-power-mod-prime/)
15. [Number of solutions to Modular Equations](https://www.geeksforgeeks.org/number-solutions-modular-equations/)
16. [Recursive sum of digits of a number formed by repeated appends](https://www.geeksforgeeks.org/recursive-sum-digits-number-formed-repeated-appends/)
17. [Find value of y mod (2 raised to power x)](https://www.geeksforgeeks.org/find-value-of-y-mod-2-raised-to-power-x/)
18. [Modular multiplicative inverse from 1 to n](https://www.geeksforgeeks.org/modular-multiplicative-inverse-1-n/)
19. [Find unit digit of x raised to power y](https://www.geeksforgeeks.org/find-unit-digit-x-raised-power-y/)
20. [Given two numbers a and b find all x such that a % x = b](https://www.geeksforgeeks.org/given-two-numbers-b-find-x-x-b/)
21. [Exponential Squaring (Fast Modulo Multiplication)](https://www.geeksforgeeks.org/exponential-squaring-fast-modulo-multiplication/)
22. [Subsequences of size three in an array whose sum is divisible by m](https://www.geeksforgeeks.org/subsequences-size-three-array-whose-sum-divisible-m/)
23. [Distributing M items in a circle of size N starting from K-th position](https://www.geeksforgeeks.org/distributing-m-items-circle-size-n-starting-k-th-position/)
24. [Discrete logarithm (Find an integer k such that a^k is congruent modulo b)](https://www.geeksforgeeks.org/discrete-logarithm-find-integer-k-ak-congruent-modulo-b/)
25. [Finding ‘k’ such that its modulus with each array element is same](https://www.geeksforgeeks.org/finding-k-modulus-array-element/)
26. [Fibonacci modulo p](https://www.geeksforgeeks.org/fibonacci-modulo-p/)
27. [Maximum subarray sum modulo m](https://www.geeksforgeeks.org/maximum-subarray-sum-modulo-m/)
28. [Trick for modular division ( (x1 \* x2 …. xn) / b ) mod (m)](https://www.geeksforgeeks.org/trick-modular-division-x1x2-xnbmodm/)
29. [Count number of solutions of x^2 = 1 (mod p) in given range](https://www.geeksforgeeks.org/count-number-of-solutions-of-x2-1-mod-p-in-given-range/)
30. [Breaking an Integer to get Maximum Product](https://www.geeksforgeeks.org/breaking-integer-to-get-maximum-product/)
31. [Program to find remainder without using modulo or % operator](https://www.geeksforgeeks.org/program-to-find-remainder-without-using-modulo-or-operator/)

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**Catalan Numbers :**

1. [Catalan numbers](https://www.geeksforgeeks.org/program-nth-catalan-number/)
2. [Applications of Catalan Numbers](https://www.geeksforgeeks.org/applications-of-catalan-numbers/)
3. [Program for nth Catalan Number](https://www.geeksforgeeks.org/program-nth-catalan-number/)
4. [Dyck path](https://www.geeksforgeeks.org/dyck-path/)
5. [Non-crossing lines to connect points in a circle](https://www.geeksforgeeks.org/non-crossing-lines-connect-points-circle/)
6. [Succinct Encoding of Binary Tree](https://www.geeksforgeeks.org/succinct-encoding-of-binary-tree/)
7. [Find the number of valid parentheses expressions of given length](https://www.geeksforgeeks.org/find-number-valid-parentheses-expressions-given-length/)

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**Euler Totient Function :**

1. [Euler’s Totient Function](https://www.geeksforgeeks.org/eulers-totient-function/)
2. [Optimized Euler Totient Function for Multiple Evaluations](https://www.geeksforgeeks.org/optimized-euler-totient-function-multiple-evaluations/)
3. [Euler’s Totient function for all numbers smaller than or equal to n](https://www.geeksforgeeks.org/eulers-totient-function-for-all-numbers-smaller-than-or-equal-to-n/)
4. [Primitive root of a prime number n modulo n](https://www.geeksforgeeks.org/primitive-root-of-a-prime-number-n-modulo-n/)
5. [Euler’s Four Square Identity](https://www.geeksforgeeks.org/eulers-four-square-identity/)

**nCr Computations :**

1. [Binomial Coefficient](https://www.geeksforgeeks.org/dynamic-programming-set-9-binomial-coefficient/)
2. [Compute nCr % p | Set 1 (Introduction and Dynamic Programming Solution)](https://www.geeksforgeeks.org/compute-ncr-p-set-1-introduction-and-dynamic-programming-solution/)
3. [Compute nCr % p | Set 2 (Lucas Theorem)](https://www.geeksforgeeks.org/compute-ncr-p-set-2-lucas-theorem/)
4. [Compute nCr % p | Set 3 (Using Fermat Little Theorem)](https://www.geeksforgeeks.org/compute-ncr-p-set-3-using-fermat-little-theorem/)
5. [Program to calculate value of nCr](https://www.geeksforgeeks.org/program-calculate-value-ncr/)
6. [Probability for three randomly chosen numbers to be in AP](https://www.geeksforgeeks.org/probability-three-randomly-chosen-numbers-ap/)
7. [Rencontres Number (Counting partial derangements)](https://www.geeksforgeeks.org/rencontres-number-counting-partial-derangements/)
8. [Sum of squares of binomial coefficients](https://www.geeksforgeeks.org/sum-squares-binomial-coefficients/)
9. [Find sum of even index binomial coefficients](https://www.geeksforgeeks.org/find-sum-even-index-binomial-coefficients/)
10. [Maximum binomial coefficient term value](https://www.geeksforgeeks.org/maximum-binomial-coefficient-term-value/)
11. [Program for Binomial Coefficients table](https://www.geeksforgeeks.org/program-binomial-coefficients-table/)
12. [Sum of Binomial coefficients](https://www.geeksforgeeks.org/sum-binomial-coefficients/)
13. [Space and time efficient Binomial Coefficient](https://www.geeksforgeeks.org/space-and-time-efficient-binomial-coefficient/)
14. [Count ways to express even number ‘n’ as sum of even integers](https://www.geeksforgeeks.org/count-ways-express-even-number-n-sum-even-integers/)
15. [Maximum points of intersection n circles](https://www.geeksforgeeks.org/maximum-points-intersection-n-circles/)
16. [Horner’s Method for Polynomial Evaluation](https://www.geeksforgeeks.org/horners-method-polynomial-evaluation/)
17. [Print all possible combinations of r elements in a given array of size n](https://www.geeksforgeeks.org/print-all-possible-combinations-of-r-elements-in-a-given-array-of-size-n/)
18. [Significance of Pascal’s Identity](https://www.geeksforgeeks.org/significance-of-pascals-identity/)

**Chinese Remainder Theorem :**

1. [Set 1 (Introduction)](https://www.geeksforgeeks.org/chinese-remainder-theorem-set-1-introduction/)
2. [Set 2 (Inverse Modulo based Implementation)](https://www.geeksforgeeks.org/chinese-remainder-theorem-set-2-implementation/)
3. [Cyclic Redundancy Check and Modulo-2 Division](https://www.geeksforgeeks.org/modulo-2-binary-division/)
4. [Using Chinese Remainder Theorem to Combine Modular equations](https://www.geeksforgeeks.org/using-chinese-remainder-theorem-combine-modular-equations/)

**Factorial :**

1. [Factorial](https://www.geeksforgeeks.org/c-program-factorial-number/)
2. [Legendre’s formula (Given p and n, find the largest x such that p^x divides n!)](https://www.geeksforgeeks.org/given-p-and-n-find-the-largest-x-such-that-px-divides-n-2/)
3. [Sum of divisors of factorial of a number](https://www.geeksforgeeks.org/sum-divisors-factorial-number/)
4. [Count Divisors of Factorial](https://www.geeksforgeeks.org/count-divisors-of-factorial/)
5. [Compute n! under modulo p](https://www.geeksforgeeks.org/compute-n-under-modulo-p/)
6. [Double factorial](https://www.geeksforgeeks.org/double-factorial/)
7. [Count trailing zeroes in factorial of a number](https://www.geeksforgeeks.org/count-trailing-zeroes-factorial-number/)
8. [Factorial of a large number](https://www.geeksforgeeks.org/factorial-large-number/)
9. [Primorial of a number](https://www.geeksforgeeks.org/primorial-of-a-number/)
10. [Find the first natural number whose factorial is divisible by x](https://www.geeksforgeeks.org/find-first-natural-number-whose-factorial-divisible-x/)
11. [Count numbers formed by given two digit with sum having given digits](https://www.geeksforgeeks.org/count-numbers-formed-given-two-digit-sum-given-digits/)
12. [Generate a list of n consecutive composite numbers (An interesting method)](https://www.geeksforgeeks.org/generate-list-n-consecutive-composite-numbers-interesting-method/)
13. [Expressing factorial n as sum of consecutive numbers](https://www.geeksforgeeks.org/expressing-factorial-n-sum-consecutive-numbers/)
14. [Find maximum power of a number that divides a factorial](https://www.geeksforgeeks.org/find-maximum-power-number-divides-factorial/)
15. [Trailing number of 0s in product of two factorials](https://www.geeksforgeeks.org/trailing-number-0s-product-two-factorials/)
16. [Print factorials of a range in right aligned format](https://www.geeksforgeeks.org/print-factorials-of-a-range-in-right-aligned-format/)
17. [GCD of factorials of two numbers](https://www.geeksforgeeks.org/gcd-factorials-two-numbers/)
18. [Largest power of k in n! (factorial) where k may not be prime](https://www.geeksforgeeks.org/largest-power-k-n-factorial-k-may-not-prime/)
19. [One line function for factorial of a number](https://www.geeksforgeeks.org/one-line-function-for-factorial-of-a-number/)
20. [Find all factorial numbers less than or equal to n](https://www.geeksforgeeks.org/find-factorial-numbers-less-equal-n/)
21. [Find the last digit when factorial of A divides factorial of B](https://www.geeksforgeeks.org/find-last-digit-factorial-divides-factorial-b/)
22. [An interesting solution to get all prime numbers smaller than n](https://www.geeksforgeeks.org/solution-get-prime-numbers-smaller-n/)
23. [Calculating Factorials using Stirling Approximation](https://www.geeksforgeeks.org/calculating-factorials-using-stirling-approximation/)
24. [Check if a number is a Krishnamurthy Number or not](https://www.geeksforgeeks.org/check-if-a-number-is-a-krishnamurthy-number-or-not-2/)
25. [Find a range of composite numbers of given length](https://www.geeksforgeeks.org/find-range-composite-numbers-given-length/)
26. [Smallest number S such that N is a factor of S factorial or S!](https://www.geeksforgeeks.org/smallest-number-s-n-factor-s-factorial-s/)
27. [Maximum value of an integer for which factorial can be calculated on a machine](https://www.geeksforgeeks.org/maximum-value-integer-factorial-can-calculated-machine/)
28. [Smallest number with at least n digits in factorial](https://www.geeksforgeeks.org/smallest-number-least-n-digits-factorial/)
29. [Last non-zero digit of a factorial](https://www.geeksforgeeks.org/last-non-zero-digit-factorial/)
30. [Smallest number with at least n trailing zeroes in factorial](https://www.geeksforgeeks.org/smallest-number-least-n-trailing-zeroes-factorial/)
31. [Count natural numbers whose factorials are divisible by x but not y](https://www.geeksforgeeks.org/count-natural-numbers-whose-factorials-divisible-x-not-y/)
32. [Count digits in a factorial | Set 1](https://www.geeksforgeeks.org/count-digits-factorial-set-1/)
33. [Count digits in a factorial | Set 2](https://www.geeksforgeeks.org/count-digits-factorial-set-2/)
34. [No of Factors of n!](https://www.geeksforgeeks.org/no-factors-n/)
35. [Count factorial numbers in a given range](https://www.geeksforgeeks.org/count-factorial-numbers-in-a-given-range/)
36. [Program for factorial of a number](https://www.geeksforgeeks.org/program-for-factorial-of-a-number/)

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**Prime numbers and Primality Tests :**

1. [Prime Numbers](https://www.geeksforgeeks.org/prime-numbers/)
2. [Special prime numbers](https://www.geeksforgeeks.org/special-prime-numbers/)
3. [Prime numbers and Fibonacci](https://www.geeksforgeeks.org/prime-numbers-fibonacci/)
4. [Left-Truncatable Prime](https://www.geeksforgeeks.org/left-truncatable-prime/)
5. [Mersenne Prime](https://www.geeksforgeeks.org/mersenne-prime/)
6. [Super Prime](https://www.geeksforgeeks.org/super-prime/)
7. [Palindromic Primes](https://www.geeksforgeeks.org/palindromic-primes/)
8. [Prime Triplet](https://www.geeksforgeeks.org/prime-triplet/)
9. [Hardy-Ramanujan Theorem](https://www.geeksforgeeks.org/hardy-ramanujan-theorem/)
10. [Rosser’s Theorem](https://www.geeksforgeeks.org/rossers-theorem/)
11. [Fermat’s little theorem](https://www.geeksforgeeks.org/fermats-little-theorem/)
12. [Composite Number](https://www.geeksforgeeks.org/composite-number/)
13. [Euclid Euler Theorem](https://www.geeksforgeeks.org/euclid-euler-theorem/)
14. [Euclid’s Lemma](https://www.geeksforgeeks.org/euclids-lemma/)
15. [Primality Test | Set 1 (Introduction and School Method)](https://www.geeksforgeeks.org/primality-test-set-1-introduction-and-school-method/)
16. [Primality Test | Set 2 (Fermat Method)](https://www.geeksforgeeks.org/primality-test-set-2-fermet-method/)
17. [Primality Test | Set 3 (Miller–Rabin)](https://www.geeksforgeeks.org/primality-test-set-3-miller-rabin/)
18. [Primality Test | Set 4 (Solovay-Strassen)](https://www.geeksforgeeks.org/primality-test-set-4-solovay-strassen/)
19. [Primality Test | Set 5 (Using Lucas-Lehmer Series)](https://www.geeksforgeeks.org/primality-test-set-5using-lucas-lehmer-series/)
20. [Vantieghems Theorem for Primality Test](https://www.geeksforgeeks.org/vantieghems-theorem-primality-test/)
21. [AKS Primality Test](https://www.geeksforgeeks.org/aks-primality-test/)
22. [Lucas Primality Test](https://www.geeksforgeeks.org/lucas-primality-test/)
23. [2^x + 1 and Prime](https://www.geeksforgeeks.org/gfact-22-2x-1-prime/)
24. [Recursive program for prime number](https://www.geeksforgeeks.org/recursive-program-prime-number/)
25. [Circular primes less than n](https://www.geeksforgeeks.org/circular-primes-less-than-n/)

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**Set Theory :**

1. [Minimize the absolute difference of sum of two subsets](https://www.geeksforgeeks.org/minimize-absolute-difference-sum-two-subsets/)
2. [Sum of all subsets of a set formed by first n natural numbers](https://www.geeksforgeeks.org/sum-subsets-set-formed-first-n-natural-numbers/)
3. [Sum of average of all subsets](https://www.geeksforgeeks.org/sum-average-subsets/)
4. [Bell Numbers (Number of ways to Partition a Set)](https://www.geeksforgeeks.org/bell-numbers-number-of-ways-to-partition-a-set/)
5. [Power Set](https://www.geeksforgeeks.org/power-set/)

**Sieve Algorithms :**

1. [Sieve of Eratosthenes](https://www.geeksforgeeks.org/sieve-of-eratosthenes/)
2. [Segmented Sieve](https://www.geeksforgeeks.org/segmented-sieve/)
3. [Sieve of Atkin](https://www.geeksforgeeks.org/sieve-of-atkin/)
4. [Sieve of Sundaram to print all primes smaller than n](https://www.geeksforgeeks.org/sieve-sundaram-print-primes-smaller-n/)
5. [Sieve of Eratosthenes in 0(n) time complexity](https://www.geeksforgeeks.org/sieve-eratosthenes-0n-time-complexity/)
6. [Arithmetic Number](https://www.geeksforgeeks.org/arithmetic-number/)

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**Divisibility and Large Numbers :**

1. [Check if a large number is divisible by 3 or not](https://www.geeksforgeeks.org/check-large-number-divisible-3-not/)
2. [Number of digits to be removed to make a number divisible by 3](https://www.geeksforgeeks.org/number-digits-removed-make-number-divisible-3/)
3. [Find whether a given integer is a power of 3 or not](https://www.geeksforgeeks.org/find-whether-given-integer-power-3-not/)
4. [Check if a large number is divisible by 4 or not](https://www.geeksforgeeks.org/check-large-number-divisible-4-not/)
5. [Count rotations divisible by 4](https://www.geeksforgeeks.org/count-rotations-divisible-4/)
6. [Number of substrings divisible by 4 in a string of integers](https://www.geeksforgeeks.org/number-substrings-divisible-4-string-integers/)
7. [Check if a large number is divisible by 6 or not](https://www.geeksforgeeks.org/check-large-number-divisible-6-not/)
8. [Prove that atleast one of three consecutive even numbers is divisible by 6](https://www.geeksforgeeks.org/prove-atleast-one-three-consecutive-even-numbers-divisible-6/)
9. [Sum of all numbers divisible by 6 in a given range](https://www.geeksforgeeks.org/sum-numbers-divisible-6-given-range/)
10. [Number of substrings divisible by 6 in a string of integers](https://www.geeksforgeeks.org/number-substrings-divisible-6-string-integers/)
11. [Print digit’s position to be removed to make a number divisible by 6](https://www.geeksforgeeks.org/print-digits-position-removed-make-number-divisible-6/)
12. [Check divisibility by 7](https://www.geeksforgeeks.org/divisibility-by-7/)
13. [To check whether a large number is divisible by 7](https://www.geeksforgeeks.org/check-whether-large-number-divisible-7/)
14. [Remainder with 7 for large numbers](https://www.geeksforgeeks.org/remainder-7-large-numbers/)
15. [Count rotations divisible by 8](https://www.geeksforgeeks.org/count-rotations-divisible-8/)
16. [Given a large number, check if a subsequence of digits is divisible by 8](https://www.geeksforgeeks.org/given-large-number-check-subsequence-digits-divisible-8/)
17. [Check if a large number is divisible by 9 or not](https://www.geeksforgeeks.org/check-large-number-divisible-9-not/)
18. [Decimal representation of given binary string is divisible by 10 or not](https://www.geeksforgeeks.org/decimal-representation-given-binary-string-divisible-10-not/)
19. [Check if a large number is divisible by 11 or not](https://www.geeksforgeeks.org/check-large-number-divisible-11-not/)
20. [Program to find remainder when large number is divided by 11](https://www.geeksforgeeks.org/program-find-remainder-large-number-divided-11/)
21. [Divisibility by 12 for a large number](https://www.geeksforgeeks.org/divisibility-by-12-for-a-large-number/)
22. [Check if a large number is divisible by 13 or not](https://www.geeksforgeeks.org/check-large-number-divisible-13-not/)
23. [Check if a large number is divisibility by 15](https://www.geeksforgeeks.org/check-large-number-divisibility-15/)
24. [Check if a large number is divisible by 20](https://www.geeksforgeeks.org/check-large-number-divisible-20/)
25. [Number is divisible by 29 or not](https://www.geeksforgeeks.org/number-is-divisible-by-29-or-not/)

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**Series :**

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10. [Hexagonal Number](https://www.geeksforgeeks.org/hexagonal-number/)
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12. [Nicomachus’s Theorem (Sum of k-th group of odd positive numbers)](https://www.geeksforgeeks.org/sum-k-th-group-odd-positive-numbers/)
13. [Sum of pairwise products](https://www.geeksforgeeks.org/sum-pairwise-products/)
14. [Squared triangular number (Sum of cubes)](https://www.geeksforgeeks.org/squared-triangular-number-sum-cubes/)
15. [Square pyramidal number (Sum of Squares)](https://www.geeksforgeeks.org/square-pyramidal-number-sum-squares/)
16. [Program to print the sum of the given nth term](https://www.geeksforgeeks.org/program-print-sum-given-nth-term/)
17. [Sum of series with alternate signed squares of AP](https://www.geeksforgeeks.org/sum-series-alternate-signed-squares-ap/)
18. [Program for sum of cos(x) series](https://www.geeksforgeeks.org/program-sum-cosx-series/)
19. [Sum of range in a series of first odd then even natural numbers](https://www.geeksforgeeks.org/sum-of-range-in-a-series-of-first-odd-then-even-natural-numbers/)
20. [Sum of the sequence 2, 22, 222, ………](https://www.geeksforgeeks.org/sum-sequence-2-22-222/)
21. [Sum of the series 5+55+555+.. up to n terms](https://www.geeksforgeeks.org/sum-series-555555-n-terms/)
22. [Sum of series 1^2 + 3^2 + 5^2 + . . . + (2\*n – 1)^2](https://www.geeksforgeeks.org/sum-series-12-32-52-2n-12/)
23. [Sum of series 2/3 – 4/5 + 6/7 – 8/9 + ——- upto n terms](https://www.geeksforgeeks.org/sum-series-23-45-67-89-upto-n-terms/)
24. [Sum of the series 0.6, 0.06, 0.006, 0.0006, …to n terms](https://www.geeksforgeeks.org/sum-series-0-6-0-06-0-006-0-0006-n-terms/)
25. [n-th term in series 2, 12, 36, 80, 150….](https://www.geeksforgeeks.org/n-th-term-series-2-12-36-80-150/)

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**Number Digits :**

1. [n-th number whose sum of digits is ten](https://www.geeksforgeeks.org/n-th-number-whose-sum-of-digits-is-ten/)
2. [Minimum digits to remove to make a number Perfect Square](https://www.geeksforgeeks.org/required-minimum-digits-remove-number-make-perfect-square/)
3. [Count digits in given number N which divide N](https://www.geeksforgeeks.org/count-digits-given-number-n-divide-n/)
4. [Count digit groupings of a number with given constraints](https://www.geeksforgeeks.org/count-groupings-number-sum-digits-every-sub-group-less-equals-immediate-right-sub-group/)
5. [Print first k digits of 1/n where n is a positive integer](https://www.geeksforgeeks.org/print-first-k-digits-1n-n-positive-integer/)
6. [Program to check if a given number is Lucky](https://www.geeksforgeeks.org/program-to-check-if-a-given-number-is-lucky-all-digits-are-different/)
7. [Check if a given number can be represented in given a no. of digits in any base](https://www.geeksforgeeks.org/check-if-a-given-number-can-be-represented-in-given-a-no-of-digits-in-any-base/)
8. [Find element using minimum segments in Seven Segment Display](https://www.geeksforgeeks.org/find-element-using-minimum-segments-seven-segment-display/)
9. [Find nth term of the Dragon Curve Sequence](https://www.geeksforgeeks.org/find-nth-term-dragon-curve-sequence/)
10. [Find the Largest Cube formed by Deleting minimum Digits from a number](https://www.geeksforgeeks.org/find-largest-cube-formed-deleting-minimum-digits-number/)
11. [Find next greater number with same set of digits](https://www.geeksforgeeks.org/find-next-greater-number-set-digits/)
12. [Find the Number which contain the digit d](https://www.geeksforgeeks.org/find-number-contain-digit-d/)
13. [Find nth number that contains the digit k or divisible by k](https://www.geeksforgeeks.org/find-nth-number-contains-digit-k-divisible-k/)
14. [Find N integers with given difference between product and sum](https://www.geeksforgeeks.org/find-n-integers-given-difference-product-sum/)
15. [Reverse a number using stack](https://www.geeksforgeeks.org/reverse-number-using-stack/)
16. [Check if a number is jumbled or not](https://www.geeksforgeeks.org/check-if-a-number-is-jumbled-or-not/)
17. [Number of digits in the product of two numbers](https://www.geeksforgeeks.org/number-digits-product-two-numbers/)
18. [Form the smallest number using at most one swap operation](https://www.geeksforgeeks.org/form-smallest-number-using-one-swap-operation/)
19. [Difference between sums of odd and even digits](https://www.geeksforgeeks.org/difference-sums-odd-even-digits/)
20. [Numbers having difference with digit sum more than s](https://www.geeksforgeeks.org/numbers-difference-digit-sum-s/)
21. [Count n digit numbers not having a particular digit](https://www.geeksforgeeks.org/count-n-digit-numbers-not-particular-digit/)
22. [Program to check Plus Perfect Number](https://www.geeksforgeeks.org/program-check-plus-perfect-number/)
23. [Total numbers with no repeated digits in a range](https://www.geeksforgeeks.org/total-numbers-no-repeated-digits-range/)
24. [K-th digit in ‘a’ raised to power ‘b’](https://www.geeksforgeeks.org/k-th-digit-raised-power-b/)
25. [Possible to make a divisible by 3 number using all digits in an array](https://www.geeksforgeeks.org/possible-to-make-a-divisible-by-3-number-using-all-digits-in-an-array/)

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**Triangles :**

1. [Time required to meet in equilateral triangle](https://www.geeksforgeeks.org/time-meet-animals/)
2. [Trinomial Triangle](https://www.geeksforgeeks.org/trinomial-triangle/)
3. [Leibniz harmonic triangle](https://www.geeksforgeeks.org/leibniz-harmonic-triangle/)
4. [Hosoya’s Triangle](https://www.geeksforgeeks.org/hosoyas-triangle/)
5. [Number of triangles after N moves](https://www.geeksforgeeks.org/number-triangles-n-moves/)
6. [Find Perimeter of a triangle](https://www.geeksforgeeks.org/find-perimeter-triangle/)
7. [Check whether right angled triangle is valid or not for large sides](https://www.geeksforgeeks.org/check-whether-right-angled-triangle-valid-not-large-sides/)
8. [Maximum height of triangular arrangement of array values](https://www.geeksforgeeks.org/maximum-height-of-triangular-arrangement-of-array-values/)
9. [Find other two sides of a right angle triangle](https://www.geeksforgeeks.org/find-two-sides-right-angle-triangle/)
10. [Find coordinates of the triangle given midpoint of each side](https://www.geeksforgeeks.org/find-coordinates-triangle-given-midpoint-side/)
11. [Number of possible Triangles in a Cartesian coordinate system](https://www.geeksforgeeks.org/number-possible-triangles-cartesian-coordinate-system/)
12. [Triangular Numbers](https://www.geeksforgeeks.org/triangular-numbers/)
13. [Pascal’s Triangle](https://www.geeksforgeeks.org/pascal-triangle/)

**Algebra :**

1. [Find x and y satisfying ax + by = n](https://www.geeksforgeeks.org/find-x-y-satisfying-ax-n/)
2. [Calculate the Discriminant Value](https://www.geeksforgeeks.org/calculate-discriminant-value/)
3. [Program for dot product and cross product of two vectors](https://www.geeksforgeeks.org/program-dot-product-cross-product-two-vector/)
4. [Iterated Logarithm log\*(n)](https://www.geeksforgeeks.org/iterated-logarithm-logn/)
5. [Program to find correlation coefficient](https://www.geeksforgeeks.org/program-find-correlation-coefficient/)
6. [Program for Muller Method](https://www.geeksforgeeks.org/program-muller-method/)
7. [Number of sextuplets (or six values) that satisfy an equation](https://www.geeksforgeeks.org/number-sextuplets-six-values-satisfy-equation/)
8. [Complete the sequence generated by a polynomial](https://www.geeksforgeeks.org/complete-sequence-generated-polynomial/)
9. [Find the minimum value of m that satisfies ax + by = m and all values after m also satisfy](https://www.geeksforgeeks.org/find-minimum-value-m-satisfies-ax-m-values-m-also-satisfy/)
10. [Roots of Unity](https://www.geeksforgeeks.org/roots-of-unity/)
11. [Number of non-negative integral solutions of a + b + c = n](https://www.geeksforgeeks.org/number-non-negative-integral-solutions-b-c-n/)
12. [Roots of quadratic equation](https://www.geeksforgeeks.org/roots-quadratic-equation/)
13. [Find smallest values of x and y such that ax – by = 0](https://www.geeksforgeeks.org/find-smallest-values-of-x-and-y-such-that-ax-by-0/)
14. [Generate Pythagorean Triplets](https://www.geeksforgeeks.org/generate-pythagorean-triplets/)
15. [Square root of an integer](https://www.geeksforgeeks.org/square-root-of-an-integer/)
16. [Find number of solutions of a linear equation of n variables](https://www.geeksforgeeks.org/find-number-of-solutions-of-a-linear-equation-of-n-variables/)
17. [Write an iterative O(Log y) function for pow(x, y)](https://www.geeksforgeeks.org/write-an-iterative-olog-y-function-for-powx-y/)
18. [Program to add two polynomials](https://www.geeksforgeeks.org/program-add-two-polynomials/)
19. [Multiply two polynomials](https://www.geeksforgeeks.org/multiply-two-polynomials-2/)
20. [Count Distinct Non-Negative Integer Pairs (x, y) that Satisfy the Inequality x\*x + y\*y < n](https://www.geeksforgeeks.org/count-distinct-non-negative-pairs-x-y-satisfy-inequality-xx-yy-n-2/)
21. [Fast method to calculate inverse square root of a floating point number in IEEE 754 format](https://www.geeksforgeeks.org/fast-method-calculate-inverse-square-root-floating-point-number-ieee-754-format/)
22. [Efficient program to calculate e^x](https://www.geeksforgeeks.org/program-to-efficiently-calculate-ex/)

**Number System :**

1. [Exponential notation of a decimal number](https://www.geeksforgeeks.org/exponential-notation-decimal-number/)
2. [Check if a number is power of k using base changing method](https://www.geeksforgeeks.org/check-number-power-k-using-base-changing-method/)
3. [Check if number is palindrome or not in Octal](https://www.geeksforgeeks.org/check-number-palindrome-not-octal/)
4. [Check if a number N starts with 1 in b-base](https://www.geeksforgeeks.org/check-number-n-starts-1-b-base/)
5. [Convert a binary number to hexadecimal number](https://www.geeksforgeeks.org/convert-binary-number-hexadecimal-number/)
6. [Program for decimal to hexadecimal conversion](https://www.geeksforgeeks.org/program-decimal-hexadecimal-conversion/)
7. [Converting a Real Number (between 0 and 1) to Binary String](https://www.geeksforgeeks.org/converting-a-real-number-between-0-and-1-to-binary-string/)
8. [Count of Binary Digit numbers smaller than N](https://www.geeksforgeeks.org/count-binary-digit-numbers-smaller-n/)
9. [Write a program to add two numbers in base 14](https://www.geeksforgeeks.org/write-a-program-to-add-two-numbers-in-base-14/)
10. [Convert from any base to decimal and vice versa](https://www.geeksforgeeks.org/convert-base-decimal-vice-versa/)
11. [Decimal to binary conversion without using arithmetic operators](https://www.geeksforgeeks.org/decimal-binary-conversion-without-using-arithmetic-operators/)

**Misc :**

1. [Tau – A Mathematical Constant](https://www.geeksforgeeks.org/tau-mathematical-constant/)
2. [Interquartile Range (IQR)](https://www.geeksforgeeks.org/interquartile-range-iqr/)
3. [Simulated Annealing](https://www.geeksforgeeks.org/simulated-annealing/)
4. [Break the number into three parts](https://www.geeksforgeeks.org/break-number-three-parts/)
5. [Pseudo Random Number Generator (PRNG)](https://www.geeksforgeeks.org/pseudo-random-number-generator-prng/)
6. [Square root of a number using log](https://www.geeksforgeeks.org/square-root-number-using-log/)
7. [Find ways an Integer can be expressed as sum of n-th power of unique natural numbers](https://www.geeksforgeeks.org/find-ways-integer-can-expressed-sum-n-th-power-unique-natural-numbers/)
8. [N’th palindrome of K digits](https://www.geeksforgeeks.org/nth-palindrome-k-digits/)
9. [N-th root of a number](https://www.geeksforgeeks.org/n-th-root-number/)
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11. [Find Harmonic mean using Arithmetic mean and Geometric mean](https://www.geeksforgeeks.org/find-harmonic-mean-using-arithmetic-mean-geometric-mean/)
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15. [Program for Derivative of a Polynomial](https://www.geeksforgeeks.org/program-derivative-polynomial/)
16. [Sgn value of a polynomial](https://www.geeksforgeeks.org/sgn-value-polynomial/)
17. [Represent a number as sum of minimum possible psuedobinary numbers](https://www.geeksforgeeks.org/represent-number-sum-minimum-possible-psuedobinary-numbers/)
18. [Program to print table of a number](https://www.geeksforgeeks.org/program-print-table-number/)
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21. [Convert a number m to n using minimum number of given operations](https://www.geeksforgeeks.org/convert-number-m-n-using-minimum-number-given-operations/)
22. [Count numbers which can be constructed using two numbers](https://www.geeksforgeeks.org/count-numbers-can-constructed-using-two-numbers/)
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24. [Find the minimum difference between Shifted tables of two numbers](https://www.geeksforgeeks.org/find-the-difference-between-shifted-tables-of-two-numbers/)
25. [Check if a number is a power of another number](https://www.geeksforgeeks.org/check-if-a-number-is-power-of-another-number/)
26. [Check perfect square using addition/subtraction](https://www.geeksforgeeks.org/check-number-is-perfect-square-using-additionsubtraction/)
27. [Number of perfect squares between two given numbers](https://www.geeksforgeeks.org/find-number-perfect-squares-two-given-numbers/)
28. [Count Derangements (Permutation such that no element appears in its original position)](https://www.geeksforgeeks.org/count-derangements-permutation-such-that-no-element-appears-in-its-original-position/)
29. [Print squares of first n natural numbers without using \*, / and –](https://www.geeksforgeeks.org/print-squares-first-n-natural-numbers-without-using/)
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33. [Program to convert a given number to words](https://www.geeksforgeeks.org/convert-number-to-words/)
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36. [Print all combinations of balanced parentheses](https://www.geeksforgeeks.org/print-all-combinations-of-balanced-parentheses/)
37. [Print all combinations of points that can compose a given number](https://www.geeksforgeeks.org/print-all-combinations-of-points-that-can-compose-a-given-number/)
38. [Implement \*, – and / operations using only + arithmetic operator](https://www.geeksforgeeks.org/implement-and-operations-using-only-arithmetic-operator/)