



NATIONAL QUALIFIER TEST

TCS NQT 2025

ALL NUMBER PROBLEMS

1. **Question:** Reverse a digit
Input: 1234
Output: 4321
2. **Question:** Binary to Decimal Conversion
Input: 1010
Output: 10
3. **Question:** Decimal to Binary Conversion
Input: 12
Output: 1100
4. **Question:** Prime Number in the given range
Input: A = 10, B = 30
Output: [11, 13, 17, 19, 23, 29]
5. **Question:** Find all palindrome numbers in the range of A to B
Input: A = 100, B = 150
Output: [101, 111]
6. **Question:** Sum of digits of a number
Input: 456
Output: 15
7. **Question:** Armstrong number check
Input: 153
Output: True (153 is an Armstrong number)
8. **Question:** Find Armstrong numbers in the range of A to B
Input: A = 100, B = 500
Output: [153, 370, 371, 407]
9. **Question:** Check if a number is a prime
Input: 29
Output: True (29 is a prime number)
10. **Question:** Check if a number is a palindrome
Input: 121
Output: True (121 is a palindrome)
11. **Question:** Greatest Common Divisor (GCD) of two numbers
Input: A = 36, B = 60

Output: 12

12. **Question:** Least Common Multiple (LCM) of two numbers

Input: A = 6, B = 8

Output: 24

13. **Question:** Factorial of a number

Input: 5

Output: 120

14. **Question:** Find the number of digits in a number

Input: 12345

Output: 5

15. **Question:** Check if a number is perfect

Input: 28

Output: True (28 is a perfect number)

16. **Question:** Check if a number is harshad (divisible by the sum of its digits)

Input: 18

Output: True (18 is a harshad number)

17. **Question:** Generate a bill, find the costly item and its price

Input: [('Item A', 200), ('Item B', 450), ('Item C', 120)]

Output: Costly Item: 'Item B', Price: 450

18. **Question:** Find the sum of the first N natural numbers

Input: N = 10

Output: 55

19. **Question:** Find the sum of the squares of the first N natural numbers

Input: N = 3

Output: 14 ($1^2 + 2^2 + 3^2 = 14$)

20. **Question:** Find the sum of the cubes of the first N natural numbers

Input: N = 3

Output: 36 ($1^3 + 2^3 + 3^3 = 36$)

21. **Question:** Count the number of prime numbers between A and B

Input: A = 10, B = 50

Output: 10 (Prime numbers: [11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47])

22. **Question:** Find the next prime number greater than N

Input: N = 14

Output: 17

23. **Question:** Find the next palindrome number greater than N

Input: N = 123

Output: 131

24. **Question:** Convert a number to its hexadecimal representation

Input: 255

Output: FF

25. **Question:** Find the Fibonacci sequence up to N terms

Input: N = 5

Output: [0, 1, 1, 2, 3]

26. **Question:** Find the nth Fibonacci number

Input: N = 7

Output: 13

27. **Question:** Find the sum of the digits of a number until it becomes a single digit
Input: 9875
Output: 2 ($9 + 8 + 7 + 5 = 29 \rightarrow 2 + 9 = 11 \rightarrow 1 + 1 = 2$)
28. **Question:** Check if a number is an automorphic number (a number whose square ends with the number itself)
Input: 25
Output: True ($25^2 = 625$, ends with 25)
29. **Question:** Calculate the sum of prime numbers between A and B
Input: A = 1, B = 10
Output: 17 (Prime numbers: [2, 3, 5, 7])
30. **Question:** Check if a number is a spy number (sum of digits = product of digits)
Input: 132
Output: True ($1 + 3 + 2 = 6$, $1 * 3 * 2 = 6$)
31. **Question:** Find the sum of all cubes in the range of A to B
Input: A = 1, B = 3
Output: 36 ($1^3 + 2^3 + 3^3 = 36$)
32. **Question:** Find the sum of all perfect numbers in the range of A to B
Input: A = 1, B = 1000
Output: 28 (Perfect numbers: [6, 28])
33. **Question:** Print the multiplication table of a given number N
Input: N = 2
Output:
 $2 * 1 = 2$
 $2 * 2 = 4$
 $2 * 3 = 6$
...
 $2 * 10 = 20$
34. **Question:** Fibonacci series up to N terms
Input: N = 6
Output: [0, 1, 1, 2, 3, 5]
35. **Question:** Modify an array based on divisibility rules
Input: [2, 3, 4, 5, 15]
Output: [2, Three, 4, Five, ThreeFive]
36. **Question:** Find the sum of squares in the range of A to B
Input: A = 1, B = 4
Output: 30 ($1^2 + 2^2 + 3^2 + 4^2 = 30$)
37. **Question:** Find the product of all digits in a number
Input: 1234
Output: 24 ($1 * 2 * 3 * 4 = 24$)
38. **Question:** Find all numbers divisible by N in the range of A to B
Input: A = 1, B = 20, N = 4
Output: [4, 8, 12, 16, 20]
39. **Question:** Find the sum of the first N odd numbers
Input: N = 5
Output: 25 ($1 + 3 + 5 + 7 + 9 = 25$)

40. **Question:** Replace even numbers with "Even" and odd numbers with "Odd" in an array
Input: [1, 2, 3, 4, 5]
Output: ["Odd", "Even", "Odd", "Even", "Odd"]
41. **Question:** Find the largest prime number less than or equal to N
Input: N = 50
Output: 47
42. **Question:** Find all prime factors of a number
Input: 36
Output: [2, 3]
43. **Question:** Find the sum of all even numbers in a range of A to B
Input: A = 1, B = 10
Output: 30 (2 + 4 + 6 + 8 + 10 = 30)
44. **Question:** Check if a number is a palindrome after adding its reverse
Input: 56
Output: 121 (56 + 65 = 121, which is a palindrome)
45. **Question:** Generate a list of numbers in the range of A to B that are divisible by both 3 and 5
Input: A = 1, B = 50
Output: [15, 30, 45]

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