

1. Write a function: `int factorial(int n)` that calculates $n!$
Example, given $n = 4$ it will return 24
2. Write a function: `int digitSum(int n)` that returns the sum of digits of n .
Example, given $n = 1099$ it will return 19
3. Write a program that prints the divisors of input integer n .
Example, given $n = 28$ your output will be:
28 = 1, 2, 4, 7, 14, 28
4. Write a function: `int isPrime(int n)` that determines whether n is prime.
Example, given $n = 93$ it will return 1
Example, given $n = 90$ it will return 0
5. Write a function: `int reverseInt(int n)` that reverses the digits of n .
Example, given $n = 1025$, it will return 5201
Example, given $n = 1200$, it will return 21
6. Write a function: `void savePrimes(int n)` that saves/stores first n prime numbers into a global array of integers.
Example, given $n = 3$, it will store $a[0]=2, a[1]=3, a[2]=5$.
7. Write a function: `int isPerfect(int n)` that determines whether n is perfect.
Example, given $n = 28$ it will return 1 and also output
28 = 1 + 2 + 4 + 7 + 14
Example, given $n = 90$ it will return 0 and no output
8. Write a program that outputs the first n perfect numbers.
Example, given $n = 4$ it will output: 6, 28, 496, 8128
9. Take a string as input and report how many vowels, consonants, digits and others in the string.

Input : I am in class 3.

Output : vowel: 3
 consonant: 7
 digits: 1
 Others: 5

10. Take some numbers as input and output their average.

Input:	Output:
5	3.00
1 2 3 4 5	

11. Print first 'n' Fibonacci numbers.

Input: 10
Output: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55

12. Make a number guessing game. (Computer thinks of a random number and user guesses it.)

13. Make a word guessing game like 'hang man'.

14. Take 'n' and 'r' as input and output nPr.

Input : 10 3
Output: 720

15. Take an integer input and display triangle as below.

Input	Output
3	*
	* *
	* * *

16 Modify problem 15 so that it looks like following.

Input	Output
4	*
	* *
	* * *
	* * * *

17. Take a string input and output the reverse string and its length

Input:	computer	
Output:	retupmoc	7

18. Check for a string to be a 'palindrome'.

Input:	atoyota
Output:	yes

19. Show the prime factorization of a number.

Input	12
Output	$2^2 * 3^1$

20. Take two numbers and output their GCD

Input	12	18
Output	6	

21. Print first 'n' rows of the number pyramid.

Input

5

Output

```
1
2 3 2
3 4 5 4 3
4 5 6 7 6 5 4
5 6 7 8 9 8 7 6 5
```