1. Write a program to calculate the roots of a given quadratic equation -

$$a(x^2) + bx + c = 0$$

Print roots and specify their nature. If roots are imaginary, no need to print the roots.
Print the nature of roots in the form of an integer -

```
 0 : if roots are real & same
 1 : if roots are real & different
-1 : if roots are imaginary
```

2. Print the following pattern for the given N number of rows.
Pattern for N = 4

```
1
11
202
3003
```

3. Print the following pattern for the given N number of rows.
Pattern for N = 4

```
1234
123
12
1
```

4. Given an integer n, find the number of trailing 0s in its factorial. Do this without actually finding the n!,

5. Write a program that asks the user for a number N and a choice C. And then give him the possibility to choose between computing the sum and computing the product of 1 ,..., N.
If user enters C is equal to -

```
 1 : Print sum of 1 to N numbers
 2 : Print product of 1 to N numbers
 Any other number : print -1
```

6. Write a program to print first x terms of the series 3N + 2 which are not multiples of 4.

7. Given a decimal number (integer N), convert it into binary and print.
Note: You can't use strings.

8. Given a number n, put all elements from 1 to n in an array in order - 1,3,.....4,2.
e.g. n=6

output - 1 3 5 6 4 2

9. Given a String S of length n, print all its substrings.
Substring of a String S is a part of S (of any length from 1 to n), which contains all consecutive characters from S.(Order in which substrings are to be printed is not important).
e.g s=xyz

Output

x

xy

xyz

y

yz

z

10. Given a string, compute recursively a new string where all 'x' chars have been removed.
e.g.

s=axbx

output= ab

s=abc

output=abc