

# 1 - FizzBuzzPop

Count from 1 to 100.

However, for multiples of 3, replace the number with Fizz. Replace multiples of 5 with Buzz, and replace multiples of 7 with Pop.

If the number is a multiple of more than one of these numbers, then output both words.

For example if it was from 1 to 10:

1 2 Fizz 4 Buzz Fizz Pop 8 FizzBuzz

Output the result as a string with spaces in between each element of the sequence

## 2 - Josephus survivor

There are  $N$  number of people (positions are from 0 to  $N-1$ ) standing in a circle playing a game based on elimination. Eliminations begin at position  $K$ . In each round, the person that is  $Z$  places in front of the last person is eliminated. You are in this game, output the position in the initial circle in which you will win the game.

The input is a line with integers  $N, K, Z$  separated by a space. Output the winning position on a single line as an integer.

For example:

Input:

>10 0 2 - There are 10 players. The game starts at position 0 and player 0 is eliminated, then player 2 is eliminated, then 4, then 6, 8 and 10. On the next "cycle", player 1 is skipped after 10 and player 3 is eliminated, then 7 then 1, and finally 9. Leaving 5 as the winner.

Therefore output is:

>5

### 3 - Square coordinates

Given 4 cartesian coordinates that represent a square on a cartesian plane, output the number of points with integer coordinates that lie within, or on the sides of the square.

The input is given in a 2x4 2D array denoting the x y coordinates of each point that makes up the square in a clockwise direction.

Output a single integer denoting the number of points.

For example:

Input:

>[[1,1],[1,-1],[-1,-1],[-1,1]]

Output:

>9 (4 vertices, 4 on the edges, 1 within)

