

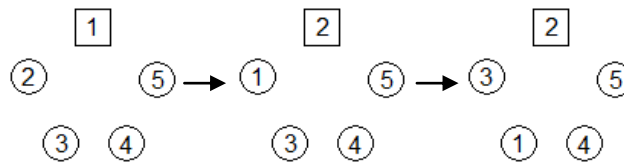


During meetings of young mathematicians a frequent pastime is the Prime Number Circle. For this task, we refer to mathematicians in the circle with numbers 1 to N .

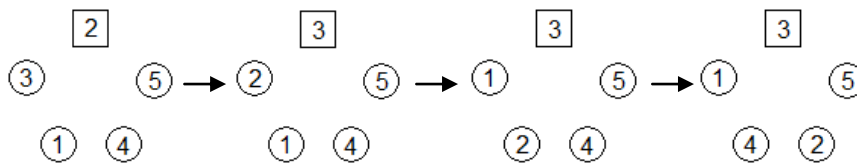
Before the game starts we first draw $N-1$ circles and one square on the pavement arranged in a big circle. The player numbered 1 stands in the square. All other players stand in the circles, starting with the player 2 in a counterclockwise fashion facing towards the middle of the big circle.

The game consists of K rounds. In the i -th round the person standing in the square jumps up, says "It's me!" and then swaps places with the person standing on his right side p_k times, where p_k is the k -th prime. For example for $N = 5$ and $K = 3$ the following three rounds occur:

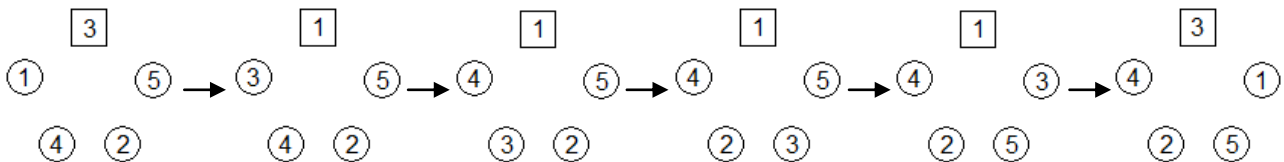
1. round:



2. round:



3. round:



Write a program that will for given N , K and A determine the neighbours of the player numbered A at the end of the game.

INPUT

The first and only line contains three integers N , K and A . ($1 \leq A \leq N$), the number of players, rounds and the selected player.

SCORING

Test data is divided into four groups each worth 25 points, with the following constraints:

First group: ($3 \leq N \leq 1000$, $1 \leq K \leq 1000$).

Second group: ($3 \leq N \leq 1000$, $1 \leq K \leq 50000$).

Third group: ($3 \leq N \leq 50000$, $1 \leq K \leq 50000$).

Fourth group: ($3 \leq N \leq 5000000$, $1 \leq K \leq 500000$).

OUTPUT

The first and only line of output should contain two integers, the numbers on the right and left neighbours of the player numbered A at the end of the game.



SAMPLE TEST CASES

input

5 3 1

output

3 5

input

5 3 2

output

5 4

input

5 4 5

output

3 2