

# Problem A

## And Then There Was One

### Input: A.in

Let's play a stone removing game.

Initially,  $n$  stones are arranged on a circle and numbered  $1, \dots, n$  clockwise (Figure 1). You are also given two numbers  $k$  and  $m$ . From this state, remove stones one by one following the rules explained below, until only one remains. In step 1, remove stone  $m$ . In step 2, locate the  $k$ -th next stone clockwise from  $m$  and remove it. In subsequent steps, start from the slot of the stone removed in the last step, make  $k$  hops clockwise on the remaining stones and remove the one you reach. In other words, skip  $(k - 1)$  remaining stones clockwise and remove the next one. Repeat this until only one stone is left and answer its number.

For example, the answer for the case  $n = 8, k = 5, m = 3$  is 1, as shown in Figure 1.

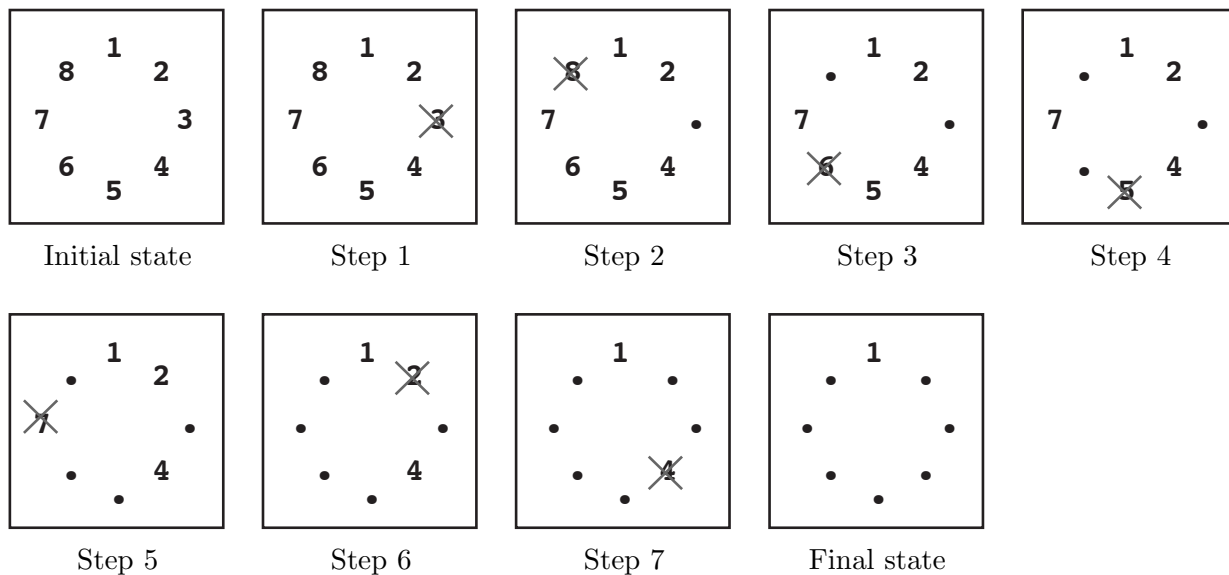


Figure 1: An example game

**Initial state:** Eight stones are arranged on a circle.

**Step 1:** Stone 3 is removed since  $m = 3$ .

**Step 2:** You start from the slot that was occupied by stone 3. You skip four stones 4, 5, 6 and 7 (since  $k = 5$ ), and remove the next one, which is 8.

**Step 3:** You skip stones 1, 2, 4 and 5, and thus remove 6. Note that you only count stones that are still on the circle and ignore those already removed. Stone 3 is ignored in this case.

**Steps 4–7:** You continue until only one stone is left. Notice that in later steps when only a few stones remain, the same stone may be skipped multiple times. For example, stones 1 and 4 are skipped twice in step 7.

**Final State:** Finally, only one stone, 1, is on the circle. This is the final state, so the answer is 1.

## Input

The input consists of multiple datasets each of which is formatted as follows.

$$n \quad k \quad m$$

The last dataset is followed by a line containing three zeros. Numbers in a line are separated by a single space. A dataset satisfies the following conditions.

$$2 \leq n \leq 10000, \quad 1 \leq k \leq 10000, \quad 1 \leq m \leq n$$

The number of datasets is less than 100.

## Output

For each dataset, output a line containing the stone number left in the final state. No extra characters such as spaces should appear in the output.

## Sample Input

```
8 5 3
100 9999 98
10000 10000 10000
0 0 0
```

## Output for the Sample Input

```
1
93
2019
```