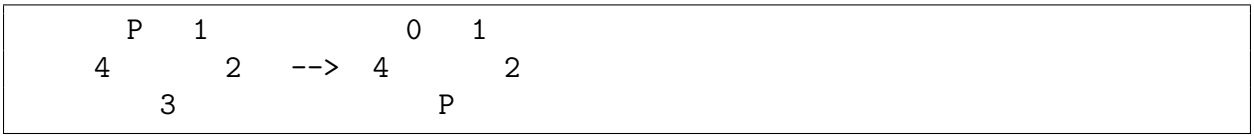
CMPUT 275 - Tangible Computing **Winter 2018**
Morning Problem: Hot Potato

Description

Jimmy wants to play a game with his friends. They sit in a circle and the first person will start off with a hot potato. He or she will pass the potato clockwise q passes. The person holding the potato after q passes is out and the game continues with this person starting the round but not participating any further. They continue this until there is one person left. Jimmy wants to know where to sit to be the last one standing.

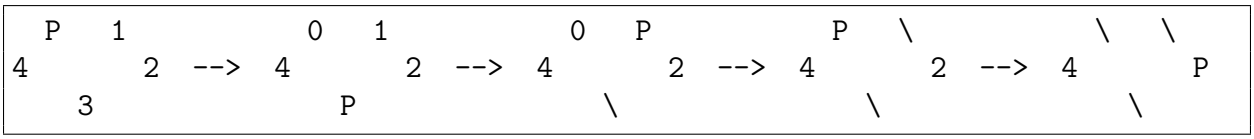
Here's an example with five friends and $q = 3$.



Here the potato always starts off with person 0. Person 0 passes the potato q times clockwise to land on person 3. This person is now out and we'll reiterate this process with person 3 starting the round but no longer being able to catch the potato. We'll skip person 3 in the future.

Person 3 is now out. They started the round, so q passes will end up at person 1 who will now be out.

The full game proceeds as follows



In the last round, person 0 was most recently eliminated. The potato is passed from 0 to 2, to 4, and then back to 2 again.

In the end, 4 is the last person remaining so Jimmy should sit at that position.

Input

The input consists of one line containing two integers n indicating the number of players and q the number of passes performed in each iteration.
Note: The potato will always initially start with person 0.

$1 \leq n \leq 50,000$
$1 \leq q \leq 10$.

Output

The output should be a single integer indicating the position of the last player remaining.

Sample Input 1

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5 3
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Sample Output 1

```
4
```

Explanation: See the example above.

Sample Input 2

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4 1
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Sample Output 2

```
0
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Explanation: Initially, person 0 passes the potato to person 1 who is now out. They pass it to person 2 who is now out. Finally, they pass it to person 3 who is now out. So person 0 remains.