Raffling Team Leader Position

When a team of students does not know how to choose the leader, they usually raffle the leader position in the following way. They all take out a number of fingers, and they sum all together. The raffling starts counting from the first member, and continues with the next one in a circular way (i.e. in the last member, it continues with the first one), until they reach the corresponding number of fingers. When they reach this number, they eliminate the corresponding member (getting out the circle of members). Then, they start again the same counting process starting with the next member to the eliminated, until they reach the number of fingers again to eliminate another member. Notice that the eliminated members are not in the circle anymore, so they should not be counted. They continue this process until there is only one team member left, and this becomes the team leader.

Implement a program in C++ that solves this problem for any positive number of members (up to 10.000) and any number of fingers (up to 100.000).

Use the most appropriate linear data structure to solve this problem. You can either use a predefined linear data structure as introduced in class or use any implementation provided in the virtual campus.

Input

Each case will be defined with a line with the “n” number of members and the “f” number of fingers. The members are denoted as integer numbers from 1 to n. After the last case, a line with -1 will indicate the end of cases.

Output

The output of each case should be printed in one line. The output of each case will include the number of the team leader.

Example of input

```
3 1
3 2
5 3
2 2
2 19
- 1
```

Example of output

```
3
3
4
1
2
```