

B. Xenia and Ringroad

time limit per test: 2 seconds
 memory limit per test: 256 megabytes
 input: standard input
 output: standard output

Xenia lives in a city that has n houses built along the main ringroad. The ringroad houses are numbered 1 through n in the clockwise order. The ringroad traffic is one way and also is clockwise.

Xenia has recently moved into the ringroad house number 1. As a result, she's got m things to do. In order to complete the i -th task, she needs to be in the house number a_i and complete all tasks with numbers less than i . Initially, Xenia is in the house number 1, find the minimum time she needs to complete all her tasks if moving from a house to a neighboring one along the ringroad takes one unit of time.

Input

The first line contains two integers n and m ($2 \leq n \leq 10^5$, $1 \leq m \leq 10^5$). The second line contains m integers a_1, a_2, \dots, a_m ($1 \leq a_i \leq n$). Note that Xenia can have multiple consecutive tasks in one house.

Output

Print a single integer — the time Xenia needs to complete all tasks.

Please, do not use the `%lld` specifier to read or write 64-bit integers in C++. It is preferred to use the `cin`, `cout` streams or the `%I64d` specifier.

Examples

input
4 3 3 2 3
output
6

input
4 3 2 3 3
output
2

Note

In the first test example the sequence of Xenia's moves along the ringroad looks as follows: $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 1 \rightarrow 2 \rightarrow 3$. This is optimal sequence. So, she needs 6 time units.

→ Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

Codeforces Round #197 (Div. 2)

Finished

→ Virtual participation

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implementation

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→ Contest materials

- Announcement 
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