Problem J. Teleportation

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Bobo recently visited a strange teleportation system. The system contains n rooms, numbered 0 through $n-1$. A teleporting device is installed in each room. Each teleporting device contains a dashboard that looks like a clock surface with a hand on it, showing numbers 0 through $n-1$ in clockwise order. Initially, the hand on the dashboard of the teleport device in the i-th ($0 \le i \le n-1$) room points to the number a_i.

When Bobo is in room i ($0 \le i \le n-1$), he may do the following operation any number of times:

- *Teleport.* Immediately teleport to the room $(i + a_i) \bmod n$.
- *Move the hand clockwise.* Set $a_i \leftarrow a_i + 1$.

Each operation takes one unit of time. Bobo starts at room 0, and he wants to reach some room x as quickly as possible. He wonders how long it is needed.

Input

The first line of input contains two integers n ($2 \le n \le 10^5$) and x ($1 \le x \le n-1$), denoting the number of rooms and Bobo's destination room, respectively.

The next line contains n integers $a_0, a_1, \ldots, a_{n-1}$ ($0 \le a_i \le n-1$), where a_i ($0 \le i \le n-1$) denotes the number the hand in the i-th room points to.

Output

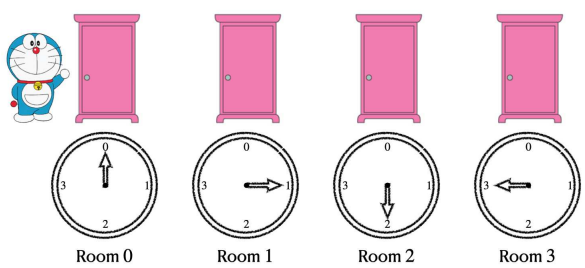
Output an integer in a line, denoting the minimum time Bobo needs to reach room x from room 0.

Examples

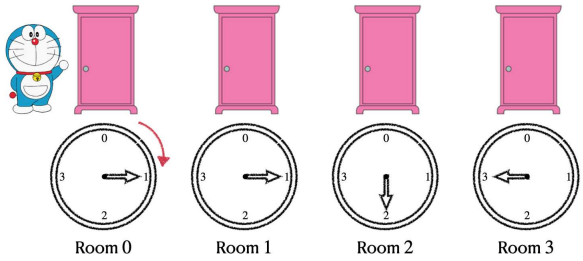
standard input	standard output
4 3 0 1 2 3	4
4 3 0 0 0 0	4
4 3 2 2 2 2	2

Note

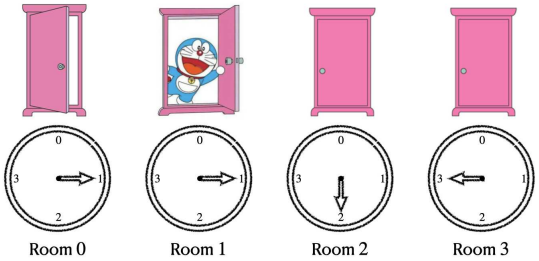
Here, we provide graphical illustrations of one possible optimal way in the first sample. Initially, Bobo is at room 0, and the hand on each dashboard is at $0, 1, 2, 3$, respectively.



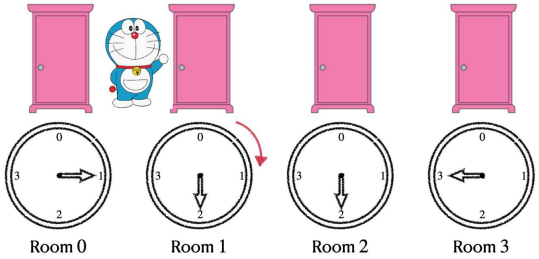
The first operation Bobo does is to move the hand clockwise so that the hand on the dashboard in room 0 points to 1. ($a_0 = 1$)



Then Bobo teleports to room $(0 + a_0) \bmod n = 1$.



After that, Bobo moves the hand clockwise so that the hand on the dashboard in room 1 points to 2. ($a_1 = 2$).



Then Bobo teleports to room $(1 + a_1) \bmod n = 3$, reaching his desired destination. It takes an overall of 4 operations.

