Waiting in Pueue

Mouse Stofl and his friends want to buy tickets for a rail journey. Unfortunately, the SBB app isn't working and they have no other choice than queuing at the only ticket window. The mice have different price-reductions based on their subscription, as a consequence, it takes a different amount of time to get a ticket once they are at the counter. As the mice queue up, they suddenly spot rat Torin, in their midst. From the mice point of view, rat Torin was clearly queue-jumping. Full of righteous indignation, they decide to delay him as long as possible.

The rules are: Mouse i spends a_i seconds at the ticket window. Once the mouse has the ticket, everyone is allowed, but not obliged, to move towards the counter. It takes 1 second to get from one position in the queue to the next, regardless of the number of people already waiting at the position. They immediately stop as soon as someone reaches the counter. Then, if rat Torin is at the same position as a mouse, he is caught queue-jumping and is sent back to the end of the queue. This also applies if he reaches the ticket window at the same time as a mouse. If two or more mice are at the same position they are allowed to queue in any desired order, mice behind them are pushed back if necessary. Once they are lined up, all the gaps are closed. The restoring of the queue happens instantaneously (no time passes).

For example, if there are people at positions 1, 2, 2, 3 and 6, they are redistributed to 1, 2, 3, 4, 5. If position 2 was occupied by 2 mice, they get spread to position 2 and 3, where you can choose their order. If rat Torin was on position 2, he is forced to go to position 5, the end of the line.

Mouse Stofl wants to know, how long they can delay rat Torin when Torin shows optimal behaviour.

Input

The first line contains two integers n, the number of people (Number of mice plus rat Torin) and j, the position of rat Torin. The second line contains the integers $a_1\ a_2\ \cdots\ a_n$ separated by space, where a_i is the time the person starting at position i spends at the counter.

Output

Integer t, the time in seconds until rat Torin reaches the ticket window.

Constraints

There are five batches of input, each worth 20 points. In all test cases $1 \leq j \leq n$, $1 \leq a_i \leq 1000$ for $i \neq j$ and $a_j = 0$.

- In the first batch $n = 3$ and $a_i = a_0$ where $i \neq j$
- In the second batch $3 \leq n \leq 500$ and $a_i = a_0$ where $i \neq j$
- In the third batch $3 \leq n \leq 500$
- In the forth batch $3 \leq n \leq 10\,000$
- In the fifth batch $3 \leq n \leq 10^6$

Examples

Input	Output
2 1 0 89	1

Input	Output
2 2 89 0	92

Input	Output
5 3 4 5 0 3 4	29