

F. Prefix Sums

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Consider the function $p(x)$, where x is an array of m integers, which returns an array y consisting of $m + 1$ integers such that y_i is equal to the sum of first i elements of array x ($0 \leq i \leq m$).

You have an infinite sequence of arrays A^0, A^1, A^2, \dots , where A^0 is given in the input, and for each $i \geq 1$ $A^i = p(A^{i-1})$. Also you have a positive integer k . You have to find minimum possible i such that A^i contains a number which is larger or equal than k .

Input

The first line contains two integers n and k ($2 \leq n \leq 200000$, $1 \leq k \leq 10^{18}$). n is the size of array A^0 .

The second line contains n integers $A^0_0, A^0_1, \dots, A^0_{n-1}$ — the elements of A^0 ($0 \leq A^0_i \leq 10^9$). At least two elements of A^0 are positive.

Output

Print the minimum i such that A^i contains a number which is larger or equal than k .

Examples

input
2 2 1 1
output
1

input
3 6 1 1 1
output
2

input
3 1 1 0 1
output
0