A Brand New Geometric Problem

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1.5 seconds
Memory limit:	1024 megabytes

You are a magician in a high-dimensional space, and you have an initial n-dimensional hypercube with edge lengths $a_1, a_2, \ldots, a_n$. For a d-dimensional hypercube, the edge length sum is defined as $\sum_{i=1}^{d} a_i$, and its hypervolume is $\prod_{i=1}^{d} a_i$.

You want to obtain a hypercube with edge length sum S and hypervolume M. To achieve this, you can perform both dimensional reduction and dimensional expansion operations on the current hypercube.

- Dimensional Reduction: Remove a dimension.
- Dimensional Expansion: Add a new dimension, with its edge length being any positive integer.

Both operations are very exhausting, so you want to determine the minimum number of operations required to obtain a hypercube with edge length sum S and hypervolume M.

Input

The first line contains three integers n, S, M ($1 \le n \le 10^5$, $1 \le S, M \le 10^{10}$).

The second line contains n integers, representing the initial edge lengths a_i of the hypercube ($1 \le a_i \le 10^{10}$).

Output

Output a single integer representing the minimum number of operations required. If it is impossible to obtain a hypercube that meets the conditions, output -1.

Examples

standard input	standard output
2 5 6 1 2	2
3 6 5 1 2 3	3
2 114514 735134400 114 514	20
2 4 7 1 3	-1

Note

For the first sample, one possible approach: first delete the dimension with edge length 1, and then add a dimension with edge length 3.