A. Sockets

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

Vasya has got many devices that work on electricity. He's got n supply-line filters to plug the devices, the i-th supply-line filter has a_i sockets.

Overall Vasya has got m devices and k electrical sockets in his flat, he can plug the devices or supply-line filters directly. Of course, he can plug the supply-line filter to any other supply-line filter. The device (or the supply-line filter) is considered plugged to electricity if it is either plugged to one of k electrical sockets, or if it is plugged to some supply-line filter that is in turn plugged to electricity.

What minimum number of supply-line filters from the given set will Vasya need to plug all the devices he has to electricity? Note that all devices and supply-line filters take one socket for plugging and that he can use one socket to plug either one device or one supply-line filter.

Input

The first line contains three integers n, m, k ($1 \le n, m, k \le 50$) — the number of supply-line filters, the number of devices and the number of sockets that he can plug to directly, correspondingly. The second line contains n space-separated integers $a_1, a_2, ..., a_n$ ($1 \le a_i \le 50$) — number a_i stands for the number of sockets on the i-th supply-line filter.

Output

Print a single number — the minimum number of supply-line filters that is needed to plug all the devices to electricity. If it is impossible to plug all the devices even using all the supply-line filters, print -1.

Examples

input
3 5 3 3 1 2
output
1

input
4 7 2 3 3 2 4
output
2

input
5 5 1 1 3 1 2 1
output
-1

Note

In the first test case he can plug the first supply-line filter directly to electricity. After he plug it, he get 5 (3 on the supply-line filter and 2 remaining sockets for direct plugging) available sockets to plug. Thus, one filter is enough to plug 5 devices.

One of the optimal ways in the second test sample is to plug the second supply-line filter directly and plug the fourth supply-line filter to one of the sockets in the second supply-line filter. Thus, he gets exactly 7 sockets, available to plug: one to plug to the electricity directly, 2 on the second supply-line filter, 4 on the fourth supply-line filter. There's no way he can plug 7 devices if he use one supply-line filter.