Problem L. The Spellbook

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

You have a spellbook with n spells. The spells are numbered by sequential integers from 1 to n, and the spell i ($1 \le i \le n$) initially costs A_i MP (mana points). Initially you have m MP.

Your goal is to cast each spell from the spellbook exactly once.

Before you start casting spells, you can eat up to k cookies. Eating a cookie takes zero time. Each time you eat a cookie, you can choose a spell with a positive cost and reduce that cost by 1.

After eating cookies, you start casting spells.

You can repeatedly choose and perform one of the following actions:

- Choose an integer i ($1 \le i \le n$) and cast the spell i. However, the current MP must be greater than or equal to A_i. This action takes zero time and decreases your MP by A_i.
- If your MP is $z < m$, you may take a rest to restore 1 MP. It takes $m - z$ seconds (for example, if $m = 5$ and $z = 2$, you need to rest for 3 seconds to regenerate MP from 2 to 3).

Find the minimum amount of time you can spend to cast each of the n spells exactly once. You are free to select the order of the spells.

Input

First line of the input contains three integers n, m and k: the number of spells, the initial MP value and the number of cookies, respectively. The second line contains n integers A_i: the initial costs of the spells in MP ($1 \le n \le 10^5$, $1 \le m \le 10^6$, $1 \le A_i \le m$, $0 \le k \le \sum_{i=1}^{n} A_i$).

Output

Print one integer: the minimum amount of time it takes to cast each of the n spells exactly once.

Examples

standard input	standard output
2 4 0 2 4	3
3 9 6 2 3 9	0
3 16 2 6 9 9	21
2 1000000 0 1000000 1000000	500000500000