C. Mafia

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

One day n friends gathered together to play "Mafia". During each round of the game some player must be the supervisor and other $n - 1$ people take part in the game. For each person we know in how many rounds he wants to be a player, not the supervisor: the i-th person wants to play a_i rounds. What is the minimum number of rounds of the "Mafia" game they need to play to let each person play at least as many rounds as they want?

Input

The first line contains integer n $(3 \le n \le 10^5)$. The second line contains n space-separated integers $a_1, a_2, ..., a_n$ $(1 \le a_i \le 10^9)$ — the i-th number in the list is the number of rounds the i-th person wants to play.

Output

In a single line print a single integer — the minimum number of game rounds the friends need to let the i-th person play at least a_i rounds.

Please, do not use the `%lld` specifier to read or write 64-bit integers in C++. It is preferred to use the `cin`, `cout` streams or the `%I64d` specifier.

Examples

input
3 3 2 2

output
4

input
4 2 2 2 2

output
3

Note

You don't need to know the rules of "Mafia" to solve this problem. If you're curious, it's a game Russia got from the Soviet times: `http://en.wikipedia.org/wiki/Mafia_(party_game)`.