A. Appleman and Toastman

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

Appleman and Toastman play a game. Initially Appleman gives one group of n numbers to the Toastman, then they start to complete the following tasks:

- Each time Toastman gets a group of numbers, he sums up all the numbers and adds this sum to the score. Then he gives the group to the Appleman.
- Each time Appleman gets a group consisting of a single number, he throws this group out. Each time Appleman gets a group consisting of more than one number, he splits the group into two non-empty groups (he can do it in any way) and gives each of them to Toastman.

After guys complete all the tasks they look at the score value. What is the maximum possible value of score they can get?

Input

The first line contains a single integer n ($1 \le n \le 3 \cdot 10^5$). The second line contains n integers $a_1, a_2, ..., a_n$ ($1 \le a_i \le 10^6$) — the initial group that is given to Toastman.

Output

Print a single integer — the largest possible score.

Examples

input	Copy
3 3 1 5	

output	Copy
26	

input	Copy
1 10	

output	Copy
10	

Note

Consider the following situation in the first example. Initially Toastman gets group [3, 1, 5] and adds 9 to the score, then he give the group to Appleman. Appleman splits group [3, 1, 5] into two groups: [3, 5] and [1]. Both of them should be given to Toastman. When Toastman receives group [1], he adds 1 to score and gives the group to Appleman (he will throw it out). When Toastman receives group [3, 5], he adds 8 to the score and gives the group to Appleman. Appleman splits [3, 5] in the only possible way: [5] and [3]. Then he gives both groups to Toastman. When Toastman receives [5], he adds 5 to the score and gives the group to Appleman (he will throws it out). When Toastman receives [3], he adds 3 to the score and gives the group to Appleman (he will throws it out). Finally Toastman have added 9 + 1 + 8 + 5 + 3 = 26 to the score. This is the optimal sequence of actions.