Joyeuse

Input file:	`standard input`
Output file:	`standard output`
Time limit:	5 seconds
Memory limit:	256 megabytes

At a grand and dazzling dance party, there are N guests, each with their own dance skill power a_i.

When two guests pair up on the dance floor, their performance score is equal to **the square root of the sum of their skill powers**. For example, if one guest has a skill power of 4 and another has 5, their duet would have a performance score of $\sqrt{4+5} = 3$.

As the host of this vivid celebration, you wish to measure the collective joy — the total performance score of every possible pair of guests dancing together exactly once.

Your task is to determine this total score.

Input

The first line contains a single integer n ($2 \le n \le 200000$) — the number of guests.

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le 10^9$) — the dancing skill powers of the guests.

Output

A single real number — the total performance score at the party.

The answer is considered correct if the relative error does not exceed 10^{-6}.

Example

standard input	standard output
5 7 3 11 2 17	39.009712

Note

All possible pairs and their performance scores are:

Guest 1 and guest 2: $\sqrt{7+3} \approx 3.162277660$

Guest 1 and guest 3: $\sqrt{7+11} \approx 4.242640687$

Guest 1 and guest 4: $\sqrt{7+2} = 3$

Guest 1 and guest 5: $\sqrt{7+17} \approx 4.898979486$

Guest 2 and guest 3: $\sqrt{3+11} \approx 3.741657387$

Guest 2 and guest 4: $\sqrt{3+2} \approx 2.236067977$

Guest 2 and guest 5: $\sqrt{3+17} \approx 4.472135955$

Guest 3 and guest 4: $\sqrt{11+2} \approx 3.605551275$

Guest 3 and guest 5: $\sqrt{11+17} \approx 5.291502622$

Guest 4 and guest 5: $\sqrt{2+17} \approx 4.358898944$

Adding them all up gives approximately 39.009712.