B. Dima and Sequence

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

Dima got into number sequences. Now he's got sequence $a_1, a_2, ..., a_n$, consisting of n positive integers. Also, Dima has got a function $f(x)$, which can be defined with the following recurrence:

- $f(0) = 0$;
- $f(2 \cdot x) = f(x)$;
- $f(2 \cdot x + 1) = f(x) + 1$.

Dima wonders, how many pairs of indexes (i, j) $(1 \le i < j \le n)$ are there, such that $f(a_i) = f(a_j)$. Help him, count the number of such pairs.

Input

The first line contains integer n $(1 \le n \le 10^5)$. The second line contains n positive integers $a_1, a_2, ..., a_n$ $(1 \le a_i \le 10^9)$.

The numbers in the lines are separated by single spaces.

Output

In a single line print the answer to the problem.

Please, don't 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 1 2 4

output
3

input
3 5 3 1

output
1

Note

In the first sample any pair (i, j) will do, so the answer is 3.

In the second sample only pair $(1, 2)$ will do.