Swedish coins (2) P20294_en

The statement of this problem is similar to the previous one. But here, you must solve a different problem:

Given a collection of coins C, how many subsets S of C are such that $w(S) = 1/2$?

Input

Input consists of several cases, each one with n followed by $p_1 \dots p_n$. Assume $1 \leq n \leq 10^5$ and $0 < p_i < 1$.

Output

For every case, print the number of subsets S such that $w(S) = 1/2$. Since this number can be huge, compute it modulo $10^8 + 7$.

Sample input

```
1  0.3
5  0.5 0.5 0.5 0.5 0.5
```

Sample output

```
0
31
```

Problem information

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Generation : 2024-04-30 16:40:51