H. Don't Exceed

You generate real numbers $s_1, s_2, ..., s_n$ as follows:

- $s_0 = 0$;
- $s_i = s_{i-1} + t_i$, where t_i is a real number chosen independently uniformly at random between 0 and 1, inclusive.

You are given real numbers $x_1, x_2, ..., x_n$. You are interested in the probability that $s_i \leq x_i$ is true for all i simultaneously.

It can be shown that this can be represented as , where P and Q are coprime integers, and . Print the value of $P \cdot Q^{-1}$ modulo 998244353.

Input

The first line contains integer n ($1 \leq n \leq 30$).

The next n lines contain real numbers $x_1, x_2, ..., x_n$, given with at most six digits after the decimal point ($0 < x_i \leq n$).

Output

Print a single integer, the answer to the problem.

Examples

input
```
4
1.00
2
3.000000
4.0
```
output
```
1
```

input
```
1
0.50216
```
output
```
342677322
```

input
```
2
0.5
1.0
```
output
```
623902721
```

input
```
6
0.77
1.234567
2.1
1.890
```

```
2.9999
3.77
```

output

```
859831967
```

Note

In the first example, the sought probability is 1 since the sum of i real numbers which don't exceed 1 doesn't exceed i.

In the second example, the probability is x_1 itself.

In the third example, the sought probability is $3 / 8$.