Accelerator

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	512 megabytes

DreamGrid is driving a spaceship from Mars to Earth.

There are n accelerators on the trajectory to accelerate the spaceship. The i-th accelerator has an accelerating factor of a_i. The spaceship will pass the accelerators one by one. Initially, the velocity of the spaceship is 0. When the spaceship passes through an accelerator, it gains energy from the accelerator and the velocity changes. Formally, if the accelerating factor is A and the velocity before accelerating is v, the velocity after accelerating becomes $v' = (v + 1) \times A$.

However, the n accelerators are uniformly randomly shuffled. DreamGrid doesn't know the order of the accelerators passed through now. Can you tell him the expected velocity after passing through all the n accelerators?

It can be proved that the expected velocity is rational. Suppose that the answer can be denoted by $\frac{u}{d}$ where $\gcd(u, d) = 1$, you need to output an integer r such that $rd \equiv u \pmod{998\,244\,353}$ and $0 \le r < 998\,244\,353$. It can be proved that such r exists and is unique.

Input

There are multiple test cases. The first line of the input contains an integer T ($1 \le T \le 100\,000$), indicating the number of test cases. For each test case:

The first line contains an integer n ($1 \le n \le 100\,000$), indicating the number of accelerators.

The next line contains n integers $a_1, a_2, \cdots, a_n$ ($1 \le a_i \le 10^9$), indicating the accelerating factors.

It's guaranteed that the sum of n of all test cases will not exceed $100\,000$.

Output

For each test case output one line containing the integer r.

Example

standard input	standard output
3 3 1 2 3 1 10 4 5 5 5 5	665496247 10 780

Note

For the first example, there are 6 ways to order the accelerators:

1,2,3 : $v = ((((0 + 1) \times 1 + 1) \times 2) + 1) \times 3 = 15$

1,3,2 : $v = ((((0 + 1) \times 1 + 1) \times 3) + 1) \times 2 = 14$

2,1,3 : $v = ((((0 + 1) \times 2 + 1) \times 1) + 1) \times 3 = 12$

2,3,1 : $v = ((((0 + 1) \times 2 + 1) \times 3) + 1) \times 1 = 10$

3,1,2 : $v = ((((0 + 1) \times 3 + 1) \times 1) + 1) \times 2 = 10$

3,2,1 $: v = ((((0+1)\times 3+1)\times 2)+1)\times 1 = 9$

So the expected velocity is $\frac{15+14+12+10+10+9}{3!} = \frac{70}{6}$.