

Strange Series

Input file: **standard input**
Output file: **standard output**
Time limit: **2 seconds**
Memory limit: **512 megabytes**

Given are an integer n and a polynomial $P(x) = a_0 + a_1x + \dots + a_nx^n$, where a_0, a_1, \dots, a_n are all non-negative integers.

Consider the series $S = \sum_{m=0}^{\infty} \frac{P(m)}{m!}$. One can prove that S is well-defined and we can always represent $S = pe$, where p is a non-negative integer and $e = \sum_{m=0}^{\infty} \frac{1}{m!} \approx 2.71828$ is Euler's number. You should calculate p modulo 998244353.

Input

Each test contains multiple test cases. The first line contains the number of test cases T ($1 \leq T \leq 100$). The description of each test case follows.

The first line of each test case contains an integer n ($0 \leq n \leq 10^5$).

The second line of each test case contains $n + 1$ space-separated integers a_0, a_1, \dots, a_n ($0 \leq a_i < 998244353$).

It is guaranteed that $n > 1000$ for at most 4 test cases.

Output

For each test case output $p \bmod 998244353$ where p is defined in the statements.

Example

standard input	standard output
2	3
1	258
1 2	
5	
1 1 4 5 1 4	