Problem L. 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 $P(x) = a_0 + a_1 x + \ldots + a_n x^n$, where a_0, a_1, ..., 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 ($1 \le T \le 100$). The description of each test case follows.

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

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

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 1 1 2 5 1 1 4 5 1 4	3 258