Problem J. Connectivity of Erdős-Rényi Graph

Input file:	`standard input`
Output file:	`standard output`

Yukikaze is studying the theory of random graphs.

In the probability version of the Erdős-Rényi model, a random graph is constructed by connecting nodes randomly. That is, the random graph $G(n, p)$ is an undirected graph with n vertices, and each edge from the $\dfrac{n(n-1)}{2}$ possible edges is included in the graph with probability p independently from every other edge.

Now she wonders about the expected number of connected components in $G(n, p)$, modulo a large prime 998244353.

Input

The first line of the input contains a single integer T ($1 \le T \le 100$), denoting the number of test cases.

The first line of each test case contains three integers q, a, b ($1 \le q \le 10^5$, $1 \le a \le b < 998244353$), denoting the number of queires and the probability $p = a/b$.

The second line of each test case contains q integers $n_1, n_2, \ldots, n_q$ ($1 \le n_i < 5 \times 10^5$ for each $1 \le i \le q$) seperated by spaces, denoting that Yukikaze wants to know the expected number of connected components in $G(n_i, p)$.

Let N be the sum of the maximum n_i of each test case, and Q be the sum of q of all test cases. It's guaranteed that $N \le 5 \times 10^5$ and $Q \le 10^5$.

Output

For each test case, output a single line containing the answers to the queries separated by spaces. You should output the answers modulo 998244353. That is, if the answer is $\frac{P}{Q}$, you should output $P \cdot Q^{-1} \bmod 998244353$, where Q^{-1} denotes the multiplicative inverse of Q modulo 998244353. We can prove that the answer can always be expressed in this form.

Don't output any extra spaces at the end of each line.

Example

standard input	standard output
3 1 14 51 4 1 91 98 10 2 114 514 1919 810	798850218 132789114 904977379 493892762