Problem H. Humorous Teacher T NeVeR LosEs

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	1024 mebibytes

Teacher T is famous for his success at the casino, but he is equally known for his humorous habit of pretending that he always loses money. Furthermore, his definition of "losing money" is quite different from the usual one. According to Teacher T, he is "losing money" at the end of day a if there exists another earlier day b (where $b < a$) when he had more money than at the end of day a.

As a close friend and sponsor of Teacher T, you estimate his probability of winning 1 dollar on any given day as $\frac{p}{q}$, and the probability of losing 1 dollar as $1 - \frac{p}{q}$. After sponsoring him for 114 514 dollars on day 0, you decide to meet him at the end of N specific days to check his performance. These meetings take place at the end of days $a_1, a_2, \ldots, a_N$.

Your task is to calculate the probability that, at the end of each of these N meeting days, Teacher T will say he is "losing money" (according to his definition).

Input

The first line contains two integers, p and q: they define the probability $\frac{p}{q}$ that Teacher T wins 1 dollar on a given day ($1 \le p \le q < 998\,244\,353$). The second line contains a single integer N, the number of days you meet Teacher T ($1 \le N \le 3000$). The third line contains N distinct integers $a_1, a_2, \ldots, a_N$: the days when you meet him, listed in strictly increasing order ($1 \le a_1 < a_2 < \ldots < a_N \le 3000$).

Output

Print the probability that Teacher T will claim he is "losing money" at the end of each of the N meeting days, modulo 998 244 353.

Formally, the probability can be expressed as an irreducible fraction $\frac{x}{y}$. You have to print the value of $x \cdot y^{-1} \bmod 998\,244\,353$, where y^{-1} is an integer such that $y \cdot y^{-1} \bmod 998\,244\,353 = 1$.

Examples

standard input	*standard output*
7122 114514 5 1 14 51 419 1981	235423509
1 2 3 2 4 6	686292993
1 2 1 1	499122177