An Easy Counting Problem

Input file:	`standard input`
Output file:	`standard output`
Time limit:	6 seconds
Memory limit:	256 megabytes

You are given three integers k, p, x. Find the number of integer pairs (a, b) that satisfy the following conditions:

1. $0 \le b \le a < p^k$;
2. $\binom{a}{b} \equiv x \pmod{p}$.

Input

The only line of the input contains three integers: k ($1 \le k \le 2^{1000}$), p ($2 \le p \le 5000$) and x ($1 \le x < p$).

The integer k is given in its binary form, starting from the highest bit.

It is guaranteed that p is prime and that the first digit of k in the input is 1.

Output

Output a single integer – the answer modulo 998244353.

Examples

standard input	standard output
1 7 5	2
1 43 17	17
1111111111 4999 1954	195378837