F. Zayin and Dirichlet

We define three types of **fundamental functions**,

$$\mu(n) = \begin{cases} (-1)^\sigma & , n \text{ has no square factor,} \\ & \quad \textit{and } \sigma \text{ is the number of factors of } n \\ 0 & , \text{otherwise} \end{cases}$$

$$1(n) = 1$$

$$id_k(n) = n^k \qquad , k = 1, 2, 3, \ldots$$

The Dirichlet product of functions f and g (represented as $f * g$) is a function h where

$$h(n) = \sum_{d|n} f(d)g(\frac{n}{d})$$

The Dirichlet product of more than two functions (for example, there are q functions $f_1, f_2, \cdots, f_q$) is defined as

$$f = (((f_1 * f_2) * f_3) * \cdots) * f_q$$

Zayin and Ziyin now have many **fundamental functions** (at least one). They calculate the Dirichlet product of them all and get the result f. Zayin finds that for any prime p, $f(p^c)$ is a polynomial of p of degree n, i.e. $f(p^c) = \sum_{i=0}^{n} a_i p^i$. But a_i is so large that he can only tell you a_i mod 998244353, i.e. x_i where $0 \le x_i < 998244353$ and $x_i \equiv a_i \pmod{998244353}$ holds.

And Ziyin finds that for any prime p, $f(p^d)$ is also a polynomial of p, but she doesn't want to tell you what it looks like. So it's your task to find out that polynomial.

If there are multiple solutions, please print the smallest one. Polynomial $P(x) = \sum_{i=0}^{n} a_i x^i$ is smaller than $Q(x) = \sum_{i=0}^{m} b_i x^i$ if and only if $n < m$, or $n = m$ and $\exists i \in [0, n]$, $(\forall j \in [i+1, n]\ a_j = b_j) \wedge (a_i < b_i)$ (after modulo 998244353).

If there is no solution, or the number of fundamental functions used by the smallest solution is more than 10^5, please print -1.

Input

The first line contains three integers n, c and d. ($0 \le n \le 1000$， $1 \le d \le c \le 100$)

The second line contains $n + 1$ integers $x_0, x_1, \ldots, x_n$. ($0 \le x_i < 998244353$, $x_n \ne 0$)

Output

Print -1 in the only line if it satisfies the corresponding conditions above. Otherwise the output contains two lines.

The first line contains one integer m, representing the degree of Ziyin's polynomial.

The second line contains $m + 1$ integers $b_0, b_1, \cdots, b_m$, representing $f(p^d) = \sum_{i=0}^{m} b_i p^i$. You must make sure $b_m \ne 0$ when $m > 0$. Due to the answers are so large, please print answers modulo 998244353.

Sample

Input	Output
2 2 1 1 1 1	1 1 1
2 2 1 998244352 998244352 1	-1

Explanation

In the first sample, $f(p^2) = p^2 + p + 1$. $f(n)$ can be regarded as the sum of divisors of n, so that $f(p) = p + 1$.

In the second sample, $f(p^2) = p^2 - p - 1$ can not be Dirichlet product of fundamental functions.