

## Problem G. Diophantine Equation

Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            **3 seconds**  
Memory limit:         **512 megabytes**

Little A has obtained a Diophantine equation.

Given a sequence of positive integers  $a_1, a_2, \dots, a_n$  of length  $n$  and a fixed value  $t$ , determine a sequence of non-negative integers  $x_1, x_2, \dots, x_n$  of length  $n$  such that for all  $0 \leq j < n$ , the following congruence holds:

$$\sum_{i=1}^n a_i^j \times x_i \equiv t^j \pmod{998244353}.$$

Output the sequence  $x_1, x_2, \dots, x_n$ . Note that for each  $i = 1, 2, \dots, n$ , the value  $x_i$  must satisfy  $0 \leq x_i < 998244353$ .

The data guarantees that the solution is unique.

### Input

The first line contains two positive integers  $n, t$  ( $1 \leq n \leq 5 \times 10^4, 1 \leq t < 998244353$ ).

The second line contains  $n$  positive integers, representing  $a_1, a_2, \dots, a_n$  in order ( $1 \leq a_i < 998244353$ ).

### Output

Output one line containing  $n$  non-negative integers representing  $x_1, x_2, \dots, x_n$ . Note that for each  $i = 1, 2, \dots, n$ , the value  $x_i$  must satisfy  $0 \leq x_i < 998244353$ .

The solution is guaranteed to be unique.

### Example

standard input	standard output
2 3	998244352 2
1 2	