Hocus Pocus

Input file:	`standard input`
Output file:	`standard output`
Time limit:	0.4 seconds
Memory limit:	1024 megabytes

I only have $+$ and $\times$, don't have $=$, no!

5Gang - "Hocus Pocus"

While playing [`insert game`], you have encountered an enemy with h hitpoints.

To defeat this enemy, you are able to perform n attacks, the i-th attack dealing a_i damage.

In each second, you will choose an attack i ($1 \leq i \leq n$) uniformly at random, which will decrease the health of the enemy by a_i hitpoints. The enemy is killed when its health becomes 0 or less.

For each i ($1 \leq i \leq k$), print the probability (modulo $10^9 + 7$) that the attack that kills the enemy deals exactly i damage.

Input

The first line of input contains 3 integers n, k and h ($1 \leq n \leq 3 \cdot 10^5$, $1 \leq k \leq 100$, $k \leq h \leq 10^9$) — the number of attacks, the maximum possible damage of a single attack, and the initial health of the enemy, respectively.

The second line of input contains n integers $a_1, a_2, \ldots, a_n$ ($1 \leq a_i \leq k$) — the damage dealt by each of the n attacks.

Output

For each i ($1 \leq i \leq k$), print the probability (modulo $10^9 + 7$) that the attack that kills the enemy deals exactly i damage.

We can show that, for each i, the answer can be expressed as an irreducible fraction $\frac{p}{q}$, where p and q are integers and $q \not\equiv 0 \pmod{10^9 + 7}$. Output the integer equal to $p \cdot q^{-1} \bmod 10^9 + 7$. In other words, output such an integer x that $0 \leq x < 10^9 + 7$ and $x \cdot q \equiv p \pmod{10^9 + 7}$.

Examples

standard input	standard output
3 2 5 1 2 1	353909468 646090540
3 5 5 2 3 5	0 481481485 592592597 0 925925933
2 4 1000000000 2 4	0 666666669 0 333333339

Note

In the first test case, the probabilities are $\frac{122}{243}$, and $\frac{121}{243}$, respectively.

In the second test case, the probabilities are: $[0, \frac{4}{27}, \frac{7}{27}, 0, \frac{16}{27}]$.