

Medals

2022/2023 SEASON – SECOND ROUND



Marin will participate b years in a row in one olympiad. He knows he can earn a medal at any of them, but at the same time he is well aware that different years are independent competitions and the result of one year does not affect his subsequent performances. Medals of n types are awarded at the competition - gold, silver, bronze, diamond, platinum, etc. and he has already calculated that the chances of getting the respective medals of the different types are exactly $x_1 : x_2 : \dots : x_n$, i.e. there is a chance $\frac{x_i}{x_1 + x_2 + \dots + x_n}$ of winning a medal of type i each year, regardless of his previous performances. His favorite number is d , and he wants for every type of medal to have a number that is a multiple of d . Find the probability of him winning a multiple of d medals of each type.

Input

The first line of the file **medals.in** contains the numbers n , b and d and the second line contains n numbers - x_1, x_2, \dots, x_n

Output

It is provable that the probability can be represented as a rational fraction $\frac{s}{t}$. Let $M = 10^9 + 7$. The tests will be selected so that t and M have no common divisors. On the single line of the file **medals.out**, print $s * t^{-1}$ modulo M .

Constraints

$$1 \leq b \leq 10^9$$

$$1 \leq n, x_i \leq 30$$

$$1 \leq d \leq 4$$

Time limit: 4 sec.

Memory limit: 256 MB.

Sample test

Input (medals.in)	Output (medals.out)
3 8 4	89891976
1 2 3	