

05 Hr **16** Min
24 Sec**Guidelines**

Coding Area

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Coding Area

A**B****C****D****E****F****ONLINE EDITOR (D)**

Finding Product

+ Problem Description

You are given a set of N positive integers and two small prime numbers P and Q (not necessarily distinct). You need to write a program to count the number of subsets of the set of N numbers whose product is divisible by PQ (the product of P and Q). Since the number K of such sets can be huge, output K modulo 1009 (the remainder when K is divided by 1009).

+ Constraints

 $N \leq 300$ $P, Q \leq 50$ The integers are ≤ 10000

+ Input Format

First line three comma separated integers N, P, Q The next line contains N comma separated integers

+ Output

One integer giving the number of subsets the product of whose elements is divisible by PQ . Give the result modulo 1009.

+ Test Case

TestCase 1
8,3
D,C,E,F,G,H
C,A,E
D,C,B,E

A,B

TestCase 2
8,3

D, C, E, F, G, H

C, A, B, E

D, B

N/A

+ Explanation

Example 1

Input

4,5,7

5,49,10,27

Output

6

Explanation

N is 4, P is 5, Q is 7. We need to find subsets of the numbers given so that the product of the elements is divisible by 35 (the product of 5 and 7). These subsets are (5,49),(5,49,10),(5,49,27),(5,49,10,27), (49,10),(49,10,27). There are 6 subsets, and the output is 6.

Example 2

Input

4,11,13

3,7,12,13

Output

0

Explanation

N is 4, P is 11, Q is 13. We need to find subsets of the numbers given so that the product of the elements is divisible by 143 (the product of 11 and 13). As none of the N numbers is divisible by 11 (a prime number), there are no subsets for which the product of the elements is divisible by 143. Hence the output is 0.

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