

6073 Math Magic

Yesterday, my teacher taught us about math: +, -, *, /, GCD, LCM... As you know, LCM (Least common multiple) of two positive numbers can be solved easily because of

$$a * b = GCD(a, b) * LCM(a, b)$$

In class, I raised a new idea: "how to calculate the LCM of K numbers". It's also an easy problem indeed, which only cost me 1 minute to solve it. I raised my hand and told teacher about my outstanding algorithm. Teacher just smiled and smiled ...

After class, my teacher gave me a new problem and he wanted me solve it in 1 minute, too. If we know three parameters N , M , K , and two equations:

1. $SUM(A_1, A_2, \dots, A_i, A_{i+1}, \dots, A_K) = N$
2. $LCM(A_1, A_2, \dots, A_i, A_{i+1}, \dots, A_K) = M$

Can you calculate how many kinds of solutions are there for A_i (A_i are all positive numbers). I began to roll cold sweat but teacher just smiled and smiled.

Can you solve this problem in 1 minute?

Input

There are multiple test cases.

Each test case contains three integers N , M , K . ($1 \leq N, M \leq 1,000$, $1 \leq K \leq 100$)

Output

For each test case, output an integer indicating the number of solution modulo $1,000,000,007(1e9 + 7)$.

You can get more details in the sample and hint below.

Hint:

The first test case: the only solution is (2, 2).

The second test case: the solution are (1, 2) and (2, 1).

Sample Input

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4 2 2
3 2 2
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Sample Output

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1
2
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