



Shopee Programming Contest #1

Jun 27, 2020, 02:00 PM CST - Jun 27, 2020, 06:40 PM CST

INSTRUCTIONS

PROBLEMS

SUBMISSIONS

LEADERBOARD

ANALYTICS

JUDGE

← Problems / Sequences

Sequences

Max. score: 30

This problem is no longer available for practice. Apology for any inconvenience!

You are on a company visit to Shopee. During the office tour, you noticed that there seems to be a random scribbling on one of the walls. After looking at it closely, you noticed it is actually an algorithm question! Below is the question:

You are given **N** functions $f(i, j)$ with parameters A_i, B_i, C_i , where the value of $f(i, j)$ is equal to $A_i \times j^2 + B_i$ for each $1 \leq j \leq C_i$. Find how many sequences $(i_1, j_1), (i_2, j_2), \dots, (i_M, j_M)$ of length **M** are there in which the following holds:

- $f(i_1, j_1) + f(i_2, j_2) + \dots + f(i_M, j_M)$ is divisible by **K**

Two sequences are different if there is at least one index k , such that $i_k \neq i_{k'}$ or $j_k \neq j_{k'}$

You quickly take note of the question, as maybe it is a draft for an interview question. Solve the question to increase your chance of acing the future interview at Shopee!

Input

The first line contains 3 integers **N** ($1 \leq N \leq 5,000$), **M** ($1 \leq M \leq 1,000,000,000$), and **K** ($1 \leq K \leq 2,000$).

The next **N** lines each contains 3 integers $A_i, B_i, (0 \leq A_i, B_i < K)$ and C_i ($1 \leq C_i \leq 1,000,000,000$), denoting the parameters for the i -th function.

Output

One line containing a single integer, the number of the sequence. Since this number can be very large, output its value modulo 10^9+7 .

SAMPLE INPUT	SAMPLE OUTPUT
3 2 6 0 3 2 1 2 3 2 5 1	12

Explanation

Below are all the possible sequences:

- (1, 1), (1, 1)
- (1, 1), (1, 2)
- (1, 1), (2, 1)
- (1, 2), (1, 1)
- (1, 2), (1, 2)
- (1, 2), (2, 1)
- (2, 1), (1, 1)
- (2, 1), (1, 2)
- (2, 1), (2, 1)
- (2, 2), (2, 2)
- (2, 3), (3, 1)
- (3, 1), (2, 3)

Time Limit:	5.0 sec(s) for each input file.
Memory Limit:	256 MB
Source Limit:	1024 KB
Marking Scheme:	Score is assigned when all the testcases pass.
Allowed Languages:	Bash, C, C++, C++14, C++17, Clojure, C#, D, Erlang, F#, Groovy, Haskell, Java, Java 8, Java 14, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Python 3.8, R(RScript), Racket, Ruby, Rust, Scala, Swift-4.1, Swift, TypeScript, Visual Basic

CODE EDITOR

SavePython 3.8 (python 3.8.2)↗⚙

```
1'''
2# Sample code to perform I/O:
3
4name = input()          # Reading input from STDIN
5print('Hi, %s.' % name)  # Writing output to STDOUT
6
7# Warning: Printing unwanted or ill-formatted data to output will cause the test cases to fail
8'''
9
10# Write your code here
11
```

1:1 vscode

☒ Provide custom Input

COMPILE & TESTSUBMIT

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+1-650-461-4192
contact@hackerearth.com



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