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Practice Contest 2.0

Jun 02, 2018, 04:00 PM IST - Jun 03, 2018, 04:00 PM IST

INSTRUCTIONS PROBLEMS SUBMISSIONS LEADERBOARD ANALYTICS JUDGE

← Problems / Bob and Internship

Bob and Internship

Max. score: 100

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

PROBLEM EDITORIAL MY SUBMISSIONS

Bob got selected for **N** day long internship in which he is required to complete **M** tasks . Each task can be completed in exactly one day . As Bob is very lazy he needs atleat **K** days for rest before starting any new task . In how many ways you can complete these M tasks. It does not matter in which order you complete these M tasks . Also it is not necessary to take rest after the last task . As output can be very large you have to print answer **Modulo** $10^9 + 7$.

NOTE : Two ways $D_1, D_2, \ldots\ldots, D_M$ and $D'_1, D'_2, \ldots\ldots, D'_M$ are considered diferent if for any $1 \leq i \leq M \quad D_i \neq D'_i$.

INPUT

FIrst line of input contains **T** number of test cases .

Next T lines contains three space seperated integers **N** , **M** , **K** .

OUTPUT

For each test case print the number of ways in which Bob can complete these M tasks in new line .

CONSTRAINTS

$1 \leq T \leq 10^6$

$1 \leq M \leq N \leq 10^6$

$0 \leq K \leq 10^6$

SAMPLE INPUT

```
3
4 2 1
4 2 2
5 2 0
```

SAMPLE OUTPUT

```
3
1
10
```

Explanation

Test Case 1 : There are 4 days in which we have to complete 2 tasks . So possible combinations in which we can complete tasks are $[1,3],[1,4],[2,4]$.

You can see we are taking rest of minimum 1 day between two tasks.

Test Case 2 : There is only one possible way $[1,4]$ as we have to maintain two day gap between them .

Time Limit:	0.5 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#, Go, 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

Enter your code or Upload your code as file. Save C (gcc 5.4.0)

```c
/*
// Sample code to perform I/O:
#include <stdio.h>

int main(){
    int num;
    scanf("%d", &num);                          // Reading input from STDIN
    printf("Input number is %d.\n", num);       // Writing output to STDOUT
}

// Warning: Printing unwanted or ill-formatted data to output will cause the test cases to fail
*/

// Write your code here

```