Array and Loops Questions :

1. Small Factorials

https://www.codechef.com/problems/FCTRL2

2. Ambigous Permutation

https://www.codechef.com/problems/PERMUT2

3. Minimum Good Permutation

https://www.codechef.com/problems/MINPERM

4. Bear and Extra Number

https://www.codechef.com/problems/EXTRAN

5. Chef and the Feast

https://www.codechef.com/problems/NEO01

6. The Hound and White Walkers

https://www.hackerrank.com/contests/algomaniax-inductions/challenges/the-hound-and-white-walkers

Recurrance Series Questions

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uwi and tourist play a game of numbers

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uwi recently completed his DISCO course and considers himself a master of Recurrance relations. So he decides to mock *tourist* by giving him a recurrence relation which he needs to solve.

T(n) = A*T(n-1) + B*T(n-2) + C*T(n-3) + D*T(n-4)

Given, T(0), T(1), T(2), T(3) , A, B, C, D, your job is to help *tourist* find the N'th number in this series.

As the answer may be large, output the answer modulo 10^9 + 7.

Input Format:

First line contains T, the number of Test cases.

The first line of each test case contains five space-separated integers, N, A, B, C, D.

The next line contains four space-separated integers, T(0), T(1), T(2), T(4).

Output format:

Output T lines, all with a single integer denoting the N'th number for that test case.

Constraints:

1 <= T <= 100

1 <= N <= 10^6.

0 <= A, B, C, D <= 10^5.

0 <= T(0), T(1), T(2), T(4) <= 10^8.

BONUS (Out of syllabus):

1 <= N <= 10^18.

K-ibonacci Series

Extending the Fibonacci and Tribonacci series, and generalizing it, we arrive at the K-ibonacci series, in which each term is the sum of the previous K-terms.

Given, N, K and the first K terms, your job is to find out the value of the N'th k-ibonacci term.

As the answer may be large, output is module 10^9 + 7.

Input Format:

First line contains T, the number of Test cases.

The first line of each test contains two integers, N and K.

The second line of each test case contains K space-separated integers, denoting the first K terms.

Output format:

Output T lines, all with a single integer denoting the N'th k-ibonacci number for that test case.

Constraints:

1 <= T <= 100

1 <= N <= 10^6.

1 <= K <= N.

0 <= T(0)…T(k-1) <= 10^8.

Counting Number of Ways

HP is standing at a distance of X kilometres from her house . She can travel at most K kilometres in a single step. She wants to know total number of ways to reach her house .

As the number of ways can be large , print it **modulo 10^9+7.**

Note : She can't take step of 0 kilometres, i.e., step should be a positive integer.

Input Format:

First line contains one integers T, denoting number of test cases .

Each of the next T lines contains two integers X and K.

Output Format:

For each test case, print the number of ways **modulo 10^9+7.**

Answer for each test case should come in a new line.

Constraints :

$1 \leq T \leq 10^5$

$1 \leq X \leq 10^4$

$1 \leq K \leq 10^2$

Link :

https://www.hackerearth.com/challenge/hiring/amazon-developer-hiring-challenge/algorithm/hp-and-counting-number-of-ways-1d73a6a4/