Power with Combinatorics

Your task is to find a^(exp^(b)),

a: Provided in input,10^5 => a >= 0

b: Provided in Input,10^5 => b >= 0

exp=(nC0)^2 + (nC1)^2 +(nC2)^2+ ... +(nCn)^2,

n: Provided in the input, 10^5 => n >= 0

As the answer can be too large , you need to output modulo 10^9+7.

nCr denotes n choose r.

Input

The first line of each input file contains number of test cases t (t<=1000).

Then follow a new line.

Then follow t lines, each containing 3 integers, (i.e. a b n in order) each of them separated by a space.

Output

Output Contains t lines, ith line contains the answer of the ith test case .

Example

Input:
1
1 1 1

Output:
1

Explanation

In First test case, the Value of exp is 2, value of 1^(2^1) is 1, so output is 1.

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