

# Easy Factorials

Finding factorials are easy but they become large quickly that is why Lucky hate factorials. Today he have another task related to factorials.

For a given number  $n$  how many ways factorial  $n$  can expressed as a sum of two or more consecutive positive integers. Can you help lucky ?

## Input

First line contains single integer  $T < 5001$ , next  $T$  lines followed by an integer  $N < 10^8$  and  $M < 10^9$ .

where  $M$  is a prime number.

## Output

Print the desired result mod  $M$ .

## Example

**Input:**

1  
3 7

**Output:**

1

Explanation::  $3! = 1+2+3$  only one way.

Speed Adicts My best time for all cases is 1.57s. Best of Luck have fun:) .