Cheese and Random Toppings

Waiter: Good day, sir! What would you like to order?
Lucas: One Cheese & Random Toppings (CRT) pizza for me, please.
Waiter: Very good, sir. There are N toppings to choose from, but you can choose only R toppings.
Lucas: Hmm, let's see...

...Then Lucas started writing down all the ways to choose *R* toppings from *N* toppings in a piece of napkin. Soon he realized that it's impossible to write them all, because there are a lot. So he asked himself: **How many ways are there to choose exactly R toppings from N toppings?**

Since Lucas doesn't have all the time in the world, he only wished to calculate the answer **modulo** M, where *M* is a squarefree number whose prime factors are each less than *50*.

Fortunately, Lucas has a Wi-Fi-enabled laptop with him, so he checked the internet and discovered the following useful links:
Lucas' theorem
Chinese remainder theorem (CRT)

Input Format
The first line of input contains T, the number of test cases. The following lines describe the test cases.

Each test case consists of one line containing three space-separated integers: N, R and M.

Constraints
$1 \le T \le 200$
$1 \le M \le 10^9$
$1 \le R \le N \le 10^9$
M is squarefree and its prime factors are less than 50

Output Format
For each test case, output one line containing a single integer: the number of ways to choose R toppings from N toppings, modulo M.

Sample Input

```
6
5 2 1001
5 2 6
10 5 15
20 6 210
13 11 21
10 9 5
```

Sample Output

```
10
4
12
120
15
0
```

Explanation

Case 1 and 2: Lucas wants to choose *2* toppings from *5* toppings. There are ten ways, namely (assuming the toppings are **A**, **B**, **C**, **D** and **E**):

AB, **AC**, **AD**, **AE**, **BC**, **BD**, **BE**, **CD**, **CE**, **DE**

Thus,
Case 1: $10 \bmod 1001 = 10$
Case 2: $10 \bmod 6 = 4$

Case 6: We can choose *9* toppings from *10* by removing only one from our choice. Thus, we have ten ways and $10 \bmod 5 = 0$