Scary Secret Diary

While going through her friend's secret diary, one-day Poga came upon a function. The function *f* was defined as

$$f(n, k) - f(n-1, k) = f(n-1, k-1),$$
$$f(n, 0) = 1$$
$$\text{and } f(n, k) = 0 \text{ when } n < k$$

Seeing how this is a recursive function, Poga got very scared. To find courage, she remembered 2 of her favorite numbers, **N** and **K**. Now she wants to find the value of *f(N, K)*. Being a genius, it was very easy for her. Now she has challenged you to do the same too. As the answer can become very big, you should print the answer modulo **M**.

Input

Input starts with an integer **T**, denoting the number of test cases.

Then each of the next T lines contains three integers **N**, **K**, and **M**.

Constraints:
$1 <= T <= 100$

$1 <= N <= 10^5$

$0 <= K <= 10^5$

$1 <= M <= 10^{12}$

Output

For each test case, print the answer, value of *f(N, K)* modulo **M**.

Example

Input:

5

7 4 100

6 3 2

6 3 7

2 2 200

57217 10661734081

Output:

35

0

6

1

0