

Problem J

Journey to Sequence Sum

Time Limit: 2 Seconds
Memory Limit: 512 megabytes

Once upon a time, in a realm where mathematics held great power, a young scholar named Quang discovered a mysterious sequence. This sequence, denoted as A_i , had a captivating formula:

$$T_i = i^K \times R^i.$$

Quang was determined to unlock its secrets.

As he delved deeper into his studies, he realized that his ultimate quest was to find the sum of the first n terms of this sequence (A_1, A_2, \dots, A_n), which he called S_n .

To keep things manageable in this enchanted land, S_n had to be calculated modulo $10^9 + 7$. Can you help him compute S_n .



Input

The first line of input contains T ($1 \leq T \leq 10$), the number of test cases.

Each test case consists of three lines, including K ($1 \leq K \leq 10^3$), n ($1 \leq n \leq 10^{16}$), and R ($2 \leq R \leq 10^{16}$) respectively.

Output

For each test case, print your answer in a line.

Sample Input

Sample Output

1	21
1	
2	
3	