



The 2023 ICPC Vietnam Southern Provincial Programming Contest University of Science, VNU-HCM October 15th, 2023



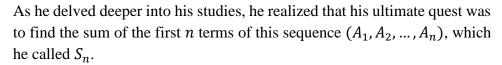
Problem J Journey to Sequence Sum

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.





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 ($1 \le T \le 10$), the number of test cases.

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

Output

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

Sample Input

Sample Output

	•
1	21
1	
2	
3	