# **HackerRank**

# Summing the K-N-R Series

You are given a sequence whose  $n^{
m th}$  term is

$$T_n = n^K imes R^n$$

You have to evaluate the series

$$S_n = T_1 + T_2 + T_3 + \cdots + T_n$$

Find  $S_n \mod (10^9 + 7)$ .

#### **Input Format**

The first line of input contains T, the number of test cases. Each test case consists of three lines, each containing K, n and R respectively.

#### **Output Format**

For each test case, print the required answer in a line.

#### **Constraints**

 $1 \le T \le 10$ 

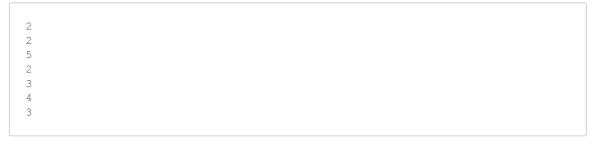
 $1 < K < 10^3$ 

 $1 \leq n \leq 10^{16}$ 

 $2 \leq R \leq 10^{16}$ 

 $R \bmod (10^9+7) \neq 1$ 

### **Sample Input**



# **Sample Output**

```
1146
5988
```

# **Explanation**

Case 1: 
$$1146=1^2\times 2^1+2^2\times 2^2+3^2\times 2^3+4^2\times 2^4+5^2\times 2^5$$
 Case 2:  $5988=1^3\times 3^1+2^3\times 3^2+3^3\times 3^3+4^3\times 3^4$