Problem G. KPOWERSUM

Time Limit 1 second

Problem

Abdi Learned Few New Things Few Days Ago , Like:

- ➔ **Find The Summation Of Divisors.**
- ➔ **Modular Arithmetic**

So Now Her Teacher Gave Her A Task.

Task Is: You Will Be Given A Number N And Another Number K. **Now You Have To Find K_{th} Power Summation Of Divisors Of N.**

$$\sum_{i=1}^{N} if(N\%i == 0)\ i^K$$

Summation Of All Divisors Of N Will Be Huge, So You Have To Print The Summation Module (M=1000000007).

Like: Divisors Of 6 is: (1 2 3 6) And K = 2. so, summation is: 1^K+2^K+3^K+6^K = 1^2 + 2^2 + 3^2 + 6^2= 1+4+9+36 = 50%1000000007=50

Abdi Thinks That You Are A Great Programmer, So He Needs Your Help. Can You Help Her??? :D :D :D

Input

Input Starts With An Integer T (≤ 500), Denoting The Number Of Test Cases. Each Case Contains An Integer N ($1 \le N \le 10^{15}$) And An Integer K ($1 \le K \le 10^5$) Denoting The Power Of Divisors.

Output

Sample Input 1	Sample Output 1
4 6 2 6 1 6 4 6 3	Case 1: 50 Case 2: 12 Case 3: 1394 Case 4: 252