Problem D
The Alchemist's Diminishing Gold
Time limit: 2 seconds
Memory limit: 512 megabytes

An alchemist has created a magical piece of gold with an initial **Essence Value** of n. He plans to perform a refining process exactly k times to purify it.

Each time the process is performed on a piece of gold with Essence Value v, the gold fractures into several fragments. The Essence Values of these fragments are **exactly the divisors of** v. Due to the chaotic nature of the magical reaction, the alchemist must **randomly pick one of the resulting fragments** to continue the process. Every fragment (i.e., every divisor) has an **equal chance** of being selected.

The alchemist wishes to forecast the outcome of his experiment. What is the **expected Essence Value** of the final piece of gold after k refining steps?

The answer can be represented as a fraction $\frac{P}{Q}$, where P and Q are coprime and $Q \not\equiv 0 \pmod{10^9 + 7}$. Output the result as $P \cdot Q^{-1} \bmod 10^9 + 7$.

Input

A single line containing two integers n and k ($1 \le n \le 10^{15}$, $1 \le k \le 10^4$).

Output

Print a single integer - the expected Essence Value after k steps of refining, modulo $10^9 + 7$.

Sample Input	Sample Output
7 1	4
7 3	750000007
77 7	642333990