

Divisor Sum

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Define $d(K)$ as the sum of the divisors of some integer K (K is a divisor of itself). For instance, $d(1) = 1$, $d(6) = 12$, $d(69) = 96$.

Given N and P , find $\sum_{K=1}^N P^K d(K) \pmod{2^{32}}$.

Input

The only line of input contains 2 integers, N and P ($1 \leq N \leq 10^7, 1 \leq P < 2^{32}$).

Output

Print $\sum_{K=1}^N P^K d(K) \pmod{2^{32}}$.

Examples

standard input	standard output
5 1	21
5 2	350
314588 69	3793243748