113 Power of Cryptography

Background

Current work in cryptography involves (among other things) large prime numbers and computing powers of numbers modulo functions of these primes. Work in this area has resulted in the practical use of results from number theory and other branches of mathematics once considered to be of only theoretical interest.

This problem involves the efficient computation of integer roots of numbers.

The Problem

Given an integer $n \geq 1$ and an integer $p \geq 1$ you are to write a program that determines $\sqrt[n]{p}$, the positive n^{th} root of p. In this problem, given such integers n and p, p will always be of the form k^n for an integer k (this integer is what your program must find).

The Input

The input consists of a sequence of integer pairs n and p with each integer on a line by itself. For all such pairs $1 \leq n \leq 200$, $1 \leq p < 10^{101}$ and there exists an integer k, $1 \leq k \leq 10^9$ such that $k^n = p$.

The Output

For each integer pair n and p the value $\sqrt[n]{p}$ should be printed, i.e., the number k such that $k^n = p$.

Sample Input

```
2
16
3
27
7
4357186184021382204544
```

Sample Output

```
4
3
1234
```