Checking the p^{th} root of a value efficiently is very important in cryptography area. Write a program to fast determine the power p for a value n with base b; that is, $n = b^p$.

Input

The input contains several cases and ends with EOF. Each case contains two integer values, which in turn represent p, and n.

Output

For each case, output the p^{th} root of n.

Sample Input

3 216
5 1024

Sample Output

6
4