Root of the Problem

Given positive integers B and N, find an integer A such that A^N is as close as possible to B. (The result A is an approximation to the Nth root of B.) Note that A^N may be less than, equal to, or greater than B.

Input

The input consists of one or more pairs of values for B and N. Each pair appears on a single line, delimited by a single space. A line specifying the value zero for both B and N marks the end of the input. The value of B will be in the range 1 to 1,000,000 (inclusive), and the value of N will be in the range 1 to 9 (inclusive).

Output

For each pair B and N in the input, output A as defined above on a line by itself.

Example

Input:
4 3
5 3
27 3
750 5
1000 5
2000 5
3000 5
1000000 5
0 0

Output:
1
2
3
4
4
4
5
16