

# kth largest factor of N

A positive integer  $d$  is said to be a factor of another positive integer  $N$  if when  $N$  is divided by  $d$ , the remainder obtained is zero. For example, for number 12, there are 6 factors 1, 2, 3, 4, 6, 12. Every positive integer  $k$  has at least two factors, 1 and the number  $k$  itself. Given two positive integers  $N$  and  $k$ , write a program to print the  $k$ th largest factor of  $N$ .

**Input Format:** The input is a comma-separated list of positive integer pairs  $(N, k)$

**Output Format:** The  $k$ th highest factor of  $N$ . If  $N$  does not have  $k$  factors, the output should be 1.

**Constraints:**  $1 < N < 10000000000$ .  $1 < k < 600$ . You can assume that  $N$  will have no prime factors which are larger than 13. Example 1

- **Input:** 12,3
- **Output:** 4

**Explanation:**  $N$  is 12,  $k$  is 3. The factors of 12 are (1,2,3,4,6,12). The highest factor is 12 and the third largest factor is 4. The output must be 4

Example 2

- **Input:** 30,9
- **Output:** 1

**Explanation:**  $N$  is 30,  $k$  is 9. The factors of 30 are (1,2,3,5,6,10,15,30). There are only 8 factors. As  $k$  is more than the number of factors, the output is 1.