

**Problem: 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 the 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**

The input is a comma separated list of positive integer pairs  $(N, k)$

**Output**

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

**Constraints**

$1 < N < 100000000000$ .  $1 < k < 600$

You can assume that  $N$  will have no prime factors which are larger than 13.

**Test case I**

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

**Test case 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.

### **Test case 3**

Input:

24,5

Output:

4

Explanation:

N is 24, k is 8. The factors of 24 are (1,2,3,4,6,8,12,24). There are only 8 factors.  
As k is more than the number of factors,  
the output is 4.

### **Test case 4**

Input:

32,3

Output:

8

Explanation:

N is 32, k is 6. The factors of 32 are (1,2,4,8,16,32). There are only 6 factors. As k  
is more than the number of factors,  
the output is 8.