

Q4 // Mr. White's Math

Anish finally decided to attend Mr. White's math after skipping for 10 sessions due to a physics project. When he arrived to class late, Mr. White was teaching factorials. Mr. White explained that "n" factorial (represented as $n!$) is the product of the positive integer n and all positive integers less than it. E.g $6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 120$. Upon seeing Anish arrive late, Mr. White yells, "ANISH! Get over here!" Anish waddles up to the board and takes a piece of chalk. "I want you to solve this question. If you've been paying attention to my lesson, this should be a piece of cake."

Here is Mr. White's problem for Anish:

Given 2 positive integers a and p , where p is a prime integer, find the greatest integer of x where p^x is a divisor of $a!$

Anish is stupefied, because he doesn't even know what a factorial is. Luckily, you've been paying attention to Mr. White's class, so you can help Anish escape Mr. White's chalk. Make a program to help Anish.

Input Specification:

The first 2 lines will contain integers a ($1 \leq a \leq 50$) and p ($1 \leq p \leq 100$), respectively.

Output Specification:

Output the greatest integer value of x .

Sample Input 1:

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3
2
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Sample Output 1:

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1
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Explanation:

$3! = 3 \times 2 \times 1$ which only has one factor of 2. Therefore, the highest divisor is 2^1 . You output the exponent 1.

Sample Input 2:

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10
3
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Sample Output 2:

4