6 Divide and Conquer

6.1 Problem

You want to play a round of „Divide and Conquer“. In this game you have an army of size x and a world of size y. You are going to conquer the entire world. Before you do so, you have the ability to split the world into multiple parts, but you have to conquer all of them at once. The number of points you gain is equal to the number of parts you split the world into. Additionally there are some rules you need to follow:

1. All parts have to be of equal size,
2. All parts have to be of integer size, and
3. Your army has to be at least as big as the number of parts

To make things easier your friend Bob already factorized the number y into smallest possible parts, which means he has written it as the product of numbers p_i which are only divisible by 1 and themselves.

6.2 Input

The first line of input contains two integers x ($1 \leq x \leq 10^{14}$) and n, the size of your army and the number of factors in the factorization of the size of the world. The next n lines each contain two values p_i and c_i ($1 \leq p_i, c_i \leq 10^7$) where p_i is only divisible by 1 and itself and the size of the world is $y = \prod p_i^{c_i}$. It is guaranteed that $\prod(c_i + 1) \leq 10^7$ holds.

6.3 Output

Print a single integer z, the maximum number of points you can gain.

6.4 Sample Data

Input	Output
4 2 2 2 5 1	4