

Problem E. Equation

Input file: equation.in
Output file: equation.out
Time limit: 4 seconds
Memory limit: 256 mebibytes

You need to find all positive integer solutions of the equation $n^x \equiv x \pmod{m}$ for the given integers n and m .

Input

The only line contains two integers n and m ($1 \leq n \leq m \leq 1\,000\,000$).

Output

The only line must contain a set of all positive integer solutions of the equation in the form of union of the minimum possible number of disjoint subsets $\{a_i k + b_i \mid k \geq 0\}$ ($a_i > 0, b_i > 0$) each of which is an infinite arithmetic progression. Each subset must be written like “{ $a_i k + b_i$ }”. Use the character **U** (the uppercase Latin letter u) as the union operation sign. All subsets must be printed in the order of non-decreasing of a_i , and subsets with equal a_i must be printed in the order of increasing of b_i . If there are more than 50 000 subsets, output only the first 50 000 of them and the text “ U ... (and S more)” where S is the corresponding integer denoting the number of subsets that were not printed.

It is guaranteed that for any correct input, the result can be represented in the form described above.

Examples

equation.in
2 7
equation.out
{ 21k + 11 } U { 21k + 15 } U { 21k + 16 }
equation.in
3 7
equation.out
{ 42k + 2 } U ... (and 5 more)

Note

The output for the second test case must contain all six subsets, but was shortened for the purpose of demonstration of the case of more than 50 000 subsets.