Planetarium Problem Revisited

The research group at the local planetarium is a collection of highly intelligent persons, all working together to solve the mysteries of the universe. Unfortunately, their minds have focused on these very complicated tasks for so long, they kind of lost the ability to think in smaller spheres and work on easier problems. But this may also stem from the field of astrophysics itself, as astrophysicists are a special people anyway. After Lea's last internship at the planetarium has worked out well and everybody was really happy about her work, she is called once again to support the work of the research group. They still want to cluster astronomical objects, but the approach is a different one, as the last one has proven to be not very successful. This time, Lea is given two sets A, B of astronomical objects, each of a certain size. The two sets should now be clustered into subsets $A = \bigcup_i A_i, B = \bigcup_k B_k$ with $|A_i| = |A_j| = |B_k| = |B_\ell|$ for arbitrary i, j, k, ℓ, and the size of the subsets A_i and B_k should be as big as possible. Lea is thrilled to work for the planetarium once again and tells you about the problem. Can you help her find the size of these subsets?

Input

The first line of the input contains an integer t. t test cases follow.

Each test case consists of a single line consisting of two integers n and m, the number of objects in the two sets.

Output

For each test case, output one line containing "Case #i: x" where i is its number, starting at 1, and x is the biggest possible subset size. The subset sizes $x = |A_i| = |B_k|$ for any i, k must divide the original set sizes $n = |A|$ and $m = |B|$.

Constraints

- $1 \leq t \leq 10^5$
- $1 \leq n, m \leq 10^9$

Sample Input 1	Sample Output 1
2 27 6 33 8	Case #1: 3 Case #2: 1