H - How Many Balls?

Time Limit: 2 seconds , Memory limit: 2G

From the 2025 ICPC North America East Division Regional Contest

If a bag contains r red balls and g green balls and two balls are drawn at random, the probability of getting one ball of each color is

$$P(r, g) = \frac{2rg}{(r+g)(r+g-1)}$$

Write a program which takes as input a rational number p/q in lowest terms and determines whether there is a number $r \leq 10^6$ and a $g \geq r$ for which $P(r, g) = p/q$.

Input

The only line of input contains two space-separated positive integers p ($p > 0$) and q ($2p - 1 \leq q \leq 1000$). These two integers are guaranteed to be relatively prime.

Output

If there is a solution, print the two positive integers r and g satisfying the conditions above, separated by a space. If there are multiple solutions, output the one with the smallest r value. For any r value, there is at most one g value ($g \geq r$), which solves $P(r, g) = p/q$. If there is no solution with $r \leq 10^6$, print the word `impossible`.

Sample Input 1	Sample Output 1
12 25	9 16

Sample Input 2	Sample Output 2
8 25	impossible

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