Project Euler #175: Fractions involving the number of different ways a number can be expressed as a sum of powers of 2.

This problem is a programming version of Problem 175 from projecteuler.net

Define $f(0) = 1$ and $f(n)$ to be the number of ways to write n as a sum of powers of 2 where no power occurs more than twice.

For example, $f(10) = 5$ since there are five different ways to express 10:
$10 = 8 + 2 = 8 + 1 + 1 = 4 + 4 + 2 = 4 + 2 + 2 + 1 + 1 = 4 + 4 + 1 + 1$

It can be shown that for every fraction p/q ($p \geq 0$, $q \geq 0$) there exists at least one integer n such that $f(n)/f(n-1) = p/q$.

For instance, the smallest n for which $f(n)/f(n-1) = 13/17$ is 241.

The binary expansion of 241 is 11110001.

Reading this binary number from the most significant bit to the least significant bit there are 4 one's, 3 zeroes and 1 one. We shall call the string $4, 3, 1$ the *Shortened Binary Expansion* of 241.

Find the Shortened Binary Expansion of the smallest n for which
$f(n)/f(n-1) = p/q$

Input Format

The first line of input contains two space-separated integers p and q.

Constraints

- $1 \leq p, q \leq 10^{16}$

Output Format

Print your answer as comma-separated integers without any whitespaces.

Sample Input 0

```
13 17
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Sample Output 0

```
4,3,1
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Explanation 0

As described in statement, answer for $p/q = 13/17$ is $4, 3, 1$.