Problem 858: Mirror Reflection

Problem Information

Difficulty: Medium
Acceptance Rate: 61.92%
Paid Only: No
Tags: Math, Geometry, Number Theory

Problem Description

There is a special square room with mirrors on each of the four walls. Except for the southwest corner, there are receptors on each of the remaining corners, numbered `0`, `1`, and `2`.

The square room has walls of length `p` and a laser ray from the southwest corner first meets the east wall at a distance `q` from the `0th` receptor.

Given the two integers `p` and `q`, return _the number of the receptor that the ray meets first_.

The test cases are guaranteed so that the ray will meet a receptor eventually.

Example 1:

Input: p = 2, q = 1 **Output:** 2 **Explanation:** The ray meets receptor 2 the first time it gets reflected back to the left wall.

Example 2:

Input: p = 3, q = 1 **Output:** 1

Constraints:

* `1 <= q <= p <= 1000`

Code Snippets

C++:

```
class Solution {
public:
int mirrorReflection(int p, int q) {

}
};
```

Java:

```
class Solution {
public int mirrorReflection(int p, int q) {

}
}
```

Python3:

```
class Solution:
def mirrorReflection(self, p: int, q: int) -> int:
```