# Problem 2543: Check if Point Is Reachable

## Problem Information

**Difficulty:** Hard
**Acceptance Rate:** 44.53%
**Paid Only:** No
**Tags:** Math, Number Theory

## Problem Description

There exists an infinitely large grid. You are currently at point `(1, 1)`, and you need to reach the point `(targetX, targetY)` using a finite number of steps.

In one **step** , you can move from point `(x, y)` to any one of the following points:

* `(x, y - x)` * `(x - y, y)` * `(2 * x, y)` * `(x, 2 * y)`

Given two integers `targetX` and `targetY` representing the X-coordinate and Y-coordinate of your final position, return `true` _if you can reach the point from_ `(1, 1)` _using some number of steps, and_`false` _otherwise_.

**Example 1:**

**Input:** targetX = 6, targetY = 9 **Output:** false **Explanation:** It is impossible to reach (6,9) from (1,1) using any sequence of moves, so false is returned.

**Example 2:**

**Input:** targetX = 4, targetY = 7 **Output:** true **Explanation:** You can follow the path (1,1) -> (1,2) -> (1,4) -> (1,8) -> (1,7) -> (2,7) -> (4,7).

**Constraints:**

* `1 <= targetX, targetY <= 109`

## Code Snippets

### C++:

```
class Solution {
public:
bool isReachable(int targetX, int targetY) {

}
};
```

### Java:

```
class Solution {
public boolean isReachable(int targetX, int targetY) {

}
}
```

### Python3:

```
class Solution:
def isReachable(self, targetX: int, targetY: int) -> bool:
```