

365. Water and Jug Problem

You are given two jugs with capacities x liters and y liters. You have an infinite water supply. *Return whether the total amount of water in both jugs may reach target using the following operations:*

- Fill either jug completely with water.
- Completely empty either jug.
- Pour water from one jug into another until the receiving jug is full, or the transferring jug is empty.

Example 1:

- **Input:** $x = 3, y = 5, \text{target} = 4$
- **Output:** true
- **Explanation:**
 - *Follow these steps to reach a total of 4 liters:*
 1. Fill the 5-liter jug (0, 5).
 2. Pour from the 5-liter jug into the 3-liter jug, leaving 2 liters (3, 2).
 3. Empty the 3-liter jug (0, 2).
 4. Transfer the 2 liters from the 5-liter jug to the 3-liter jug (2, 0).
 5. Fill the 5-liter jug again (2, 5).
 6. Pour from the 5-liter jug into the 3-liter jug until the 3-liter jug is full. This leaves 4 liters in the 5-liter jug (3, 4).
 7. Empty the 3-liter jug. Now, you have exactly 4 liters in the 5-liter jug (0, 4).

Reference: The Die Hard example.

Example 2:

- **Input:** $x = 2, y = 6, \text{target} = 5$
- **Output:** false

Example 3:

- **Input:** $x = 1, y = 2, \text{target} = 3$
- **Output:** true
- **Explanation:** Fill both jugs. The total amount of water in both jugs is equal to 3 now.

Constraints:

- $1 \leq x, y, \text{target} \leq 10^3$