Problem 679: 24 Game

Problem Information

Difficulty: Hard
Acceptance Rate: 59.22%
Paid Only: No
Tags: Array, Math, Backtracking

Problem Description

You are given an integer array `cards` of length `4`. You have four cards, each containing a number in the range `[1, 9]`. You should arrange the numbers on these cards in a mathematical expression using the operators `['+', '-', '*', '/']` and the parentheses `'('` and `')'` to get the value 24.

You are restricted with the following rules:

* The division operator `'/'` represents real division, not integer division. * For example, `4 / (1 - 2 / 3) = 4 / (1 / 3) = 12`. * Every operation done is between two numbers. In particular, we cannot use `'-'` as a unary operator. * For example, if `cards = [1, 1, 1, 1]`, the expression `"-1 - 1 - 1 - 1"` is **not allowed**. * You cannot concatenate numbers together * For example, if `cards = [1, 2, 1, 2]`, the expression `"12 + 12"` is not valid.

Return `true` if you can get such expression that evaluates to `24`, and `false` otherwise.

Example 1:

Input: cards = [4,1,8,7] **Output:** true **Explanation:** (8-4) * (7-1) = 24

Example 2:

Input: cards = [1,2,1,2] **Output:** false

Constraints:

* `cards.length == 4` * `1 <= cards[i] <= 9`

Code Snippets

C++:

```
class Solution {
public:
bool judgePoint24(vector<int>& cards) {

}
};
```

Java:

```
class Solution {
public boolean judgePoint24(int[] cards) {

}
}
```

Python3:

```
class Solution:
def judgePoint24(self, cards: List[int]) -> bool:
```