

# Problem 1307: Verbal Arithmetic Puzzle

## Problem Information

**Difficulty:** Hard

**Acceptance Rate:** 34.78%

**Paid Only:** No

**Tags:** Array, Math, String, Backtracking

## Problem Description

Given an equation, represented by `words` on the left side and the `result` on the right side.

You need to check if the equation is solvable under the following rules:

- \* Each character is decoded as one digit (0 - 9).
- \* No two characters can map to the same digit.
- \* Each `words[i]` and `result` are decoded as one number \*\*without\*\* leading zeros.
- \* Sum of numbers on the left side ('words') will equal to the number on the right side ('result').

Return `true` \_if the equation is solvable, otherwise return\_ `false` .

**Example 1:**

**Input:** words = ["SEND", "MORE"], result = "MONEY" **Output:** true **Explanation:** Map 'S'-> 9, 'E'->5, 'N'->6, 'D'->7, 'M'->1, 'O'->0, 'R'->8, 'Y'->'2' Such that: "SEND" + "MORE" = "MONEY" , 9567 + 1085 = 10652

**Example 2:**

**Input:** words = ["SIX", "SEVEN", "SEVEN"], result = "TWENTY" **Output:** true  
**Explanation:** Map 'S'-> 6, 'I'->5, 'X'->0, 'E'->8, 'V'->7, 'N'->2, 'T'->1, 'W'->'3', 'Y'->4 Such that: "SIX" + "SEVEN" + "SEVEN" = "TWENTY" , 650 + 68782 + 68782 = 138214

**Example 3:**

**Input:** words = ["LEET", "CODE"], result = "POINT" **Output:** false **Explanation:** There is no possible mapping to satisfy the equation, so we return false. Note that two different

characters cannot map to the same digit.

**\*\*Constraints:\*\***

\* `2 <= words.length <= 5` \* `1 <= words[i].length, result.length <= 7` \* `words[i], result` contain only uppercase English letters. \* The number of different characters used in the expression is at most `10`.

## Code Snippets

**C++:**

```
class Solution {
public:
    bool isSolvable(vector<string>& words, string result) {

    }
};
```

**Java:**

```
class Solution {
    public boolean isSolvable(String[] words, String result) {

    }
}
```

**Python3:**

```
class Solution:
    def isSolvable(self, words: List[str], result: str) -> bool:
```