Cryptarithmetic Puzzle

In a cryptarithmetic puzzle you must find a digit that represents each letter in the puzzle to make the equation true. A specific digit can substitute for only one letter (i.e., all letters must have a different digit) and zero cannot be used for a letter appearing on the far left. Your goal is to find a solution to given cryptarithmetic puzzles using a brute force exhaustive search method. An example puzzle, which is considered an alphametic (because the words make sense too) is:

```
      TEN
      TEN
     NINE
    EIGHT
+ THREE
=======
    FORTY
```

Input

There may be multiple cases. A case will consist of two lines. The first line is a list of words in all caps, with each word separated by a single space. These words are the top part of the equation that must add up. The second line will consist of just one word in all caps; this is the bottom of the equation which the top words must add up to.

Output

For each case, output the case number followed by a list of digits. Each digit should be separated by a space. The list should be the digit representations for the letters in the puzzle in alphabetical order of the letters. So in the example in the description, you would output the digit value of 'E' first, followed by 'F', 'G', 'H', 'I', 'N', etc..

Sample Input

```
FORTY TEN TEN
SIXTY
CROSS ROADS
DANGER
```

Sample Output

```
Case 1: 5 2 1 0 9 7 3 8 4 6
Case 2: 5 9 1 4 7 8 2 6 3
```