isCryptSolution

Input file:	`standard input`
Output file:	`standard output`
Time limit:	`1 second`
Balloon color:	`Blue`

A *cryptarithm* is a mathematical puzzle for which the goal is to find the correspondence between letters and digits, such that the given arithmetic equation consisting of letters holds true when the letters are converted to digits.

You have an array of strings ***crypt***, the *cryptarithm*, and an array containing the mapping of letters and digits, ***solution***. The array crypt will contain three non-empty strings that follow the structure: [word1, word2, word3], which should be interpreted as the word1 + word2 = word3 cryptarithm.

If ***crypt***, when it is decoded by replacing all of the letters in the cryptarithm with digits using the mapping in ***solution***, becomes a valid arithmetic equation containing no numbers with leading zeroes, the answer is **`true`**. If it does not become a valid arithmetic solution, the answer is **`false`**.

Note that number 0 doesn't contain leading zeroes (while for example 00 or 0123 do).

Input

The input consists of a single test case and contains multiple lines of input.

- The first line is ***crypt,*** and contains three non-empty strings containing only uppercase English letters separated by space, and each string in ***crypt*** has a length of less than 15.
- The second line is ***n***, and it is the number of items in ***solution***
- ***n*** number of lines follow and it contains pairs of characters that represent the correspondence between letters and numbers in the cryptarithm separated by space. The first character in the pair is an uppercase English letter, and the second one is a digit in the range from 0 to 9. It is guaranteed that ***solution*** only contains entries for the letters present in crypt and that different letters have different values.

Check the sample input below for clarity.

Output

Return `true` if the solution represents the correct solution to the cryptarithm crypt, otherwise return `false`

Example

Sample Input 1	Sample Output 1
SEND MORE MONEY 8 O 0 M 1 Y 2 E 5 N 6 D 7 R 8 S 9	true