Grid Search

Given a grid of 50x50 digits and a list of numbers, return the number of times that you can find each of the numbers in the grid. A number can be found horizontally, vertically, diagonally, backwards, or forwards.

For example, if this is your grid and you're searching for 101,

00000000000000100000000000000000000000000000000000
00000000000000100000000000000000000000000000000000
00000000000000100000000000000000000000000000000000
00000000000000101000000000000000000000000000000000
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Then the answer is 4. (Because 101 is a palindrome. Note that one-digit numbers are not considered palindromes and should be counted only once.)

Input

First line: Comma delimited list of numbers to search

Next 50 lines: 50x50 grid of numbers

Output

Comma-delimited list of pairs. Each pair is the input number, followed by a colon and the answer.

Example

Input:
101,1111
00000000000000100000000000000000000000000000000000
00000000000000100000000000000000000000000000000000
00000000000000100000000000000000000000000000000000
00000000000000101000000000000000000000000000000000
00000000000000000000000000000000000000000000000000
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00000000000000000000000000000000000000000000000000
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Output:
101:4,1111:2