

Crossword

We have created an infinite eight-directional crossword by taking a letter-filled block of dimensions $M \times N$ and infinitely repeating it. For instance, if we are given the following block:

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honi
hsin
```

then we create the following crossword:

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...honihonihonihoni...
...hsinhsinhsinhsin...
...honihonihonihoni...
...hsinhsinhsinhsin...
```

that is infinite in all directions.

In the created crossword, we randomly choose a field and one of eight directions, then write down a word of length K obtained by reading the crossword starting from the initial field, in the chosen direction. If we executed this query twice (independently), we would obtain two words of length K . Calculate the probability that the two words are equal.

Input

The first line of input contains integers M , N , K from the task ($1 \leq M, N \leq 500$, $2 \leq K \leq 10^9$). Each of the following M lines contains N lowercase letters of the English alphabet, and describes a block of the crossword. At least two distinct letters will exist in the block.

Output

You must output the required probability in the form of a reduced fraction p/q , without spaces.

Sample input

Sample output

1 2 2 ab	5/16
2 4 3 honi hsin	19/512
3 3 10 ban ana nab	2/27