2736 Mobile Phones

ACMIA mobile phones have a shortcut mode for typing text messages using the numerical phone keypad. In this mode, the system uses a dictionary of known words. After a sequence of digits is entered the system checks for and displays all possible matches in the dictionary. The ACMIA phone keypad for the English alphabet is as follows:

1	2 abc	3 def
4 ghi	5 jkl	6 mno
7 pqrs	8 tuv	9 wxyz
	0 (space)	

Your task is to write a program that displays all possible matches for given digit sequences, using a given dictionary.

A digit sequence corresponds to a sequence of words, with zero digits ('0') indicating spaces. Leading and trailing zeros are ignored, and multiple consecutive embedded zeros are treated as a single zero. For each sequence of non-zero digits, display the matching word from the dictionary.

When more than one match is available, display all matches in dictionary order between round parentheses and separated by bars ('|'). If there is no matching word, display a sequence of asterisks ('*') of the same length.

For example, with a dictionary consisting solely of the words 'i', 'loud', 'love', 'programming', the digit sequence

'00405683000776472664640777 70'

will be displayed as the text

'i (loud|love) programming ****'

Input

The input will consist of one or more scenarios, each scenario consisting of a dictionary of permitted words and a series of digit sequences to be interpreted as text messages.

The dictionary consists of 1 to 1,000 words, one word per line, in increasing dictionary order, with no duplicates. Each word consists of 1 to 30 lowercase letters. For any given non-zero digit sequence there will be no more than 10 matching words in the dictionary. The end of the dictionary is indicated by a line consisting of a single '#'.

The digit sequences to interpret as text messages follow the dictionary, one per line. Each message line consists of 1 to 100 digits, with at least 1 non-zero digit. The end of messages is indicated by a line consisting of a single '#'.

The end of input is indicated by an empty dictionary (a dictionary with zero words).

Output

For each scenario output a line consisting of the word 'SET' (all uppercase) followed by a space and then the scenario number, starting with 1. Following this output the list of interpreted text messages, one message per line.

Sample Input

```
i
loud
love
programming
#
00405683000776472664640777770
#
a
game
go
golf
good
hand
hold
hole
home
in
me
of
to
#
2046630426306304653
46086020466304663
#
#
```

Sample Output

```
SET 1
i (loud|love) programming ****
SET 2
a (good|home) (game|hand) (me|of) (golf|hold|hole)
(go|in) to a (good|home) (good|home)
```