

3940 Punish Jiejie

Jiejie is a naughty boy. He always plays games during the training time, spreads the virus among the computers in the lab, attacks others' computers and even peeps Neal's love letters to girls Everybody in the ACM Lab is so angry at him that they strongly suggest Captain Ray punish Jiejie. Mainly and efficiently, Ray orders Jiejie to write numbers.

Jiejie is a boy who likes bargaining. "You write two number strings on the blackboard and then I will write numbers without knowing them. The punishment ends as soon as one of the two number strings you have on the blackboard appears in the string I write" Jiejie says. Although this punishment is rather slight, Ray accepts it as he thinks Jiejie is still a young boy after all.

How many numbers will Jiejie write?

Input

The input file contains multiple test cases. Every test case contains two lines, the first and the second number string respectively, and both of the string lengths are no more than 9. All the elements in the string are digits '0' - '9'. Proceed to the end of the file.

Output

For each test case, the first line contains a real number which is the expected length of number strings Jiejie will write. The second line is a real number that is the probability that Jiejie will end with getting the first string. The third line is a real number that is the probability that Jiejie will end with getting the second string. The Input data promises that there is an unique solution. Please output the result as in the Sample Output.

Sample Input

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123
82
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Sample Output

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Case 1:
90.91
0.09
0.91
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