J Just Another Easy Problem

Input: Standard Input
Output: Standard Output

Given a four-digit integer n, your task is to count the number of ways to make it a square number by changing exactly one digit (note that you can't change the first digit to 0). For example, if n=7844, there are two ways: $3844=62^2$ and $7744=88^2$.

Input

The first line of integer contains one integer T (1<=T<=1000), the number of test cases. Each test case contains a single integer n (1000<=n<=9999).

Output

For each test case, print the case number and the number of ways to make it a square integer by changing exactly one digit.

Sample Input	Output for Sample Input
2 7844 9121	Case 1: 2 Case 2: 0

Problemsetter: Rujia Liu, Special Thanks: Md. Mahbubul Hasan, Feng Chen