Round B 2022 - Kick Start 2022

Palindromic Factors

PROBLEM

ANALYSIS

Problem

You are given a positive integer A. Find the number of factors of A which are palindromes. A number is called a palindrome if it remains the same when the digits in decimal representation are reversed. For instance, 121 is a palindrome, while 123 is not.

Input

The first line of the input gives the number of test cases, T. T lines follow.

Each line represents a test case and contains a single integer A.

Output

For each test case, output one line containing Case #x: y, where x is the test case number (starting from 1) and y is the number of factors of A which are palindromes.

Limits

Time limit: 2 seconds.

Memory limit: 1 GB.

 $1 \le \mathbf{T} \le 100$.

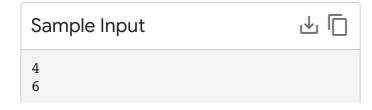
Test Set 1

 $1 < \mathbf{A} < 10^3$.

Test Set 2

 $1 \le \mathbf{A} \le 10^{10}$.

Sample





Case #1: 4

Case #2: 3



10			
144			
242			

Case #3: 7
Case #4: 6

In the first test case, $\bf A$ has 4 factors which are palindromes: 1,2,3, and 6. In the second test case, $\bf A$ has 3 factors which are palindromes: 1,2, and 5. In the third test case, $\bf A$ has 7 factors which are palindromes: 1,2,3,4,6,8, and 9. In the fourth test case, $\bf A$ has 6 factors which are palindromes: 1,2,11,22,121, and 242.