Problem 257: Prime Phone Numbers

Difficulty: Easy

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Problem Background

You have always been a big fan of prime numbers and their unique properties. Recently, you came up with a fun challenge: take a list of phone numbers, split each one into three parts, and check if the numbers are pairwise coprime.

Problem Description

A standard US phone number can be thought of as a triplet of two three-digit numbers and one four-digit number - for example, (800) 634-5789, where a=800, b=634, c=5789. You will be given a series of phone numbers and your task is to check if the three numbers, a, b, and c, are pairwise coprime.

Two numbers are coprime, or relatively prime, if they share no common factors besides 1. A triple (three numbers a, b, c) is pairwise coprime if each of the pairs (a,b), (b,c), and (a,c) are coprime. For example, the set (8, 9, 11) is pairwise coprime, while (8, 9, 10) is not (8 and 10 share a common factor, 2).

Sample Input

The first line of your program's input, **received from the standard input channel**, will contain a positive integer representing the number of test cases. Each test case will include a single line containing a phone number in (XXX)YYY-ZZZZ format.

```
4
(123)456-7890
(121)122-1235
(345)678-9012
(457)124-2255
```

Sample Output

For each test case, your program must print a single line containing the word "TRUE" if the set of numbers represented by the phone number is pairwise coprime, or "FALSE" otherwise.

```
FALSE
TRUE
FALSE
TRUE
```