Problem G: Simply Emirp

An integer greater than 1 is called a prime number if its only positive divisors (factors) are 1 and itself. Prime numbers have been studied over the years by a lot of mathematicians. Applications of prime numbers arise in Cryptography and Coding Theory among others.

Have you tried reversing a prime ? For most primes, you get a composite (43 becomes 34). *An Emirp (Prime spelt backwards) is a Prime that gives you a different Prime when its digits are reversed*. For example, 17 is *Emirp* because 17 as well as 71 are Prime. In this problem, you have to decide whether a number ***N*** is Non-prime or Prime or *Emirp*. Assume that ***1*** < ***N*** < ***1000000***.

Interestingly, Emirps are not new to NTU students. We have been boarding 199 and 179 buses for quite a long time!

Input

Input consists of several lines specifying values for ***N***.

Output

For each ***N*** given in the input, output should contain one of the following:

1. "***N*** `is not prime.`", if ***N*** is not a Prime number.
2. "***N*** `is prime.`", if ***N*** is Prime and ***N*** is not *Emirp*.
3. "***N*** `is emirp.`", if ***N*** is *Emirp*.

Sample Input

```
17
18
19
179
199
```

Sample Output

```
17 is emirp.
18 is not prime.
19 is prime.
179 is emirp.
199 is emirp.
```

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