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.
```