Problem #4: Radiant Primes

Program Name: radiant.java **Input File: radiant.dat**

In the course of finding radiant primes an interesting algorithm is used. The algorithm is the following:

Given a base 10 integer X, and a base Y:
1.Convert X to base Y.
2. Reverse the digits of the result from step 1.
3. Convert the result from step 2 to base 10.

It is of interest whether the result of step 3 is prime or non-prime when studying radiant primes. Remember that an integer greater than zero is prime if it has exactly one divisor other than 1.

Here is an example:
17 3
17 in base 3 is 122
Reversed is 221
which is 25 in base 10
which is non-prime

Another example:
2 9
2 in base 9 is 2
Reversed is 2
which is 2 in base 10
which is prime

Input
The first line of the input will be a single integer, N, indicating the number of data sets.
Each of the next N lines will be X and Y, as indicated in the algorithm. The X and Y will be separated by a single space. $2 <= X <= 1000$ and $2 <= Y <= 9$.

Output
Output for each data set will be a single line with the word "prime" or "non-prime", depending on the result when the algorithm is applied to X and Y.

Example Input File
```
3
11 2
17 3
2 9
```

Example Output To Screen
```
prime
non-prime
prime
```