

**JUNIOR DIVISION  
PRIME TIME**

**PROBLEM:** Mathematically, the topic of prime numbers is and has been since ancient times a very interesting area of study. In this problem you will investigate some properties of prime numbers.

A **circular prime** is a prime number that will remain a prime on any cyclic rotation of its digits. As an example 1193, 1931, 9311 and 3119 are all primes.

A **deleted prime** is a prime number that will remain a prime if the leftmost digit, or the rightmost digit or one interior digit, if any, is truncated. As examples: 113 becomes 13 if the left most digit is truncated. It is a **left deleted prime**. Again 113 becomes 11 if the rightmost digit is truncated. It is also a **right deleted prime**. Further, 113 becomes 13 when the interior 1 is truncated. Primes of this type are called **interior deleted primes**. For this program, a prime will be classified as interior deleted, if any one of its interior digits is deleted and the resulting integer is a prime.

**INPUT:** The input will consist of 5 prime numbers.

**OUTPUT:** For each input, print whether each prime is a circular, a left deleted, interior deleted or a right deleted prime. If the prime number has none of the above properties, then print NONE.

**SAMPLE INPUT**

1. 113
2. 523
3. 45673
4. 6047
5. 19

**SAMPLE OUTPUT**

1. Circular, Left, Interior, Right
2. Left, Interior
3. Right, Interior
4. Left, Interior
5. NONE