I Want My Meat!!!

Filename: meat

Astrid hates waiting at the Publix Deli! However, whenever she arrives, she always has to "take a number" and wait till her number is called. Recently however, Astrid discovered a trick! Say that her number is

32114

If she gently makes a cut after the first two digits, she'll have two pieces of paper that read:

32   and   114

Now, if she takes the first piece of paper and tapes it to the right of the other piece of paper carefully, she can form the number

11432!

Thus, she can get her lunch meat earlier!!! Unfortunately, the Deli Manager will catch on if she makes more than one cut in the paper. Under these conditions, help Astrid form the lowest possible number, given her original number.

The Problem
Given an integer (with no digits 0 appearing), find the value of its smallest cyclic rotation. (Note: The process above describes how to obtain a cyclic rotation of the digits of a number.)

The Input
The first line of the input file will contain a number *n (1 ≤ n ≤ 100)* indicating the number Deli numbers. The following *n* lines contain one positive integer each, with in between 1 and 6 digits inclusive, none of which are 0, equal to the number Astrid pulled at the deli.

The Output
For each number, on a line by itself, print out the lowest number Astrid can make from it by cutting zero or more of the leftmost digits and reattaching them to the right of the rest of the digits.

Sample Input
```
3
2
123456
431211
```

Sample Output
```
2
123456
114312
```