PALINDROME

PROBLEM: A positive integer is said to be a palindrome with respect to base b, if its representation in base b reads the same from left to right as from right to left. Palindromes are formed as follows:

> Given a number, reverse its digits and add the resulting number to the original number. If the result isn't a palindrome, repeat the process. For example, start with 87 base 10. Applying this process, we obtain:

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 87 + 78 = 165
        165 + 561 = 726
               726 + 627 = 1353
                      1353 + 3531 = 4884, a palindrome
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Whether all numbers eventually become palindromes under this process is unproved, but all base 10 numbers less than 10,000 have been tested. Every one becomes a palindrome in a relatively small number of steps (of the 900 3-digit numbers, 90 are palindromes to start with and 735 of the remainder take fewer than 5 reversals and additions to yield a palindrome). Except, that is, for 196. Although no proof exists that it will not produce a palindrome, this number has been carried through to produce a 2 million-digit number without producing a palindrome.

INPUT: 5 sets of data. Each set will consist of a positive integer and its base. Bases will be in the range 10 – 16.

OUTPUT: Print the palindrome produced. If no palindrome is produced after 10 additions, print the word "none" and the last sum.

SAMPLE DATA   **SAMPLE OUTPUT**

1. A23, 16   1. D4D
2. A345, 12   2. 9B4B9
3. 196, 10   3. NONE, 18211171