

Palindromic Addition

Timelimit: 1 sec

Problem description

A palindrome is a word that is the same when read forwards or backwards. The number 14341 is also a palindrome, but 1445 is not.

If you have a number, what is the smallest non-negative number that you have to add such that the result is a palindrome?

Input

A number n ($n \leq 1000$) followed by n lines containing non-negative numbers of size up to 10^{15} .

Output

The output should consist of n lines containing the corresponding numbers that have to be added to create palindromic sums.

Sample input/output

Input	Output
6	
3	0
33	0
330	3
12345	76
91111	8
899999	10