Problem E: Bank Card Verifier

Part software group, is looking for creative software developers. A group of applicants are attending an interview, and the company wants to select the fastest developer who can code simple rules accurately. As a test, all applicants should quickly develop a bank card verifier that determines whether a payment card number is valid or not.

All payment card numbers are 16 digits long. The leftmost 6 digits represent a unique identification number for the bank who has issued the card. The next 2 digits determine the type of the card (e.g., debit, credit, gift). Digits 9 to 15 are the serial number of the card, and the last digit is used as a control digit to verify whether the card number is valid. Hence, if somebody enters the card number incorrectly, there is a high chance that a payment software can easily determine it.

For a valid card number, the last digit is selected in such a way that the following algorithm passes:

1. Label all digits from left to right by 1 to 16.
2. Multiply each odd-labeled digit by 2.
3. If the result for any digit is greater than 9, subtract 9 from it
4. Sum the results of the previous step, and add to it the sum of all even-labeled digits.
5. If the result is a multiple of 10, the card number is valid; otherwise, it is invalid.

Your task is to read several card numbers from the input, and determine whether each one is a valid card number or not.

Input (standard input)

There are multiple test cases in the input. Each test is given in one line consisting of four space-separated 4-digit strings. The leftmost digit of the given card number is guaranteed to be non-zero. The input terminates with a line containing “0000 0000 0000 0000” that should not be processed.

Output (standard output)

For each test case, output a line containing “Yes” or “No” depending on whether the card number is valid or not, respectively.

Sample Input and Output

Standard Input	Standard Output

6104 3376 7866 1545
6104 3376 7866 1546
5022 2910 0140 7954
0000 0000 0000 0000
	Yes
	No
	Yes