Palindromic Dreams (`dream`)

Old Man Ivan, hardworking farmer, tired after a long day of beating the fields, he decided to go to bed.
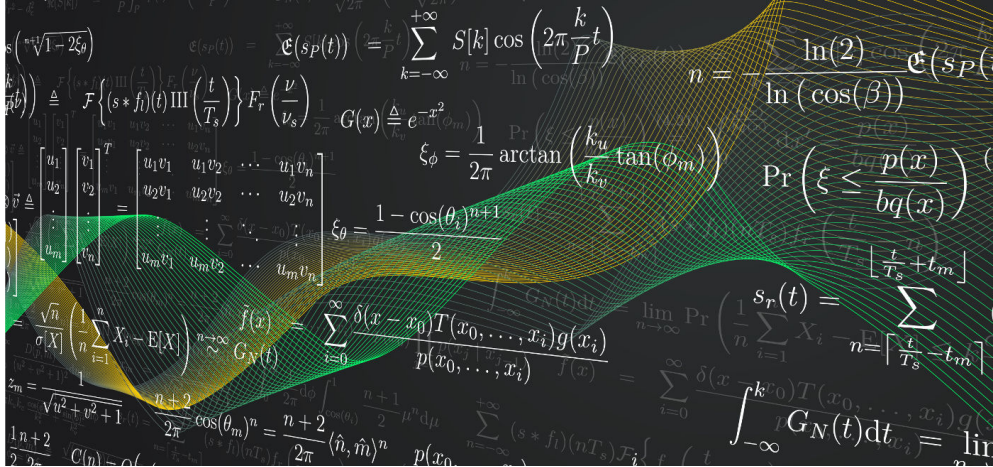

Figure 1: One of Ivan's dream.

Being a religious man, he was visited at night by Apostle [1] in a dream. He promised Ivan that his next harvest will be rich, if the farmer is able to help him out with a problem that had been bothering the poor Apostle for a long time:

"Given the number K and X (with X even) find out the sum of the first K palindromes with X digits."

Because Apostle knows that Old Man Ivan is a mere mortal, he only wants the remainder of this sum when divided by $666\,013$.

Help Ivan solve the problem!

☞ Among the attachments of this task you may find a template file `dream.*` with a sample incomplete implementation.

Input

The only line of the input contains the integers K and X.

Output

You need to write a single line with an integer: the answer to the problem posed by Apostle modulo $666\,013$.

✎ The *modulo* operation ($a \bmod m$) can be written in C/C++/Python as (`a % m`) and in Pascal as (`a mod m`). To avoid the *integer overflow* error, remember to reduce all partial results through the modulus, and not just the final result!

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[1] The Apostle in the story isn't one of the 12 Apostles, that's just his name.

Constraints

- $1 \le K \le 100\,000$.

- $1 \le X \le 100\,000$.

- It is guaranteed that there exists at least K palindromes with X digits.

- X is even.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points)   Examples.

– **Subtask 2** (15 points) $X \le 8$

– **Subtask 3** (20 points) $X \le 18$

– **Subtask 4** (35 points) $X \cdot K \le 10^5$

– **Subtask 5** (30 points)   No additional limitations.

Examples

input	output
3 4	3333

Explanation

In the **first sample case**, the first 3 palindromes with 4 digits are 1001, 1111, 1221. Their sum will be $1001 + 1111 + 1221 = 3333$.