CCO Preparation Test 2 P1 - Concatenation

Time limit: 0.6s **Memory limit:** 128M

Bruce always comes up with new challenges for his students. On Saturday's class, Bruce gives Timothy two positive integers N and M, and asks Timothy to calculate the $Concat(1, N)$ mod M, where $Concat(1, N)$ is the concatenation of all positive integers from 1 to N. For example, $Concat(1, 10) = 12\,345\,678\,910$. Timothy is so smart that he immediately realizes that it is impossible to calculate the result by hand. Can you help Timothy to write a program to solve this question?

Input Specification

The input will consist of two integers, N and M, in one line.

In 30% of the test cases, $1 \leq N \leq 1\,000\,000$.

In 100% of the test cases, $1 \leq N \leq 10^{18}$ and $1 \leq M \leq 10^9$.

Output Specification

Output one integer, the result of $Concat(1, N) \pmod{M}$.

Sample Input 1

```
13 13
```

Sample Output 1

```
4
```

Sample Input 2

```
12345678910 1000000000
```

Sample Output 2

```
345678910
```