Recursive Digit Sum

We define super digit of an integer x using the following rules:

- If x has only 1 digit, then its super digit is x.
- Otherwise, the super digit of x is equal to the super digit of the digit-sum of x. Here, digit-sum of a number is defined as the sum of its digits.

For example, super digit of 9875 will be calculated as:

```
super_digit(9875) = super_digit(9+8+7+5)
                  = super_digit(29)
                  = super_digit(2+9)
                  = super_digit(11)
                  = super_digit(1+1)
                  = super_digit(2)
                  = 2.
```

You are given two numbers n and k. You have to calculate the super digit of P.

P is created when number n is concatenated k times. That is, if $n = 123$ and $k = 3$, then $P = 123123123$.

Input Format

The first line contains two space separated integers, n and k.

Constraints

- $1 \leq n < 10^{100000}$
- $1 \leq k \leq 10^5$

Output Format

Output the super digit of P, where P is created as described above.

Sample Input 0

```
148 3
```

Sample Output 0

```
3
```

Explanation 0

Here $n = 148$ and $k = 3$, so $P = 148148148$.

```
super_digit(P) = super_digit(148148148)
               = super_digit(1+4+8+1+4+8+1+4+8)
               = super_digit(39)
               = super_digit(3+9)
               = super_digit(12)
               = super_digit(1+2)
               = super_digit(3)
               = 3.
```