Super Digit

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

- Iff *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 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

Input will contain two space separated integers, *n and k*.

Output Format

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

Constraint

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

Sample Input

```
148 3
```

Sample Output

```
3
```

Explanation

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.
```

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