

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.
```