

## 7703 Reading Digits

Bob has a very special way of encoding strings formed with digits. For instance, he encodes “1211” as: “one of one, one of two, two of one”, or, more precisely: “111221”. Bob’s encoding of the latter string is: “312211”. We call this a “*two-times re-encoding of 1211*”. Bob likes repeating this process several times.

You are given a string of digits which represents the “*k*-th *re-encoding of a string s*”. The string *s* contains only non-zero digits (i.e. [1..9]). Also, it is not possible to have a sequence of more than 9 repeating digits in *s*. You must find the digit which lays on the *pos* position (starting from 0) of the string *s*.

### Input

The input file contains several test cases, each of them as described below.

The input consists of two lines. The first line contains the values *k* and *pos*. The second line contains the *k*-th *re-encoding of s*. We have  $1 < k < 40$  and  $0 \leq pos \leq 100000$ .

### Output

For each test case, the output is the digit from position *pos* of *s*, on a line by itself.

### Sample Input

```
2 0
312211
2 1
312211
1 3
312211
3 0
1321123113
3 1
1321123113
3 2
1321123113
```

### Sample Output

```
1
2
2
1
2
3
```