

# PW - H // Math Depression ... again!

$2^7 = 128$  is the first power of two whose leading digits are "12." The next power of two whose leading digits are "12" is  $2^{80}$ .

Define  $p(L, n)$  to be the  $n$ th-smallest value of  $j$  such that the base 10 representation of  $2^j$  begins with the digits of  $L$ . So  $p(12, 1) = 7$  and  $p(12, 2) = 80$ .

## Input Format

Two space-separated integers,  $L$  and  $n$ , such that  $1 \leq L < 1000$  and  $1 \leq n < 1000$ .

## Output Format

Output  $p(L, n)$ .

## Sample Input 1:

```
123 1
```

## Sample Output 1:

```
90
```

## Sample Input 2:

```
123 3
```

## Sample Output 2:

```
575
```