

DMOPC '15 Contest 5 P3 - All Your Base

Time limit: 1.0s **Memory limit:** 64M

Okabe likes writing notes for himself. Since he writes about strange things and does not want others to think he is weird, he encodes all his messages in his own super-secret format. Unfortunately for Okabe, you — being an amazing cryptanalyst — have figured out his scheme.

First, he maps a character to an integer D , and then converts it into another integer E by changing its base. He creates a random list A of N integers, where A_{i-1} is stored in base A_i , and E is stored in base A_0 . That is,

$$D = E_{A_0 A_1 \dots A_{N-1}}$$

You've gotten your hands on some of Okabe's notes, and would like to decrypt some E values, given A . Can you do it?

Reminder

The notation for representing a number X in base Y is X_Y .

Input Specification

The first line of input will contain the integers E and N ($1 \leq N \leq 10$).

The next and final line of input will contain N space-separated integers making up A , with the i -th integer representing A_i ($1 \leq A_{i-1} \leq 10$). A_{N-1} is always given in base 10, and it is guaranteed that E can be converted (for every digit d in A_{i-1} , $d < A_i$ unless $A_i = 1$, when $d = 1$).

Output Specification

A single integer, D ($0 \leq D \leq 10^9$).

Sample Input 1

```
5 3
10 10 10
```

Sample Output 1

```
5
```

Sample Input 2

5000₄
7 1001 10 2

Sample Output 2

1715

Explanation

Working your way up from A_{N-1} ,

$$5000_{7^{1001}_{10_2}} = 5000_{7^{1001}_2} = 5000_{7_9} = 5000_7 = 1715$$

Step-by-step,

$$10_2 = 2.$$

$$1001_2 = 9.$$

$$7_9 = 7.$$

$$5000_7 = 1715.$$