COCI '13 Contest 6 #5 Hash

Time limit: 1.0s **Memory limit:** 256M

Little Mirko is studying the *hash* function which associates numerical values to words. The function is defined recursively in the following way:

- $f(\textbf{empty word}) = 0$
- $f(\textbf{word} + \textbf{letter}) = ((f(\textbf{word}) \times 33) \oplus ord(\textbf{letter})) \ \% \ MOD$

The function is defined for words that consist of only lowercase letters of the English alphabet. $\oplus$ stands for the bitwise XOR operator (**e.g.** $0110 \oplus 1010 = 1100$), $ord(\textbf{letter})$ stands for the ordinal number of the letter in the alphabet ($ord($ `a` $) = 1$, $ord($ `z` $) = 26$) and $A \ \% \ B$ stands for the remainder of the number A when performing integer division with the number B. MOD will be an integer of the form 2^M.

Some values of the hash function when $M = 10$:

- $f($ `a` $) = 1$
- $f($ `aa` $) = 32$
- $f($ `kit` $) = 438$

Mirko wants to find out how many words of length N there are with the hash value K. Write a programme to help him calculate this number.

Input Specification

The first line of input contains three integers N, K and M ($1 \leq N \leq 10, 0 \leq K < 2^M, 6 \leq M \leq 25$).

Output Specification

The first and only line of output must consist of the required number from the task.

Scoring

In test cases worth 30% of total points, N will not exceed 5.

Additionally, in test cases worth 60% of total points, M will not exceed 15.

Sample Input 1

```
1 0 10
```

Sample Output 1

```
0
```

Explanation for Sample Output 1

None of the characters in the alphabet has an ord value 0.

Sample Input 2

```
1 2 10
```

Sample Output 2

```
1
```

Explanation for Sample Output 2

It is the word `b`.

Sample Input 3

```
3 16 10
```

Sample Output 3

```
4
```

Explanation for Sample Output 3

Those are the words `dxl`, `hph`, `lxd` and `xpx`.