Project Euler #158: Exploring strings

This problem is a programming version of Problem 158 from projecteuler.net

Taking three different letters from the 26 letters of the alphabet, character strings of length three can be formed.

Examples are `abc`, `hat` and `zyx`.

When we study these three examples we see that for `abc` two characters come lexicographically after its neighbour to the left.

For `hat` there is exactly one character that comes lexicographically after its neighbour to the left. For `zyx` there are zero characters that come lexicographically after its neighbour to the left.

In all there are 10400 strings of length 3 for which exactly one character comes lexicographically after its neighbour to the left.

We now consider strings of $n \leqslant N$ different characters from some foreign alphabet consisting of N characters. For every n, $p(n, m)$ is the number of strings of length n for which exactly m characters come lexicographically after their neighbour to the left.

For $m \in [0, N-1]$ what is the maximum value of $p(n, m)$?

Input Format

The first line of each test contains two integers: N and q which is the size of alphabet and the number of queries.
On the next line there are q different numbers separated by single spaces given by m_i.

Constraints

$2 \leqslant N \leqslant 700$
$1 \leqslant q \leqslant N$
$0 \leqslant m_i < N$

Output Format

Output one number i.e. $\sum_{i=0}^{q-1} \max_{n \in [1,N]} p(n, m_i)$.

Sample Input

```
2 2
0 1
```

Sample Output

```
3
```

Explanation

Let's assume our alphabet contains only letters 'A' and 'B'. Then we have the following values for p:

$p(1, 0) = 2$ (both words "A" and "B")
$p(2, 0) = 1$ (word "BA")

$p(2,1) = 1$ (word "AB")

We now see that the maximum for $m = 0$ is 2 and the maximum for $m = 1$ is 1.