## Problem 5 – Bit Sifting

In this problem we'll be sifting bits through sieves (sift = пресявам, sieve = сито).

You will be given an integer, representing the **bits to sieve**, and several more numbers, representing the **sieves the bits will fall through**. Your task is to follow the bits as they fall down, and determine what comes out of the other end.

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| ExampleFor this example, imagine we are working with 8-bit integers (the actual problem uses 64-bit ones). Let the initial bits be given as 165 (10100101 in binary), and the sieves be 138 (10001010), 84 (01010100) and 154 (10011010). The 1 bits from the initial number fall through the 0 bits of the sieves and stop if they reach a 1 bit; if they make it to the end, they become a part of the final number.In this case, the final number is 33 (00100001), which has two 1 bits in its binary form – the answer is 1. | 10100101↓ ↓ ↓ ↓10001010↓ ↓ ↓01010100↓ ↓10011010↓ ↓ 00100001 |

### Input

The input data should be read from the console.

* On the first line of input, you will read an integer representing the bits to sieve.
* On the second line of input, you will read an integer N representing the number of sieves.
* On the next N lines of input, you will read N integers representing the sieves.

The input data will always be valid and in the format described. There is no need to check it.

### Output

The output must be printed on the console.

On the single line of the output you must print **the count of "1" bits** in the final result.

### Constraints

* All numbers in the input will be between 0 and 18,446,744,073,709,551,615.
* The count of sieves N is in range [0…100].
* Allowed work time for your program: 0.25 seconds.
* Allowed memory: 16 MB.

### Examples

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| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 584938644408189469  3  1817781288526917737  8601652436058397548  51827709899390606 | 4 | 918045605434484408  0 | 35 | 5019588773529942006  1  5295337384025297044 | 17 |