Problem 5 – Find Bits

You are given a list of **N** numbers and a number **S**.

Count the occurrences of the most right **5 bits** of S in the most right **29 bits** in **every given number**.

For example there are 3 occurrences of the 5 most right bits of 9 in the number 9369.

The 5 most right bits of 9 are `01001` and the 29 most right bits in the number 9369 are `00000000000000010010010011001`.

The occurrences are:
- `00000000000000`**`01001`**`0010011001`
- `0000000000000010`**`01001`**`0011001`
- `00000000000000100100`**`01001`**`1001`

It is allowed for one occurrence to be part of another one (like in the example above).

Input

The input data should be read from the console.

On the first line there will be the number **S**.

On the second line there will be the number **N**.

On each of the next **N** lines there will be a number from the list.

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

Output

The output data should be printed on the console.

On the only output line print the number of occurrences found.

Constraints

- **N** will be an integer between 1 and 100, inclusive.
- **S** will be an integer between 0 and 31, inclusive.
- All numbers will be integers between 0 and 536870911, inclusive.
- Allowed working time for your program: 0.1 seconds. Allowed memory: 16 MB.

Examples

Example input	Example output	Explanation

9
1
9369
	3	The 5 bits of S are `01001`
		There are **3** occurrences in the number:
		`00000000000000`**`01001`**`0010011001`
		`0000000000000010`**`01001`**`0011001`
		`00000000000000100100`**`01001`**`1001`

4 3 4 268437804 268435456	3	The bits of S are `00100` There is **1** occurrence in the first number: `000000000000000000000000`**`00100`** There are **2** occurrences in the second number: `1000000000000000`**`00100`**`100101100`

		10000000000000000**00100**101100
		There are no occurrences in the third number.
		10000000000000000000000000000000