# CodeWars Qualifier A

## QUESTION #1:

## Black and White Cells

We have an N×N square grid.

We will paint each square in the grid either black or white.

If we paint exactly A squares white, how many squares will be painted black?

### Constraints

- 1 ≤ N ≤ 100
- 0 ≤ A ≤ N^2

### Inputs

Input is given from Standard Input in the following format:

N

A

### Outputs

Print the number of squares that will be painted black.

### Input

3

4

### Output

5

There are nine squares in a 3×3 square grid. Four of them will be painted white, so the remaining five squares will be painted black.

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## QUESTION #2:

## Lucas Number

You are given an integer N. Find the N-th Lucas number.
Here, the i-th Lucas number Li is defined as follows:

- $L_0=2$
- $L_1=1$
- $Li=Li-1+Li-2(i\geq 2)$

### Constraints

- $1 \leq N \leq 86$
- It is guaranteed that the answer is less than $10^{18}$.
- N is an integer.

### Input

Input is given from Standard Input in the following format:

N

### Output

Print the N-th Lucas number.

### Input

5

### Output

11

- L0=2
- L1=1
- L2=L0+L1=3
- L3=L1+L2=4
- $L_4=L_2+L_3=7$
- L5=L3+L4=11

Thus, the 5-th Lucas number is 11.

**Note:** no extra line space (input/output)

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## QUESTION #3:

# YOUNG PHYSICIST

A guy named Vasya attends the final grade of a high school. One day Vasya decided to watch a match of his favorite hockey team. And, as the boy loves hockey very much, even more than physics, he forgot to do the homework. Specifically, he forgot to complete his physics tasks. Next day the teacher got very angry at Vasya and decided to teach him a lesson. He gave the lazy student a seemingly easy task: You are given an idle body in space and the forces that affect it. The body can be considered as a material point with coordinates (0; 0; 0). Vasya had only to answer whether it is in equilibrium. "Piece of cake" — thought Vasya, we need only to check if the sum of all vectors is equal to 0. So, Vasya began to solve the problem. But later it turned out that there can be lots and lots of these forces, and Vasya can not cope without your help. Help him. Write a program that determines whether a body is idle or is moving by the given vectors of forces.

### Input

The first line contains a positive integer $n$ ($1 \le n \le 100$), then follow $n$ lines containing three integers each: the $x_i$ coordinate, the $y_i$coordinate and the $z_i$ coordinate of the force vector, applied to the body ( $-100 \le x_i, y_i, z_i \le 100$).

### Output

Print the word "YES" if the body is in equilibrium, or the word "NO" if it is not.

### Input

3

4 1 7

-2 4 -1

1 -5 -3

### Output

NO

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## QUESTION #4:

# LUCKY FOUR

Kostya likes the number 4 much. Of course! This number has such a lot of properties, like:

- Four is the smallest composite number;
- It is also the smallest Smith number;
- The smallest non-cyclic group has four elements;
- Four is the maximal degree of the equation that can be solved in radicals;
- Four is the maximum number of dimensions of a real division algebra;
- And there are a lot more cool stuff about this number!

Impressed by the power of this number, Kostya has begun to look for occurrences of four anywhere. He has a list of T integers, for each of them he wants to calculate the number of occurrences of the digit 4 in the decimal representation. He is too busy now, so please help him.

### Input

The first line of input consists of a single integer **T**, denoting the number of integers in Kostya's list.

Then, there are **T** lines, each of them contain a single integer from the list.

### Output

Output **T** lines. Each of these lines should contain the number of occurrences of the digit **4** in the respective integer from Kostya's list.

### Constraints

- **$1 \le T \le 10^5$**
- (Subtask 1): **0** ≤ Numbers from the list ≤ **9** - 33 points.
- (Subtask 2): **0** ≤ Numbers from the list ≤ **$10^9$** - 67 points.

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## Example

**Input:**

5

447474

228

6664

40

81

**Output:**

4

0

1

1

0

**Note:** No extra line gap between input or output

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## QUESTION # 5:

# Simple Array Sum

Given an array of integers, find the sum of its elements.

For example, if the array arr = [1, 2, 3], the sum will be 1+2+3 = 6. So, you should return 6.

### Input

The first contains an integer, **n**, denoting the size of the array.
The second line contains n space-separated integers representing the array's elements.

### Output

Simply, print the sum of the array's elements as a single integer only.

Note: Do not print anything during taking (i.e: Enter array size) Just simply take input and write output (as a single integer representing the sum of array's elements).

### Constraints

1 ≤ **N** ≤ 1000.

### Input

6
1 2 3 4 10 11

### Output

31