Lab: Arrays and Matrices

1. Sum First Last

Write a function that calculates and prints the sum of the first and the last elements in an array.

The **input** comes **as array of string elements** holding numbers.

The **output** is the return value of your function.

Example

Input	Output
['20', '30', '40']	60

Input	Output
['5', '10']	15

What to submit?

Function Signature: function main(strings)

2. Even Position Element

Write a function that finds the elements at even positions in an array.

The **input** comes as an **array of string** elements.

The **output** is the return value of your function. Collect all elements in a string separated by a space.

Examples

Input	Output
['20', '30', '40']	20 40

Input	Output
['5', '10']	5

What to submit?

Function Signature: function main(strings)

3. Negative / Positive Numbers

Write a JS function that checks each element of a given array to produce a new array result. **Prepend** each **negative** element and **append** each **positive** or **0** element.

The **input** comes as an **array of number elements**.

The **output** is the elements (separated by a newline) of the resulting array printed in the console.

Example

Input	Output
[7, -2, 8, 9]	-2 7 8 9

Input	Output
[3, -2, 0, -1]	-1 -2 3 0

What to submit?

Function Signature: function main(elements)

4. Last K Numbers Sequence

You are given two integers **n** and **k**. Write a JS function that generates and prints the following sequence:

- The first element is 1
- Every following element equals the **sum** of the previous **k** elements
- The length of the sequence is **n** elements

The **input** comes as **two number arguments**. The first element represents the number **n**, and the second – the number **k**.

The **output** is printed on the console on a single line, separated by space.

Example

Input	Output
6, 3	1 1 2 4 7 13

Input	Output
8, 2	1 1 2 3 5 8 13 21

Explanation

The 2nd element (1) is the sum of the 3 elements before it, but there is only 1, so we take that. The third element is the sum of the first 2 (1 and 1) and the 4th – the sum of 1, 1 and 2. The 5th element is the sum of the 2nd, 3rd and 4th (1, 2 and 4) and so on.

What to submit?

Function Signature: function main(n, k)

5. Process Odd Numbers

You are given an array of numbers. Write a JS function that takes each element located in an odd position of the given array, doubles the value of each of those elements, and prints them in reverse order.

The **input** comes as an **array of number elements**.

The **output** is printed on the console on a single line, separated by space.

Example

Input	Output
[10, 15, 20, 25]	50 30

Input	Output
[3, 0, 10, 4, 7, 3]	6 8 0

What to submit?

Function Signature: function main(numbers)

6. Smallest Two Numbers

Write a function that prints the two smallest elements from an array of numbers.

The **input** comes as an **array of number elements**.

The **output** is printed on the console on a single line, separated by space.

Example

Input	Output
`[30, 15, 50, 5]`	`5 15`

Input	Output
`[3, 0, 10, 4, 7, 3]`	`0 3`

What to submit?

Function Signature: function main(numbers)

7. Biggest Element

Write a function that finds the biggest element inside a matrix.

The **input** comes as an **array of arrays**, containing number elements (2D matrix of numbers).

The **output** is the return value of your function. Find the biggest element and return it.

Examples

Input	Output
`[[20, 50, 10],` `[8, 33, 145]]`	`145`

Input	Output

`[[3, 5, 7, 12],`
`[-1, 4, 33, 2],`
`[8, 3, 0, 4]]`
	`33`

What to submit?

Function Signature: function main(input)

8. Diagonal Sums

A square matrix of numbers. Write a function that finds the sum at the main and at the secondary diagonals.

The **input** comes as an **array of arrays**, containing number elements (2D matrix of numbers).

The **output** is printed on the console on a single line separated by space. First print the sum at the main diagonal, then the sum at the secondary diagonal.

Example

Input	Output
`[[20, 40],` `[10, 60]]`	`80 50`

Input	Output

`[[3, 5, 17],`
`[-1, 7, 14],`
`[1, -8, 89]]`
	`99 25`

What to submit?

Function Signature: function main(input)

9. Equal Neighbors

Write a function that counts the total number of equal value pairs found inside a matrix. Compare two arrays that are next to each other and if two strings have the same position and value, count them as a pair.

The **input** comes as **array of arrays**, containing string elements (2D matrix of strings).

The **output** is return value of your function. Count the number of pairs the function finds and return it.

Example

Input	Output
[['2', '3', '4', '7', '0'], ['4', '0', '5', '3', '4'], ['2', '3', '5', '4', '2'], ['9', '8', '7', '5', '4']]	1

Input	Output
[['test', 'yes', 'yo', 'ho'], ['well', 'done', 'yo', '6'], ['not', 'done', 'yet', '5']]	2

What to submit?

Function Signature: function main(input)