Lab: Arrays Advanced

Problems for exercise and homework for the "JS Fundamentals" Course @ SoftUni.

Submit your solutions in the SoftUni judge system at: https://judge.softuni.bg/Contests/1254

1. Sum First and 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.

Examples

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

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

2. Negative or Positive Numbers

Write a function that processes the elements in an **array** one by one and produces a **new** array. **Prepend** each **negative** element at the front of the result and **append** each **positive** (or **0**) element at the end of the result.

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

The **output** is printed on the console, each element on a new line.

Examples

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

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

Hints

- Use **unshift()** to add an element at the **first** position
- Use **push()** to add an element at the **last** position

3. First and Last K Numbers

Write a function that prints the first **k** and the last **k** elements from an **array of numbers**.

The **input** comes as **array of number** elements. The first element represents the number **k**, all other elements are from the array that needs to be processed.

The **output** is printed on the console on two lines. On the first line print the **first k** elements, separated by space. On the second line print the **last k** elements, separated by space.

Examples

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

Input	Output
[3, 6, 7, 8, 9]	6 7 8 7 8 9

Hints

- Use `slice()` to split the array into two parts

4. Last K Numbers Sequence

You are given two integers **n** and **k**. Write a 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.

Examples

Input	Output
6, 3	1 1 2 4 7 13

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

Hints

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.

5. Process Odd Numbers

You are given an **array of numbers**. Write a function that prints the elements at **odd positions** from the array, **doubled** and in **reverse** order.

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

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

Examples

Input	Output		Input	Output

`[10, 15, 20, 25]`	50 30	`[3, 0, 10, 4, 7, 3]`	6 8 0

Hints

- Counting in arrays starts from 0
- For example –we receive 10, 15, 20, 25
- The elements at odd positions are 15 (index 1) and 25 (index 3)
- We need to take these two elements and multiply them * 2
- Finally, we print them on the console in reversed order

6. Smallest Two Numbers

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

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

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

Examples

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

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

Hints

- You can use the following function to sort the numbers in the array:

```
let sortedInAscending = input.sort((a, b) => {
    return a - b;
});
```

- Afterwards the **first two** elements in the array are the **smallest**
- You can use `slice()` to take the first two numbers

7. List of Products

You will receive an **array of products**. Print a **numbered array** of all the products **ordered by name**.

Example

Input	Output
`["Potatoes", "Tomatoes", "Onions", "Apples"]`	1.Apples 2.Onions 3.Potatoes 4.Tomatoes

Hints

- The **sort function** rearranges the array in ascending order

```
let sorted = input.sort();
```

- Finally, we have to **print our sorted** array. To do that we **loop through the array**

```
for (let i = 0; i < sorted.length; i++) {
    console.log(`${i + 1}.${sorted[i]}`);
}
```

- We use **i + 1**, because we want to **start counting from 1**

8. Array Manipulations

Write a function that manipulates an **array of numbers**.

- **Add {number}:** add a number to the **end** of the array
- **Remove {number}:** remove number from the array
- **RemoveAt {index}:** removes number at a **given index**
- **Insert {number} {index}:** inserts a number at a **given index**

Note: All the indices will be valid!

Print the final state of the array (**separated by single space**).

The **input** comes as **array of strings**. First element will be a string containing the **array to manipulate**. Every other **command** you receive will also be a string.

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

Example

Input	Output
['4 19 2 53 6 43', 'Add 3', 'Remove 2', 'RemoveAt 1', 'Insert 8 3']	4 53 6 8 43 3

Hints

First we receive the whole input:

```
function solve(commands)
```

- After that we take the **first** element from the commands and **convert** it to an **array of numbers**:

```
let arr = commands
    .shift()
    .split(' ')
    .map(Number);
```

- Then we loop through the commands array and obtain **each element** from the command and cast both numbers. This event is called destructuring:

```
for (let i = 0; i < array.length; i++) {
    let [command, firstNum, secondNum]
        = commands[i].split(' ');

    firstNum = Number(firstNum);
    secondNum = Number(secondNum);
```

- We check if the command is equal to one of the given: "**Add**", "**Remove**", etc.

```
switch (command) {
    case "Add":
        break;
    case "Remove":
        break;
    case "RemoveAt":
        break;
    case "Insert":
        break;
}
```

- To add element at the end, use **push()**

```
function add(el){
    arr.push(el);
}
```

- To remove **all occurrences** of a particular element from the array, you can use **filter()**

```
function remove(num) {
    arr = arr.filter(el => el !== num);
}
```

- To remove or insert at an index, you can use **splice()**

```
function removeAt(index) {
    arr.splice(index, 1);
}

function insert(num, index) {
    arr.splice(index, 0, num);
}
```

Note: Removing elements with **splice()** receives two parameters:

- Start Index
- Count of elements you want to remove

Note: Inserting elements with **splice()** receives three parameters:

- Start Index
- Count of elements to remove – if none enter 0
- Elements to insert at that position