

JS Syntax Fundamentals – Lab

Problems with exercise and homework for the ["JS Front-End" Course @ SoftUni](#).

1. Multiply the Number by 2

Write a function that receives a **number** and **prints** as result that **number multiplied by two**.

Examples

| Input | Output |
|-------|--------|
| 2 | 4 |
| 5 | 10 |
| 20 | 40 |

Hints

Create a function called **solve** (or some other name). As parameters, it will receive a number **num**.

```
function solve (num) {  
  
}
```

Print the result inside the function.

```
function solve (num) {  
    console.log(num * 2);  
}
```

If you want to test your code locally, you need to call the function.

```
function solve (num) {  
    console.log(num * 2);  
}  
solve(2);
```

2. Student Information

You will be given **3 parameters** – student name (**string**), age (**number**), and average grade (**number**). Your task is to **print** all the info about the student in the following format:

``Name: {student name}, Age: {student age}, Grade: {student grade}``

Note: The grade should be formatted to the **second decimal** point.

Examples

| Input | Output |
|---------------------|----------------------------------|
| 'John', 15, 5.54678 | Name: John, Age: 15, Grade: 5.55 |

| | |
|---------------------|-----------------------------------|
| 'Steve', 16, 2.1426 | Name: Steve, Age: 16, Grade: 2.14 |
| 'Marry', 12, 6.00 | Name: Marry, Age: 12, Grade: 6.00 |

Hint

Use **toFixed()** method to format the grade.

1. First, receive the input:

```
function solve(name,age,grade) {  
  
}
```

2. Print the output:

```
console.log(`Name: ${name}, Age: ${age}, Grade: ${grade.toFixed(2)}`)
```

3. Excellent Grade

Write a function that receives a single **number** and checks if the grade is **excellent** or **not**.

If it is, print **"Excellent"**, otherwise print **"Not excellent"**.

Examples

| Input | Output |
|-------|---------------|
| 5.50 | Excellent |
| 4.35 | Not excellent |

Hints

Check if the number given is greater or equal to 5.50 and print the corresponding result.

```
function solve(grade) {  
    if(grade>=5.50){  
        console.log("Excellent");  
    }else{  
        //TODO  
    }  
}
```

4. Month Printer

Write a program, that takes an **integer** as a parameter and **prints** the corresponding **month**. If the number is **more than 12** or **less than 1** print **"Error!"**

Input

You will receive a **single number**.

Output

If the number is within the boundaries **print** the corresponding month, otherwise print **"Error!"**

Examples

| Input | Output |
|-------|----------|
| 2 | February |

| Input | Output |
|-------|--------|
| 13 | Error! |

5. Math Operations

Write a JS function that takes **two numbers** and a **string** as input.

The **string** may be one of the following: '+', '-', '*', '/', '%', '**'.

Print on the console the result of the mathematical **operation** between **both numbers** and the **operator** you receive as a string.

The **input** comes as **two numbers** and a **string argument** passed to your function.

The **output** should be printed on the console.

Examples

| Input | Output |
|-------------|--------|
| 5, 6, '+' | 11 |
| 3, 5.5, '*' | 16.5 |

Hints

- Write a function that receives **three** arguments:

```
function solve(num1, num2, operator) {  
  
}  
  
solve(5, 6, '+');
```

- Declare a variable named **result** that will keep your mathematical result.
- Write down the **switch** command that will take the string from your input and depending on it, perform the mathematical logic between the two numbers.

```
function solve(num1, num2, operator) {  
  
    let result;  
    switch (operator) {  
        case '+': result = num1+num2; break;  
        case '-': result = num1-num2; break;  
        case '/': result = num1/num2; break;  
        case '*': result = num1*num2; break;  
        case '%': result = num1%num2; break;  
        case '**': result = num1**num2; break;  
    }  
    console.log(result);  
}
```

- Print the result on the console.

```
console.log(result);
```

6. Largest Number

Write a function that takes **three number arguments** as input and finds the **largest** of them. **Print** the following text on the console: ``The largest number is {number}.``.

The **input** comes as **three number arguments** passed to your function.

The **output** should be printed to the console.

Example

| Input | Output |
|---------------|---------------------------|
| 5, -3, 16 | The largest number is 16. |
| -3, -5, -22.5 | The largest number is -3. |

Hints

- Write a function that receives three number arguments.
- Declare a variable named **result** that will keep the result.

```
function solve(num1, num2, num3) {  
    let result;  
}
```

- Make several checks to find out the largest of the three numbers. Start with num1.

```
if (num1 > num2 && num1 > num3) {  
    result = num1;  
}
```

- Do the same for the others.

```
else if (num2 > num1 && num2 > num3) {  
    result = num2;  
}  
else if (num3 > num1 && num3 > num2) {  
    result = num3;  
}
```

- Print the result on the console.

```
console.log(`The largest number is ${result}.`)
```

7. Theatre Promotions

A theatre is **doing a ticket sale**, but they need a program **to** calculate the price of a **single** ticket. If the given age does **not** fit one of the categories, you should print **"Error!"**. You can see the prices in the table below:

| Day / Age | 0 <= age <= 18 | 18 < age <= 64 | 64 < age <= 122 |
|-----------|----------------|----------------|-----------------|
| Weekday | 12\$ | 18\$ | 12\$ |
| Weekend | 15\$ | 20\$ | 15\$ |
| Holiday | 5\$ | 12\$ | 10\$ |

Input

The input comes in **two parameters**. The **first** one will be the **type of day (string)**. The **second** – is the **age** of the person (number).

Output

Print the price of the ticket according to the table, or **"Error!"** if the age is not in the table.

Constraints

- The age will be in the interval **[-1000...1000]**.
- The type of day will **always be valid**.

Examples

| Input | Output | Input | Output | Input | Output |
|------------------|--------|----------------|--------|---------------|--------|
| 'Weekday', 42 | 18\$ | 'Holiday', -12 | Error! | 'Holiday', 15 | 5\$ |

8. Circle Area

Write a function that takes a **single argument** as input. **Check the type** of input argument. If it is a **number**, assume it is the radius of a circle and **calculate the circle area**. Print the **area rounded to two decimal places**.

If the argument type is **NOT** a number, **print** the following text on the console:

``We can not calculate the circle area, because we receive a {type of argument}``

The **input** comes as a **single argument** passed to your function.

The **output** should be printed on the console.

Example

| Input | Output |
|--------|--|
| 5 | 78.54 |
| 'name' | We can not calculate the circle area, because we receive a string. |

Hints

- Write a function that receives a single argument.
- Declare a variable named **result** that will keep your result.

```
function solve(input) {  
    let result;  
}  
solve(5);  
solve('name');
```

- Check the type of the input argument with the **typeof** operator.

```
let inputType = typeof(input);
```

- If the type is equal to 'number', calculate the circle area and print it on the console rounded to two decimal places. To do this, use the method **toFixed()**.

The **Math.pow()** function returns the base to the exponent power, that is, the base exponent. You can find more information about the area [here](#):

```
if (inputType === 'number') {  
    result = Math.pow(input, 2) * Math.PI;  
    console.log(result.toFixed(2));  
}
```

- If the type is **NOT** a 'number', print the following text on the console:

```
else {  
    console.log(`We can not calculate the circle area,  
    because we receive a ${inputType}.`)  
}
```

9. Numbers from 1 to 5

Write a function that **prints** all the **numbers** from **1 to 5** (inclusive) each on a separate line.

Hints

Create a for loop starting from 1 and continuing until 5 and print the number.

```
function solve() {  
    for(let i=1; i<=5; i++){  
        //TODO  
    }  
}  
solve();
```

10. Numbers from M to N

Write a function that receives a number **M** and a number **N** (M will always be bigger than N). **Print** all numbers from **M to N**.

Examples

| Input | Output |
|-------|-----------------------|
| 6, 2 | 6 5 4 3 2 |
| 4, 1 | 4 |

| | |
|--|---|
| | 3 |
| | 2 |
| | 1 |

Hints

Use for or while loop and print the numbers.

```
function solve(m,n) {
    for(let i=m; i>=n; i--){
        console.log(i);
    }
}
solve(6,2);
```

11. Sum First and Last Array Elements

Write a function that receives an **array of numbers** and prints the sum of the **first** and **last** element in that array.

Examples

| Input | Output |
|------------------|--------|
| [20, 30, 40] | 60 |
| [10, 17, 22, 33] | 43 |
| [11, 58, 69] | 80 |

Hints

- You can access the **last element** in an array by subtracting 1 from **its length**:

```
function solve(input) {
    let first=input[0];
    let last=input[input.length-1];
    console.log(first+last);
}
```

12. Reverse an Array of Numbers

Write a program, which receives a number **n** and an **array** of elements. Your task is to **create** a new array with **n** numbers from the original array, **reverse** it and **print** its elements on a single line, space-separated.

Examples

| Input | Output |
|-------------------------|------------|
| 3, [10, 20, 30, 40, 50] | 30 20 10 |
| 4, [-1, 20, 99, 5] | 5 99 20 -1 |
| 2, [66, 43, 75, 89, 47] | 43 66 |

Hints

- Use **push()** to add elements inside the new array

```
function reverse(n,inputArr) {  
    let arr=[];  
    for(let i=0; i<n; i++){  
        //TODO  
    }  
}
```

- Use **string interpolation** for the output

```
let output="";  
for(let i=arr.length-1; i>=0; i--){  
    //TODO  
}  
  
console.log(output);
```

13. Even and Odd Subtraction

Write a program that calculates the **difference** between the sum of the **even** and the sum of the **odd** numbers in an array.

Examples

| Input | Output | Comments |
|---------------|--------|---|
| [1,2,3,4,5,6] | 3 | $2 + 4 + 6 = 12$, $1 + 3 + 5 = 9$, $12 - 9 = 3$ |
| [3,5,7,9] | -24 | |
| [2,4,6,8,10] | 30 | |

Hints

- Parse each string to number

```
function solve(arr){  
    for(let i=0; i<arr.length; i++){  
        arr[i]=Number(arr[i]);  
    }  
}
```

- Create two variables - for **even** and **odd** sum

```
let evenSum=0;  
let oddSum=0;
```

- Iterate through all elements in the array with a loop and check if the number is odd or even
- Print the difference

14. Substring

Write a function that **receives a string** and **two numbers**. The numbers will be a **starting index** and **count** of elements to substring. Print the result.

Input / Output

| Input | Output |
|-------------------|----------|
| 'ASentence', 1, 8 | Sentence |
| 'SkipWord', 4, 7 | Word |

Hints

Create a new string that takes the needed amount of elements from the given string.

```
function solve(string, startIndex, count) {  
    let result;  
    //TODO: substring  
    console.log(result);  
}
```

15. Censored Words

Write a function that **receives a text** as a first parameter and a **single word** as a second. Find **all occurrences** of that word in the text and replace them with the corresponding count of '*'.

Input / Output

| Input | Output |
|--|----------------------------------|
| 'A small sentence with some words', 'small' | A ***** sentence with some words |
| 'Find the hidden word', 'hidden' | Find the ***** word |

Hints

Save the new text in a new variable.

```
function solve(text, word) {  
  
    let censored = text.replace(word, repeat(word));  
    while (censored.includes(word))  
        censored = censored.replace(word, repeat(word));  
    //TODO: create the repeat function  
}
```

The **repeat()** function should take the length of the word and return that amount of stars '*'.

16. Count String Occurrences

Write a function that **receives a text** and a **single word that you need to search**. Print the number of all occurrences of this word in the text.

Input / Output

| Input | Output |
|--|--------|
| 'This is a word and it also is a sentence', 'is' | 2 |
| 'softuni is great place for learning new programming languages', 'softuni' | 1 |

Hints

Split the sentence into words and create a **counter** that stores how many times the searched word occurs.

```
function solve(string, searchedWord) {  
  let words = string.split(' ');  
  let counter = 0;  
  for (let word of words) {  
    //TODO: check if the word is equal to the searched one  
  }  
  console.log(counter);  
}
```