# **Lab: Data Types and Variables**

Problems for exercise and homework for the "JS Fundamentals" Course @ SoftUni. Submit your solutions in the SoftUni judge system at: <a href="https://judge.softuni.org/Contests/1242">https://judge.softuni.org/Contests/1242</a>

# 1. Echo Type

Write a JS function that takes one parameter and prints on two lines the type of the parameter and then one of the following:

- If the parameter type is either **string** or **number**, print its value
- Otherwise, print the text 'Parameter is not suitable for printing'

### **Examples**

Input	Output
'Hello, JavaScript!'	string Hello, JavaScript!
18	number 18
null	object Parameter is not suitable for printing

#### Hints

- Write a function that receives a single parameter.
- Use the console.log function to print text on the console. Each call prints a new line automatically.
- The **typeof operator** is used to determine the data type of a given value.

### 2. Concatenate Names

Write a function, which receives two names as string parameters and a delimiter. Print the names joined by the delimiter.

Input	Output
'John', 'Smith'	John->Smith
'->'	
'Jan', 'White'	Jan<->White
, '<->'	
'Linda'	Linda=>Terry
'Terry'	
'=>'	















Use string interpolation.

```
function solve(first, second, del) {
   console.log(`${first}${del}${second}`);
```

# 3. Right Place

You will receive 3 parameters (string, char, string).

The first string will be a word with a missing char replaced with an underscore '\_'.

You have to replace the missing character (underscore) of the first string with the character passed as the second parameter and **compare** the result with the second string.

If they are equals, you should print "Matched", otherwise print "Not Matched".

## **Examples**

Input	Output
'Str_ng', 'I', 'Strong'	Not Matched
'Str_ng', 'i', 'String'	Matched

#### Hints

```
function solve(str,char,result) {
    let res=str.replace('_',char);
    let output= res === result? "Matched": "Not Matched";
    console.log(output);
```

## 4. Integer and Float

You will receive 3 numbers. Your task is to find their sum and print result to the console in the following format: `{sum} - {type of the number (Integer or Float)}`

Input	Output
9, 100, 1.1	110.1 - Float
100, 200, 303	603 - Integer











```
function solve(firstNum, secondNum, thirdNum) {
    let sum = firstNum + secondNum + thirdNum;
   sum % 1 === 0 ? sum += ' - Integer' : sum += ' - Float';
    console.log(sum);
```

## 5. Amazing Numbers

Write a function, which as input will receive a number.

**Check** and print if it is **amazing** or **not** into the following format:

```
"{number} Amazing? {True or False}"
```

An amazing number includes the digit 9 the sum of its digits.

**Examples** for amazing numbers are 1233 (1 + 2 + 3 + 3 = 9), 583472 (5 + 8 + 3 + 4 + 7 + 2 = 29)

## **Examples**

Input	Output
1233	1233 Amazing? True
999	999 Amazing? False

#### Hints

Use includes()

```
function solve(num) {
    num = num.toString();
    let sum = 0;
    for (let i = 0; i < num.length; i++) {</pre>
        sum += Number(num[i]);
    let result = sum.toString().includes('9');
    console.log(result ?
        `${num} Amazing? True` :
        `${num} Amazing? False`);
```

# 6. Gramophone

Write a function, which as input will receive 3 parameters (strings)

- The first string is the name of the band
- The second string is the name of the album
- The third is holding a song name from the album

You have to find out how many times the plate will rotate the given song from the album.

















The plate makes a full rotation every **2.5** seconds.

The song duration in seconds is calculate by the given formula:

```
(albumName.length * bandName.length) * song-name.length / 2
```

As **output**, you should print the following message:

`The plate was rotated {rotations} times.`

Rotations should be rounded up.

### **Examples**

Input	Output
'Black Sabbath', 'Paranoid', 'War Pigs'	The plate was rotated 167 times.
'Rammstein', 'Sehnsucht', 'Engel'	The plate was rotated 81 times.

#### Hints

```
function solve(bandName,albumName,songName) {
    let time=(bandName.length*albumName.length)
    * songName.length/2;
    let rotations=Math.ceil(time/2.5);
    console.log(`The plate was rotated ${rotations} times.`);
```

# 7. Required reading

Write a function to help Ivan calculate how many hours a day he has to spend reading the necessary literature from the list given for the summer vacation.

As input, you will receive 3 parameters:

- Number of pages of the current book integer [1... 1000]
- Pages read in 1 hour integer [1... 1000]
- The number of days for which you must read the book integer [1... 1000]

As **output** print on the console the **number of hours**, that Ivan has to read each day.

Input	Output	Explanations
212, 20, 2	5.3	Total time to read the book: 212 pages / 20 pages per hour = 10.6 hours  Required hours per day: 10.6 hours / 2 days = 5.3 hours per day
Input	Output	
432, 15,	7.2	Total reading time of the book: <b>432 pages / 15 pages per hour = 28.8 hours</b> Required hours per day: <b>28.8 hours / 4 days = 7.2 hours</b> per day











### 8. Centuries to Minutes

Write a program that receives a **number** of **centuries** and converts it to **years**, **days**, **hours**, and **minutes**.

## **Examples**

Input	Output
1	1 centuries = 100 years = 36524 days = 876576 hours = 52594560 minutes
5	5 centuries = 500 years = 182621 days = 4382904 hours = 262974240 minutes

#### Hint

Assume that a year has 365.2422 days on average (the Tropical year).

#### Solution

You might help yourself with the code below:

```
function solve(centuries) {
    let years=centuries*100;
    let days=Math.trunc(years*365.2422);
    let hours=24*days;
    let minutes=60*hours;
    console.log(`${centuries} centuries = ${years} `+`years = ${days} `+
    `days = ${hours} `+`hours = ${minutes} minutes`);
```

# 9. Special Numbers

Write a program that receives a number n. For all numbers in the range [1...n] print the number and if it is special or not (True / False).

• A number is special when its sum of digits is 5, 7 or 11.

Input	Output
15	1 -> False
	2 -> False
	3 -> False
	4 -> False
	5 -> True
	6 -> False
	7 -> True
	8 -> False
	9 -> False
	10 -> False
	11 -> False











	12 -> False 13 -> False
	14 -> True
	15 -> False
20	1 -> False
	2 -> False
	3 -> False
	4 -> False
	5 -> True
	6 -> False
	7 -> True
	8 -> False
	9 -> False
	10 -> False
	11 -> False
	12 -> False
	13 -> False
	14 -> True
	15 -> False
	16 -> True
	17 -> False
	18 -> False
	19 -> False
	20 -> False

To calculate the sum of digits of given number num, you might repeat the following: sum the last digit (num % 10) and remove it (sum = sum / 10) until num reaches 0. Use parseInt() while dividing to get only integer numbers.

#### **Triples of Latin Letters** 10.

Write a program that receives a string of number n and print all triples of the first n small Latin letters, ordered alphabetically:

Input	Output
'3'	aaa
	aab
	aac
	aba
	abb
	abc
	aca
	acb
	acc
	baa
	bab
	bac
	bba
	bbb
	bbc
	bca
	bcb











	bcc
	caa
	cab
	cac
	cba
	cbb
	cbc
	cca
	ccb
	ссс
2	aaa
	aab
	aba
	abb
	baa
	bab
	bba
	bbb

Perform 3 nested loops from **0** to **n**. For each number **num** print its corresponding Latin letter as follows:

```
let letter=String.fromCharCode(97+num);
```

The function String.fromCharCode() gets the value in decimal and transforms it to a character from the ASCII table.











