***// Ex1***

let a = 1;

let b = 5;

let num = 2;

let arr = [];

let step = (b - a) / (num - 1);

for (let i = a; i <= b; i += step) {

arr.push(i);

}

console.log(arr);

***// Ex 2***

let arr = [1, 10, 2, 9, 2, 3, 9, 4];

let max = arr[0];

let min = max;

let diff;

let isDiffExist = false;

for (let i = 0; i < arr.length; i++) {

if (min >= arr[i]) {

min = arr[i];

}

if (max <= arr[i]) {

max = arr[i];

}

}

diff = max - min;

for (let i = 0; i < arr.length; i++) {

if (diff === arr[i]) {

isDiffExist = true;

break;

}

}

console.log(isDiffExist);

***// Ex. 3 (Gohar)***

let arr = [-60, 2, 43, -18, 5, -19, 36, 7, 56];  
let max = arr[0];  
let min = arr[0];  
let index;  
  
for (let i = 0; i < arr.length; i++) {  
 if (arr[i] >= max) {  
 max = arr[i];  
 index = i;  
 } else if (arr[i] < min) {  
 min = arr[i]  
 }  
}  
arr[index] = min;  
max = arr[0];  
  
for (let j = 0; j < arr.length; j++) {  
 if (arr[j] > max) {  
 max = arr[j];  
 index = j;  
 }  
}  
console.log(index);

***// Ex. 4 (Tigran K)***

function findLastLongestWord(arr, maxValue) {  
 let newArray = [];  
  
 for (let el of arr) {  
 if (el > maxValue) {  
 newArray.push(el);  
 }  
 }  
  
 return newArray;  
}  
  
function run\_tests() {  
 let testData = [  
 { inputArr: [10, 25, 16, -5, 30, 15, 24], maxValue: 16, expectedArr: [25, 30, 24] },  
 { inputArr: [1, 1, 2, -3, 0, 8, 4, 0], maxValue: 9, expectedArr: [] },  
 ];  
  
 for (let test of testData) {  
 let resultArr = findLastLongestWord(test.inputArr, test.maxValue);  
 if (resultArr.length > 0) {  
 console.log(resultArr);  
 } else {  
 console.log("Such values do not exist.");  
 }  
 }  
}  
run\_tests();

***// Ex. 5 (Karo)***

let password = prompt("Insert password");

let arr = ["@", "#", "$"];

let hasBigLetter = false;

let hasSmallLetter = false;

let hasNumber = false;

let hasSymbol = false;

let passLength = false;

for (let i = 0; i < password.length; i++) {

let charCode = password.charCodeAt(i);

if (charCode > 47 && charCode < 58) {

hasNumber = true;

}

if (charCode > 64 && charCode < 91) {

hasBigLetter = true;

}

if (charCode > 96 && charCode < 123) {

hasSmallLetter = true;

}

if (password.length > 6 && password.length < 16) {

passLength = true;

}

for (let k = 0; k < arr.length; k++) {

if (password[i] === arr[k]) {

hasSymbol = true;

break;

}

}

}

if (hasBigLetter && hasSmallLetter && hasNumber && passLength && hasSymbol) {

console.log("Valid");

} else {

console.log("Invalid");

}

***// Ex. 6 (Karo)***

function patternX(rows) {  
  
 let patternOfShapeX = '';  
  
 for (let i = 1, j = rows; i < rows, j > 0; i++, j--) {  
 for (let k = 0; k < i; k++) {  
 patternOfShapeX += ' ';  
 }  
 patternOfShapeX += '\*';  
  
 for (let l = 2 \* j - 2; l > 1; l--) {  
 patternOfShapeX += ' ';  
 }  
  
 if (i === rows) {  
 patternOfShapeX += '\n';  
 } else {  
 patternOfShapeX += '\*\n';  
 }  
 }  
  
 for (let m = rows - 1, n = rows; m > 0, n < 2 \* rows - 1; m--, n++) {  
 for (let k = m; k > 0; k--) {  
 patternOfShapeX += ' ';  
 }  
 patternOfShapeX += '\* ';  
  
 for (let l = 0; l < n - rows; l++) {  
 patternOfShapeX += ' ';  
 }  
 patternOfShapeX += '\*\n';  
 }  
  
 return patternOfShapeX;  
}  
console.log(patternX(5));

***// Ex. 7***

let givenString = " 46778 + !";  
let space = ' ';  
let resArray = [];  
  
let temp = '';  
  
for (let i = 0; i < givenString.length; i++) {  
  
 if (givenString[i] !== space) {  
 temp += givenString[i];  
 } else {  
 resArray.push(temp);  
 temp = '';  
 }  
}  
resArray.push(temp);  
console.log(resArray);

***// Ex. 8 (Tigran K)***

let arr = [1, 2, 3];  
  
let uniqueNumbers = [];  
let counts = [];  
  
for (let number of arr) {  
 let isFound = false;  
 for (let i = 0; i < uniqueNumbers.length; i++) {  
 if (uniqueNumbers[i] === number) {  
 isFound = true;  
 counts[i]++;  
 break;  
 }  
 }  
  
 // found new unique number  
 if (!isFound) {  
 uniqueNumbers.push(number);  
 counts.push(1);  
 }  
}  
  
for (let i = 0; i < uniqueNumbers.length; i++) {  
 let frequency = counts[i] / arr.length;  
 console.log(uniqueNumbers[i] + ": " + frequency);  
}

***// Ex. 9 (Mkrtich)***

let n = 7;  
let count = 1;  
  
let reverse = false;  
let resultArr = [];  
let resultStr = "";  
  
while (count) {  
 let lineStr = "";  
 for (let i = 1; i <= count; i++) {  
 lineStr += i;  
 }  
  
 resultArr.push(lineStr);  
  
 if (count === n) {  
 reverse = true;  
 }  
  
 reverse ? count-- : count++;  
}  
  
resultStr = resultArr.join("\n");  
  
console.log(resultStr);

***// Ex. 10 (Mkrtich S)***

let givenArray = [1, 4, "i am a string ", '456'];  
let nums = 0;  
let strings = 0;  
  
  
for (let i = 0; i < givenArray.length; i++) {  
 if (typeof givenArray[i] === 'string') {  
 strings++;  
 }  
 if (typeof givenArray[i] === 'number') {  
 nums++;  
 }  
}  
  
let output = `Numbers: ${nums}, Strings: ${strings}`;  
  
console.log(output);