```
/*1. Write a loop that makes the following pattern using console.log():
#
##
###
####
#####
######
*/
let arr = ["#", "##", "###", "####", "#####", "######"];
for (const counter of arr) {
    console.log(counter);
}

/*2. Use a loop to print the following pattern:
1 x 1 = 1
3 x 3 = 9
5 x 5 = 25
7 x 7 = 49
9 x 9 = 81
*/
let numbers = [1, 2, 3, 4, 5];
for (const num of numbers) {
    console.log(`${num} x ${num} = ${(num*num)}`);
}

/*3. Use a loop to iterate from 0 to 100 and print only odd numbers separated by
coma*/
const oddNumbers = [];
for (let i = 0; i <= 100; i++) {
    if (i%2!=0) {
        oddNumbers.push(i);
    }
}
const result = oddNumbers.join(', ');
console.log(result);

/*4. Iterate from 0 to 100 and print the sum of all numbers.
The sum of all numbers from 0 to 100 is … */
let sum = 0;
for (let i=0; i<=100; i++) {
     sum += i;
}
console.log(`The sum of all numbers from 0 to 100 is ${sum}`);

/*5. Generate an array of 5 random numbers.*/
let arra = Array();
for (let i=0; i<5; i++) {
    arra[i] = Math.round(Math.random()*100);
}
console.log(arra);


/*6. Using the following countries array…
const countries = ['Albania', 'Bolivia', 'Canada', 'Denmark', 'Ethiopia',
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  'Finland', 'Germany', 'Hungary', 'Ireland', 'Japan', 'Kenya'];
…create the following array of arrays (country name, prefix in uppercase, and
length):
[
  ['Albania', 'ALB', 7],
  ['Bolivia', 'BOL', 7],
  ['Canada', 'CAN', 6],
  ['Denmark', 'DEN', 7],
  ['Ethiopia', 'ETH', 8],
  ['Finland', 'FIN', 7],
  ['Germany', 'GER', 7],
  ['Hungary', 'HUN', 7],
  ['Ireland', 'IRE', 7],
  ['Japan', 'JAP', 5],
  ['Kenya', 'KEN', 5]
]*/
const countries = ['Albania', 'Bolivia', 'Canada', 'Denmark', 'Ethiopia',
  'Finland', 'Germany', 'Hungary', 'Ireland', 'Japan', 'Kenya'];
const newCountries = Array();
for (let country of countries) {
    newCountries.push(`[${country},  ${country.slice(0,3).toUpperCase()},
${country.length}]`);
}
console.log(newCountries.join("\n"));

/*1. Declare a function fullName that takes name, surname1 and surname2 as
parameters, and returns your full name. */
function fullName(name ='Alberto', surname1 ='Solera', surname2 = 'Gómez') {
    return `${name} ${surname1} ${surname2}`;
}
console.log(fullName());

/*2. Declare a function addNumbers that takes three parameters and returns the
sum.*/
function addNumbers(num1 = Math.round(Math.random()*11), num2 =
Math.round(Math.random()*11), num3 = Math.round(Math.random()*11)) {
    let sum = num1+num2+num3;
    return sum;
}
console.log(addNumbers());

/*3. Circumference of a circle is calculated as follows: circumference = 2 * π *
r. Write a
function which calculates circumOfCircle */
function circumOfCircle(radio = Math.round(Math.random()*11)) {
    return (radio*Math.PI*2);
}
console.log(circumOfCircle());

/*4. Temperature in ºC can be converted to ºF using this formula: ºF = (ºC * 9 /
5) + 32.
Write a function which convert ºC to ºF. */
function convertCtoF(grade = Math.round(Math.random()*11)) {
    return ((grade*9/5)+32);
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}
console.log(convertCtoF());

/*5. Speed is calculated by dividing the total distance covered by a moving
object
divided by the total amount of time taken. Write a function which calculates a
speed
of a moving object. */
function speed (time = Math.round(Math.random()*11), distance =
Math.round(Math.random()*100)) {
    return (`${Math.round(distance/time)} km/h`);
}
console.log(speed());

/*6. Write a function called findMax2 that takes two numbers and returns the
maximum
without using the Math.max method. Then, create a function called findMax3 that
takes three numbers and, using your function findMax2, returns the maximum. */
function findMax2(num1 = Math.round(Math.random()*11), num2 =
Math.round(Math.random()*11)) {
    if (num1>=num2) {
        return num1;
    } else {
        return num2;
    }
}
console.log(findMax2());

function findMax3(num1 = Math.round(Math.random()*11), num2 =
Math.round(Math.random()*11), num3 = Math.round(Math.random()*11)) {
    const maxNum1Num2 = findMax2(num1, num2);
    return (maxNum1Num2 >= num3? maxNum1Num2:num3);
}
console.log(findMax3());

/*7. Write a function which shows time in this format: 08/01/2021 04:08 using
the Date
object. */
function todayTime() {
    const now = new Date();
    const year = now.getFullYear();
    const month = now.getMonth();
    const date = now.getDate();
    const hours = now.getHours();
    const minutes = now.getMinutes();
    return (`${date}/${month}/${year} ${hours}:${minutes}`);
}
console.log(todayTime());

/*8. Declare a function which takes a number as a parameter and it adds all the
numbers
in that range. For example, if it receives a 5, it returns 15 (it is
0+1+2+3+4+5). */
function addAllNumbers(num = Math.round(Math.random()*10)+1) {
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    let sum = 0;
    for (let i=1; i<=num; i++) {
        sum += i;
    }
    return sum;
}
console.log(addAllNumbers());

/*9. Declare a function which takes a positive integer as a parameter, and it
counts
number of evens and odds in the number.
evensAndOdds(100);
The number of odds is 50.
The number of evens is 51. */
function countOddsEvens(num = Math.round(Math.random()*100)+1) {
    let odds = 0;
    let even = 0;
    for (let n=0; n<=num;n++) {
        n%2!=0? odds++:even++;
    }
    return (`The number of odds is ${odds}.\nThe number of evens is ${even}`);
}
console.log(countOddsEvens());

/*10. Write a function which takes any number of arguments and returns the sum
of the
arguments
sum(1, 2, 3);
// -> 6
sum(1, 2, 3, 4); // -> 10 */
function sumAllNums() {
    let sum = 0;
    for (const element of arguments) {
    sum += element;
    }
    return sum;
}
console.log(sumAllNums(1, 2, 3, 4));

/*11. Write a function called average, it takes an array parameter and returns
the average
of the items. Check if all the array items are number types. If not, return a
reasonable feedback message. */
function average(...numbers7) {
    let msg = 'A parameter is not a number type';
    let numberType = false;
    let sum=0;
    for (let num of numbers7) {
        if (typeof nun === 'number' && !isNaN(num)) {
            sum+=num;
        } else {
            numberType = true;
            break;
        }
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    }
    return numberType? msg:(sum/numbers7.length);
}
console.log(average());

/*12. Write a function to check if all items are unique in the array passed as a
parameter.*/
    function allUnique(...items) {
        for (let i=0; i<=items.length; i++) {
            for (let j= i+1; j<=items.length; j++) {
                if (items[i]==items[j]) {
                    return false;
                }
            }
        }
        return true;
    }
    console.log(`Are all parameters uniques? ${allUnique()}`);

/*13. Declare a function named userIdGeneratedByUser. It doesn’t take any
parameter but
it takes two inputs using prompt(). The first input is the number of characters,
and
the second input is the number of ids which are supposed to be generated. You
must declare and use the following function called randomChar().
function randomChar() {
const chars ='ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789';
return chars.charAt(Math.floor(Math.random() * chars.length));
}
// see these examples
userIdGeneratedByUser(); // the user writes 5, and then 4.
kcsy2
SMFYb
bWmeq
2Rgxf
userIdGeneratedByUser(); // the user writes 16, and then 5.
1GCSgPLMaBAVQZ26
YD7eFwNQKNs7qXaT
ycArC5yrRupyG00S
UbGxOFI7UXSWAyKN
dIV0SSUTgAdKwStr */
function randomChar() {
    const chars
='ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789';
    return chars.charAt(Math.floor(Math.random() * chars.length));
    }
function userIdGeneratedByUser(numChar=16, numID=5) {
    let userID = [];
    for (let i=1; i<=numID; i++) {
        let charct = [];
        for (let j=1; j<=numChar; j++) {
            charct.push(randomChar());
        }
        userID.push(charct.join(''));
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    }
    return userID;
}
console.log(userIdGeneratedByUser());

/*14. Now, write a function generateColors to generate random hexadecimal
colors.
console.log(generateColors()); // #b334ef*/
function generateColors() {
    const characters = '0123456789ABCDEF';
    let color = '#';
    for (let i=0; i<6; i++) {
        color += characters.charAt(Math.floor(Math.random() *
characters.length));
    }
    return color;
}
console.log(generateColors());
```