JavaScript Moderate-Level Practice Solutions

# Introduction

* Write a script that prints all numbers from 1–100, but for multiples of 3 print 'Fizz', for multiples of 5 print 'Buzz', and for multiples of both print 'FizzBuzz'.

for (let i = 1; i <= 100; i++) {  
 if (i % 3 === 0 && i % 5 === 0) {  
 console.log("FizzBuzz");  
 } else if (i % 3 === 0) {  
 console.log("Fizz");  
 } else if (i % 5 === 0) {  
 console.log("Buzz");  
 } else {  
 console.log(i);  
 }  
}

* Create a script that asks for the user’s name (via prompt) and displays a personalized greeting in the console.

let name = prompt("Enter your name:");  
console.log("Hello, " + name + "!");

# JavaScript Variables

* Create a program that stores your full name in one variable and then prints first name and last name.

let fullName = "John Doe";  
let parts = fullName.split(" ");  
console.log("First Name:", parts[0]);  
console.log("Last Name:", parts[1]);

* Demonstrate block scoping by creating a variable inside an if block using let and try accessing it outside the block.

if (true) {  
 let blockVar = "Inside block";  
 console.log(blockVar); // works  
}  
console.log(blockVar); // ReferenceError

# Operators

* Build a simple calculator that asks for two numbers and an operator (+, -, \*, /).

let a = parseFloat(prompt("Enter first number:"));  
let b = parseFloat(prompt("Enter second number:"));  
let op = prompt("Enter operator (+,-,\*,/):");  
let result;  
switch(op) {  
 case '+': result = a + b; break;  
 case '-': result = a - b; break;  
 case '\*': result = a \* b; break;  
 case '/': result = a / b; break;  
 default: result = "Invalid operator";  
}  
console.log("Result:", result);

* Write a program that checks if a number is divisible by both 3 and 7.

let num = 21;  
if (num % 3 === 0 && num % 7 === 0) {  
 console.log(num, "is divisible by both 3 and 7");  
} else {  
 console.log(num, "is not divisible by both 3 and 7");  
}

# Conditionals

* Write a program that takes 3 numbers and prints the largest one.

let a = 10, b = 25, c = 15;  
let max = a;  
if (b > max) max = b;  
if (c > max) max = c;  
console.log("Largest:", max);

* Create a grade calculator.

let marks = 82;  
if (marks >= 90) console.log("Grade A");  
else if (marks >= 75) console.log("Grade B");  
else if (marks >= 50) console.log("Grade C");  
else console.log("Grade F");

# Loops

* Print the multiplication table of a given number (1–10).

let n = 5;  
for (let i = 1; i <= 10; i++) {  
 console.log(`${n} x ${i} = ${n \* i}`);  
}

* Write a program that finds the sum of digits of a number.

let num = 123;  
let sum = 0;  
while (num > 0) {  
 sum += num % 10;  
 num = Math.floor(num / 10);  
}  
console.log("Sum of digits:", sum);

* Create a program that prints the first 10 numbers in the Fibonacci sequence.

let a = 0, b = 1;  
console.log(a, b);  
for (let i = 2; i < 10; i++) {  
 let next = a + b;  
 console.log(next);  
 a = b;  
 b = next;  
}

# Built-in Types

* Take a string '123.45' and convert it.

let str = "123.45";  
let num = parseFloat(str);  
console.log("As number:", num);  
console.log("Rounded:", Math.round(num));  
let back = "$" + num.toString();  
console.log("Back to string:", back);

* Check whether a given value is array, object, or primitive.

let val = [1,2,3];  
if (Array.isArray(val)) console.log("Array");  
else if (val !== null && typeof val === "object") console.log("Object");  
else console.log("Primitive");

# Arrays

* Create an array of student marks and calculate the average.

let marks = [80, 90, 70, 85, 95];  
let sum = 0;  
for (let m of marks) sum += m;  
console.log("Average:", sum / marks.length);

* Write a program that removes duplicate values from an array.

let arr = [1,2,2,3,4,4,5];  
let unique = [...new Set(arr)];  
console.log(unique);

* Rotate an array by 2 positions to the right.

let arr = [1,2,3,4,5];  
let k = 2;  
let rotated = arr.slice(-k).concat(arr.slice(0, -k));  
console.log(rotated);

# Regular Expressions

* Validate if a password meets given conditions.

let password = "Abc@1234";  
let regex = /^(?=.\*[a-z])(?=.\*[A-Z])(?=.\*\d)(?=.\*[\W\_]).{8,}$/;  
console.log(regex.test(password));

* Extract all numbers from a string.

let str = "The order numbers are 123, 456, and 789.";  
let numbers = str.match(/\d+/g);  
console.log(numbers);

* Replace all vowels in a string with \*.

let sentence = "Hello World";  
let result = sentence.replace(/[aeiou]/gi, "\*");  
console.log(result);

# Creating a Function

* Write a function that returns even numbers from an array.

function getEvens(arr) {  
 return arr.filter(n => n % 2 === 0);  
}  
console.log(getEvens([1,2,3,4,5,6]));

* Create a function that reverses a string.

function reverseStr(str) {  
 return str.split("").reverse().join("");  
}  
console.log(reverseStr("hello"));

* Write a function factorial(n).

function factorial(n) {  
 let result = 1;  
 for (let i = 1; i <= n; i++) result \*= i;  
 return result;  
}  
console.log(factorial(5));

# Function Expressions

* Write a function expression to find the maximum number in an array.

let maxInArray = function(arr) {  
 return Math.max(...arr);  
};  
console.log(maxInArray([3,5,1,9,2]));

* Create a function expression that counts vowels in a string.

let countVowels = function(str) {  
 return (str.match(/[aeiou]/gi) || []).length;  
};  
console.log(countVowels("Hello World"));

* Arrow function to check if a number is prime.

let isPrime = (n) => {  
 if (n < 2) return false;  
 for (let i = 2; i <= Math.sqrt(n); i++) {  
 if (n % i === 0) return false;  
 }  
 return true;  
};  
console.log(isPrime(7));

# Function Hoisting

* Show function declaration hoisting.

hoisted(); // works  
function hoisted() {  
 console.log("I am hoisted!");  
}

* Show function expression not hoisted.

notHoisted(); // Error  
var notHoisted = function() {  
 console.log("I am not hoisted!");  
};