

## 📌 JavaScript Practice Questions – Phase 1

### 1. Variables & Data Types

1. Declare variables using `let`, `const`, and `var` and assign values of different primitive types (string, number, boolean, bigint, null, undefined, symbol). Print them using `console.log`.
  2. Create two variables, swap their values without using a third variable.
  3. Declare a `const` variable and try reassigning it. What happens?
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### 2. Strings

4. Create a string `"JavaScript"` and print its:
  - Length
  - First and last character
  - Substring `"script"` using `slice` or `substring`.
5. Concatenate two strings without using `+` operator.
6. Convert `"hello world"` into `"Hello World"` (capitalize each word).

### 3. Numbers

7. Write a program to check whether a given number is even or odd.
  8. Find the sum of digits of a number (e.g., `123 -> 6` ).
  9. Generate a random number between 1 and 100.
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### 4. Booleans & Comparisons

10. Write a program to check if a person is eligible to vote (`age >= 18`).
  11. Compare `"5"` and `5` with `==` and `===`. Print results and explain.
  12. Check if a number lies between 10 and 50 (inclusive).
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### 5. Arrays

13. Create an array of your 5 favorite movies. Print the first and last movie.
14. Add a new movie to the beginning and end of the array.
15. Remove the second element of the array.
16. Write a program to find the **maximum number** in an array without using `Math.max` .
17. Reverse an array without using `.reverse()` .

## 6. Objects

18. Create an object `student` with properties: `name`, `age`, `marks`. Print all properties.
  19. Add a new property `grade` to the object and update `marks`.
  20. Write a function that takes an object and prints all its keys and values.
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## 7. Functions

21. Write a function that takes two numbers and returns their sum.
22. Write a function to check if a string is a palindrome (e.g., `"madam"`).
23. Write a function `factorial(n)` that returns the factorial of a number.
24. Write a function that takes an array and returns a new array with all numbers doubled.
25. Write a function to count vowels in a given string.

## 1. Arithmetic Operators

1. Write a program that takes two numbers and prints their `sum`, `difference`, `product`, `quotient`, and `remainder`.
2. Calculate the `square` and `cube` of a number using the `**` operator.
3. Create a program that converts `Celsius` to `Fahrenheit` using formula:

$$F = \left(C \times \frac{9}{5}\right) + 32$$

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## 2. Assignment Operators

4. Start with `let x = 10;` and perform the following using assignment operators (`+=`, `-=`, `*=`, `/=`, `%=`).  
Print value after each operation.
5. Write a program where you increase a salary variable by 10% using `*=` operator.

### 3. Comparison Operators

6. Write a program that checks if a number is **greater than, less than, or equal to** another number.
  7. Check whether a string "apple" is greater than "banana" (lexical comparison). Explain the result.
  8. Take user age and check:
    - Is age  $\geq 13$  (teenager)?
    - Is age  $\geq 18$  (adult)?
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### 4. Equality Operators

9. Compare `5 == "5"` and `5 === "5"`. Print both results and explain.
10. Write a program to check if two arrays are **equal in length**. (Don't worry about contents yet.)

### 5. Ternary Operator

11. Write a program that checks if a number is even or odd using a ternary operator.
  12. Take a score (0–100) and print:
    - "Pass" if score  $\geq 40$
    - "Fail" otherwise  
(use ternary).
  13. Write a program that prints "adult" if age  $\geq 18$ , otherwise "minor".
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### 6. Logical Operators

14. Write a program to check if a person is eligible for a **driving license** ( $age \geq 18$  AND has a license test pass = true).
15. Check if a number is in range (10–50) using logical **AND**.
16. Write a program where you check if a user is either an "admin" OR "moderator" to grant access.

## 7. Logical Operators with Non-Booleans

17. Test the output of:

- `console.log(0 || "Hello")`
- `console.log("") || 42)`
- `console.log("JS" && " Rocks")`

Explain why.

18. Use `||` to give a default value:

js

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```
let username = "";
let displayName = username || "Guest";
console.log(displayName); // Output ?
```

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## 8. Operator Precedence

19. Predict the output of:

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```
console.log(5 + 10 * 2);
↓
console.log((5 + 10) * 2);
```

## 📌 JavaScript Operators + Control Flow Practice Questions

### ◆ 1. If-Else Statements

1. Write a program to check if a number is positive, negative, or zero.
2. Take a score (0–100) and assign grades:

- 90+ → A
- 75–89 → B
- 50–74 → C
- Below 50 → Fail

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### ◆ 2. Switch-Case Statements

3. Write a program that takes a day number (1–7) and prints the weekday name.
4. Create a calculator using `switch-case` that supports `+`, `-`, `*`, `/`, `%`.

### ◆ 3. For Loops

5. Print all even numbers from 1 to 20.
  6. Print the multiplication table of 7.
  7. Find the sum of numbers from 1 to 100 using a loop.
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### ◆ 4. While Loops

8. Print all numbers divisible by 5 between 1 and 50.
  9. Find the factorial of a number using a `while` loop.
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### ◆ 5. Do-While Loops

10. Keep asking the user to enter a number until they enter `0`.
  11. Print numbers from 1 to 5 using `do-while`.
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### ◆ 6. Infinite Loops

12. Write an infinite loop (but stop it manually using `break` when the number reaches 10).
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### ◆ 7. For-in Loops

13. Create an object `car = { brand: "Tesla", model: "X", year: 2024 }` and print all keys and values using `for-in`.
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### ◆ 8. For-of Loops

14. Print each character of the string `"JavaScript"` using `for-of`.
  15. Print all elements of an array `[10, 20, 30, 40, 50]` using `for-of`.
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### ◆ 9. Break & Continue

16. Print numbers from 1 to 10, but skip `5` using `continue`.
17. Print numbers from 1 to 10, but stop when the number reaches `7` using `break`.

◆ 10. Combined Exercises (Operators + Control Flow)

18. **Max of two numbers** → Write a function that takes two numbers and returns the larger one (use `if-else` ).
19. **FizzBuzz** → Print numbers 1–50:
  - Multiple of 3 → "Fizz"
  - Multiple of 5 → "Buzz"
  - Multiple of both → "FizzBuzz"
20. **Even and Odd Numbers** → Print whether numbers from 1–20 are even or odd (use `%` + loops).
21. Write a program that checks if a number is **prime** using loops and operators.
22. Take a number `n` and print its **reverse** (e.g., `123` → `321` ).
23. Write a program to check if a string is a **palindrome** (e.g., `"madam"` ).
24. Find the **largest number in an array** `[12, 45, 67, 23, 89, 5]` without using `Math.max` .
25. Write a program that takes a year and checks if it is a **leap year** (divisible by 4, but not by 100 unless also divisible by 400).
26. Use a ternary operator to print `"Eligible"` if age  $\geq 18$ , otherwise `"Not Eligible"` .
27. Create a grading system with **switch-case** using ranges (like A, B, C, Fail).
28. Write a program to count how many vowels are in a given string.
29. Generate 10 random numbers between 1 and 100 and print only the **even ones**.
30. Use a loop to calculate the **sum of all odd numbers** between 1 and 100.