

1. What is JavaScript and what does it do?

JavaScript is a programming language used to create interactive effects within web browsers. It enhances the functionality and behavior of web pages.

2. How do you include JavaScript in an HTML document?

JavaScript can be included in an HTML document using the `<script>` tag either inline or by linking to an external JavaScript file.

3. What are the different data types in JavaScript?

JavaScript has several data types including `'string'`, `'number'`, `'boolean'`, `'undefined'`, `'null'`, `'object'`, and `'symbol'` (added in ES6).

4. What is the difference between `'null'` and `'undefined'` in JavaScript?

- `'null'` represents the intentional absence of any object value.
- `'undefined'` represents the value of a variable that has been declared but has not yet been assigned a value.

5. How do you declare variables in JavaScript?

Variables in JavaScript can be declared using the `'var'`, `'let'`, or `'const'` keywords followed by the variable name.

6. What is the difference between `'var'`, `'let'`, and `'const'`?

- `'var'` has function scope, `'let'` has block scope, and `'const'` also has block scope but its value cannot be reassigned once initialized.

7. Explain the difference between `'=='` and `'==='` in JavaScript.

- `'=='` checks for equality after type conversion.
- `'==='` checks for equality without type conversion (strict equality).

8. What is a function in JavaScript?

A function is a block of reusable code that performs a specific task. Functions can be declared using the `function` keyword.

9. How do you define a function in JavaScript?

Functions in JavaScript can be defined using either function declarations or function expressions.

10. What is the difference between function declarations and function expressions?

- Function declarations are hoisted, meaning they can be called before they are defined.
- Function expressions are not hoisted and cannot be called before they are defined.

JavaScript Operators and Control Flow:

11. What are JavaScript operators?

JavaScript operators are symbols used to perform operations on variables and values.

12. What are the different types of operators in JavaScript?

JavaScript has various types of operators including arithmetic, assignment, comparison, logical, bitwise, and ternary operators.

13. What is the difference between `&&` and `||` operators?

- `&&` is the logical AND operator, which returns true if both operands are true.
- `||` is the logical OR operator, which returns true if at least one of the operands is true.

14. How do you use the `if...else` statement in JavaScript?

The `if...else` statement executes a block of code if a specified condition is true, and another block of code if the condition is false.

15. Explain the purpose of the `switch` statement in JavaScript.

The `switch` statement is used to perform different actions based on different conditions. It evaluates an expression, matches the expression's value to a case clause, and executes the associated statements.

16. What is a loop in JavaScript?

A loop is a programming construct that repeats a block of code until a specified condition is met.

17. How do you write a `for` loop in JavaScript?

A `for` loop consists of three optional expressions enclosed in parentheses: initialization, condition, and increment/decrement.

18. What is the purpose of the `break` statement in JavaScript?

The `break` statement is used to terminate the current loop, switch, or label statement and transfer program control to the statement following the terminated statement.

19. Explain the use of the `continue` statement in JavaScript.

The `continue` statement is used to skip the current iteration of a loop and continue with the next iteration.

20. What is the difference between `while` and `do...while` loops in JavaScript?

- `while` loop: Evaluates the condition before executing the loop statements.
- `do...while` loop: Executes the loop statements at least once and then evaluates the condition.

JavaScript Functions and Scope:

21. How do you call a function in JavaScript?

You can call a function by using its name followed by parentheses containing any required arguments.

22. What is the difference between function parameters and arguments?

- Function parameters are the names listed in the function definition.
- Arguments are the values passed to the function when it is called.

23. What is the purpose of the `return` statement in JavaScript?

The `return` statement specifies the value returned by a function. It also terminates the function's execution.

24. Explain the concept of function scope in JavaScript.

Function scope refers to the visibility of variables within a function. Variables declared within a function are local to that function and cannot be accessed outside of it.

25. What is lexical scope in JavaScript?

Lexical scope refers to the visibility of variables within nested functions. Inner functions have access to variables declared in outer functions.

26. What is closure in JavaScript?

A closure is a combination of a function and the lexical environment within which that function was declared. It allows a function to maintain access to variables from its parent scope even after the parent function has finished executing.

27. Explain the difference between global scope and local scope in JavaScript.

- Global scope: Variables declared outside of any function are in the global scope and can be accessed from anywhere in the code.
- Local scope: Variables declared inside a function are in the local scope and can only be accessed within that function.

JavaScript Arrays and Objects:

28. What is an array in JavaScript?

An array is a special type of object used to store multiple values in a single variable. Arrays can contain elements of different data types.

29. How do you create an array in JavaScript?

You can create an array by enclosing a comma-separated list of elements within square brackets.

30. How do you access elements in an array in JavaScript?

Array elements can be accessed using square brackets and the index of the element, starting from zero.

31. What is the `length` property of an array in JavaScript?

The `length` property of an array returns the number of elements in the array.

32. How do you add elements to an array in JavaScript?

You can add elements to an array using various methods such as `push()`, `unshift()`, or directly assigning values to specific indices.

33. What are JavaScript objects?

JavaScript objects are collections of key-value pairs. They are used to store structured data and represent real-world entities.

34. How do you create an object in JavaScript?

You can create an object using object literal notation `{}`, the `new Object()` constructor, or by defining a constructor function.

35. What is the difference between dot notation and bracket notation in JavaScript object access?

- Dot notation: Uses a dot (`.`) to access object properties with the property name directly.
- Bracket