Training Day 20 Report

19 July 2025

Operators in JavaScript

Operators are special symbols used to perform operations on values and variables. They are fundamental in JavaScript programming because every computation — arithmetic, logical, comparison, etc. — involves operators.

An **operand** is the value on which the operator acts.
Example: in 5 + 3, **5** and **3** are operands, and + is the operator.

1. Types of Operators

JavaScript provides different categories of operators:

1. Arithmetic Operators

2. Assignment Operators

3. Comparison Operators

4. Logical Operators

5. Bitwise Operators

6. Ternary (Conditional) Operator

7. Type Operators

8. String Operators

9. Miscellaneous Operators

2. Arithmetic Operators

Arithmetic operators are used to perform mathematical operations on numeric values.

Operator	Description	Example	Result
+	Addition or string concatenation	5 + 3	8
-	Subtraction	10 - 2	8
*	Multiplication	4 * 2	8
/	Division	10 / 2	5
%	Modulus (Remainder)	10 % 3	1

Operator	Description	Example	Result
**	Exponentiation	2 ** 3	8
++	Increment	x++ or ++x	Adds 1
--	Decrement	x-- or --x	Subtracts 1

Example:

```
let a = 5, b = 2;
console.log(a + b); // 7
console.log(a % b); // 1
console.log(++a);   // 6 (prefix increment)
```

Note: The + operator can also concatenate strings:

```
console.log("Hello " + "World"); // "Hello World"
```

3. Assignment Operators

Assignment operators are used to assign values to variables.

Operator	Example	Same As
=	x = y	Assigns value of y to x
+=	x += y	x = x + y
-=	x -= y	x = x - y
*=	x *= y	x = x * y
/=	x /= y	x = x / y
%=	x %= y	x = x % y

Example:

```
let num = 10;
num += 5; // 15
num *= 2; // 30
```

4. Comparison Operators

These operators are used to compare two values. They return either true or false.

Operator	Description	Example	Result
==	Equal to (performs type conversion)	5 == "5"	true
===	Strict equal (no type conversion)	5 === "5"	false
!=	Not equal	5 != 6	true
!==	Strict not equal	5 !== "5"	true
>	Greater than	10 > 5	true
<	Less than	3 < 2	false
>=	Greater than or equal to	5 >= 5	true
<=	Less than or equal to	2 <= 3	true

Example:

```
let a = 10, b = '10';

console.log(a == b);  // true

console.log(a === b); // false
```

5. Logical Operators

Logical operators are used to combine or invert Boolean values (true or false).

Operator	Name	Example	Description
&&	Logical AND	x > 5 && y < 10	True if both conditions are true
`		`		Logical OR
!	Logical NOT	!(x > 5)	Reverses the Boolean value

Example:

```
let a = 5, b = 10;

console.log(a > 0 && b > 5); // true

console.log(a < 0 || b > 5); // true

console.log(!(a > 0));
```