# **JavaScript Operators**

In this tutorial you will learn how to manipulate or perform the operations on variables and values using the operators in JavaScript.

## **What are Operators in JavaScript**

Operators are symbols or keywords that tell the JavaScript engine to perform some sort of actions. For example, the addition (+) symbol is an operator that tells JavaScript engine to add two variables or values, while the equal-to (==), greater-than (>) or less-than (<) symbols are the operators that tells JavaScript engine to compare two variables or values, and so on.

The following sections describe the different operators used in JavaScript.

## **JavaScript Arithmetic Operators**

The arithmetic operators are used to perform common arithmetical operations, such as addition, subtraction, multiplication etc. Here's a complete list of JavaScript's arithmetic operators:

| **Operator** | **Description** | **Example** | **Result** |
| --- | --- | --- | --- |
| + | Addition | x + y | Sum of x and y |
| - | Subtraction | x - y | Difference of x and y. |
| \* | Multiplication | x \* y | Product of x and y. |
| / | Division | x / y | Quotient of x and y |
| % | Modulus | x % y | Remainder of x divided by y |

The following example will show you these arithmetic operators in action:

#### **Example**

[Try this code »](https://www.tutorialrepublic.com/codelab.php?topic=javascript&file=arithmetic-operators)

let x = 10; let y = 4; alert(x + y); // 0utputs: 14 alert(x - y); // 0utputs: 6 alert(x \* y); // 0utputs: 40 alert(x / y); // 0utputs: 2.5 alert(x % y); // 0utputs: 2

## **JavaScript Assignment Operators**

The assignment operators are used to assign values to variables.

| **Operator** | **Description** | **Example** | **Is The Same As** |
| --- | --- | --- | --- |
| = | Assign | x = y | x = y |
| += | Add and assign | x += y | x = x + y |
| -= | Subtract and assign | x -= y | x = x - y |
| \*= | Multiply and assign | x \*= y | x = x \* y |
| /= | Divide and assign quotient | x /= y | x = x / y |
| %= | Divide and assign modulus | x %= y | x = x % y |

The following example will show you these assignment operators in action:

#### **Example**

[Try this code »](https://www.tutorialrepublic.com/codelab.php?topic=javascript&file=assignment-operators)

let x; // Declaring Variable x = 10; alert(x); // Outputs: 10 x = 20; x += 30; alert(x); // Outputs: 50 x = 50; x -= 20; alert(x); // Outputs: 30 x = 5; x \*= 25; alert(x); // Outputs: 125 x = 50; x /= 10; alert(x); // Outputs: 5 x = 100; x %= 15; alert(x); // Outputs: 10

## **JavaScript String Operators**

There are two operators which can also used be for strings.

| **Operator** | **Description** | **Example** | **Result** |
| --- | --- | --- | --- |
| + | Concatenation | str1 + str2 | Concatenation of str1 and str2 |
| += | Concatenation assignment | str1 += str2 | Appends the str2 to the str1 |

The following example will show you these string operators in action:

#### **Example**

[Try this code »](https://www.tutorialrepublic.com/codelab.php?topic=javascript&file=string-operators)

let str1 = "Hello"; let str2 = " World!"; alert(str1 + str2); // Outputs: Hello World! str1 += str2; alert(str1); // Outputs: Hello World!

## **JavaScript Incrementing and Decrementing Operators**

The increment/decrement operators are used to increment/decrement a variable's value.

| **Operator** | **Name** | **Effect** |
| --- | --- | --- |
| ++x | Pre-increment | Increments x by one, then returns x |
| x++ | Post-increment | Returns x, then increments x by one |
| --x | Pre-decrement | Decrements x by one, then returns x |
| x-- | Post-decrement | Returns x, then decrements x by one |

The following example will show you how increment and decrement operators actually work:

#### **Example**

[Try this code »](https://www.tutorialrepublic.com/codelab.php?topic=javascript&file=increment-decrement-operators)

let x; // Declaring Variable x = 10; alert(++x); // Outputs: 11 alert(x); // Outputs: 11 x = 10; alert(x++); // Outputs: 10 alert(x); // Outputs: 11 x = 10; alert(--x); // Outputs: 9 alert(x); // Outputs: 9 x = 10; alert(x--); // Outputs: 10 alert(x); // Outputs: 9

## **JavaScript Logical Operators**

The logical operators are typically used to combine conditional statements.

| **Operator** | **Name** | **Example** | **Result** |
| --- | --- | --- | --- |
| && | And | x && y | True if both x and y are true |
| || | Or | x || y | True if either x or y is true |
| ! | Not | !x | True if x is not true |

The following example will show you how these logical operators actually work:

#### **Example**

[Try this code »](https://www.tutorialrepublic.com/codelab.php?topic=javascript&file=logical-operators)

let year = 2018; // Leap years are divisible by 400 or by 4 but not 100 if((year % 400 == 0) || ((year % 100 != 0) && (year % 4 == 0))){ alert(year + " is a leap year."); } else{ alert(year + " is not a leap year."); }

You will learn about conditional statements in [JavaScript if/else](https://www.tutorialrepublic.com/javascript-tutorial/javascript-if-else-statements.php) chapter.

## **JavaScript Comparison Operators**

The comparison operators are used to compare two values in a Boolean fashion.

| **Operator** | **Name** | **Example** | **Result** |
| --- | --- | --- | --- |
| == | Equal | x == y | True if x is equal to y |
| === | Identical | x === y | True if x is equal to y, and they are of the same [type](https://www.tutorialrepublic.com/javascript-tutorial/javascript-data-types.php) |
| != | Not equal | x != y | True if x is not equal to y |
| !== | Not identical | x !== y | True if x is not equal to y, or they are not of the same type |
| < | Less than | x < y | True if x is less than y |
| > | Greater than | x > y | True if x is greater than y |
| >= | Greater than or equal to | x >= y | True if x is greater than or equal to y |
| <= | Less than or equal to | x <= y | True if x is less than or equal to y |

The following example will show you these comparison operators in action:

#### **Example**

[Try this code »](https://www.tutorialrepublic.com/codelab.php?topic=javascript&file=comparison-operators)

let x = 25; let y = 35; let z = "25"; alert(x == z); // Outputs: true alert(x === z); // Outputs: false alert(x != y); // Outputs: true alert(x !== z); // Outputs: true alert(x < y); // Outputs: true alert(x > y); // Outputs: false alert(x <= y); // Outputs: true alert(x >= y); // Outputs: false

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