JavaScript Comparison and Logical Operators

❮ Previous Next ❯

Comparison and Logical operators are used to test for *true* or *false*.

Comparison Operators

Comparison operators are used in logical statements to determine equality or difference between variables or values.

Given that **x = 5**, the table below explains the comparison operators:

Operator	Description	Comparing	Returns	Try it
==	equal to	x == 8	false	Try it »
		x == 5	true	Try it »
		x == "5"	true	Try it »
===	equal value and equal type	x === 5	true	Try it »
		x === "5"	false	Try it »
!=	not equal	x != 8	true	Try it »
!==	not equal value or not equal type	x !== 5	false	Try it »
		x !== "5"	true	Try it »
		x !== 8	true	Try it »
>	greater than	x > 8	false	Try it »

<	less than	x < 8	true	Try it »
>=	greater than or equal to	x >= 8	false	Try it »
<=	less than or equal to	x <= 8	true	Try it »

How Can it be Used

Comparison operators can be used in conditional statements to compare values and take action depending on the result:

```
if (age < 18) text = "Too young";
```

You will learn more about the use of conditional statements in the next chapter of this tutorial.

Logical Operators

Logical operators are used to determine the logic between variables or values.

Given that **x = 6** and **y = 3**, the table below explains the logical operators:

Operator	Description	Example	Try it
&&	and	(x < 10 && y > 1) is true	Try it »
||	or	(x == 5 || y == 5) is false	Try it »
!	not	!(x == y) is true	Try it »

Conditional (Ternary) Operator

JavaScript also contains a conditional operator that assigns a value to a variable based on some condition.

Syntax

```
variablename = (condition) ? value1:value2
```

Example

```
var voteable = (age < 18) ? "Too young":"Old enough";
```

Try it Yourself »

If the variable age is a value below 18, the value of the variable voteable will be "Too young", otherwise the value of voteable will be "Old enough".

Comparing Different Types

Comparing data of different types may give unexpected results.

When comparing a string with a number, JavaScript will convert the string to a number when doing the comparison. An empty string converts to 0. A non-numeric string converts to NaN which is always false.

Case	Value	Try
2 < 12	true	Try it »
2 < "12"	true	Try it »
2 < "John"	false	Try it »
2 > "John"	false	Try it »
2 == "John"	false	Try it »
"2" < "12"	false	Try it »
"2" > "12"	true	Try it »
"2" == "12"	false	Try it »

When comparing two strings, "2" will be greater than "12", because (alphabetically) 1 is less than 2.

To secure a proper result, variables should be converted to the proper type before comparison:

```
age = Number(age);
if (isNaN(age)) {
    voteable = "Input is not a number";
} else {
    voteable = (age < 18) ? "Too young" : "Old enough";
}
```

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Exercise 1 » Exercise 2 » Exercise 3 » Exercise 4 » Exercise 5 » Exercise 6 »

❮ Previous Next ❯

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