JavaScript NaN

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Invalid Number Operations

In JavaScript, `NaN` is short for **Not a Number**. `NaN` is a JavaScript number that is not a legal number.

You get `NaN` when JavaScript cannot calculate a number.

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript NaN</h2>
<p>From w3schools.com, Experiment by Teeratus_R</p>

<h4>Invalid Number Operations</h4>
<p id="demo"></p>

<script>
let x = 100 / "Apple";

document.getElementById("demo").innerHTML = x;
</script>

</body>
</html>
```

Example 1

Result View Example

NaN is a Number

The type of `NaN` is `number`. This may look strange, but `NaN` belongs to the JavaScript number type.

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript NaN</h2>
<p>From w3schools.com, Experiment by Teeratus_R</p>

<h4>NaN is a Number</h4>
<p id="demo"></p>

<script>
let x = NaN;

document.getElementById("demo").innerHTML = typeof x;
</script>

</body>
</html>
```

Example 2

Result View Example

Numeric Strings

JavaScript tries to convert numeric strings to numbers in arithmetic operations.

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript NaN</h2>
<p>From w3schools.com, Experiment by Teeratus_R</p>

<h4>Numeric Strings</h4>
<p id="demo"></p>

<script>
let x = 100 / "10";

document.getElementById("demo").innerHTML = x;
</script>

</body>
</html>
```

The result is `10`, because `"10"` is converted to the number `10`.

Example 3

Result View Example

Non-Numeric Strings

A non-numeric string cannot be converted to a number.

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript NaN</h2>
<p>From w3schools.com, Experiment by Teeratus_R</p>

<h4>Non-Numeric Strings</h4>
<p id="demo"></p>

<script>
let x = 100 / "Apple";

document.getElementById("demo").innerHTML = x;
</script>

</body>
</html>
```

The result is `NaN`, because `"Apple"` cannot be converted to a number.

Example 4

Result View Example

Using isNaN()

You can use the JavaScript function `isNaN()` to find out if a value is not a number.

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript NaN</h2>
<p>From w3schools.com, Experiment by Teeratus_R</p>

<h4>Using isNaN()</h4>
<p id="demo"></p>

<script>
let x = 100 / "Apple";

document.getElementById("demo").innerHTML = isNaN(x);
</script>

</body>
</html>
```

Example 5

Result View Example

NaN is Not Equal to Itself

`NaN` is the only JavaScript value that is not equal to itself.

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript NaN</h2>
<p>From w3schools.com, Experiment by Teeratus_R</p>

<h4>NaN is Not Equal to Itself</h4>
<p id="demo"></p>

<script>
let x = NaN;

document.getElementById("demo").innerHTML = x == x;
</script>

</body>
</html>
```

To test for `NaN`, use `isNaN()`.

Example 6

Result View Example

NaN in Math

If you use `NaN` in a mathematical operation, the result will also be `NaN`.

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript NaN</h2>
<p>From w3schools.com, Experiment by Teeratus_R</p>

<h4>NaN in Math</h4>
<p id="demo"></p>

<script>
let x = NaN;
let y = 5;

document.getElementById("demo").innerHTML = x + y;
</script>

</body>
</html>
```

Example 7

Result View Example

Note

`NaN` means **Not a Number**. But the type of `NaN` is `number`. Use `isNaN()` to check if a value is `NaN`.

Document

Document in project

You can Download PDF file.

Reference

- W3Schools JavaScript NaN