

Math Function

Introduction to JavaScript Math Functions

The JavaScript Math is a built-in object that provides properties and methods for mathematical constants and functions to execute mathematical operations. It is not a function object, not a constructor. You can call the Math as an object without creating it because the properties and methods of Math are static.

Math Functions

The Math functions consist of methods and properties. Following is the list of methods used with the Math object:

1. Math.round()

This method provides the value of the given number to a rounded integer. It can be written as: `Math.round(x)`, where x is a number.

Description

This method returns the value of a number rounded to the nearest integer.

Syntax

Its syntax is as follows – `Math.round(x) ;`

Return Value

Returns the value of a number rounded to the nearest integer.

Example

```
<html>
<head>
<title>JavaScript Math round() Method</title>
</head>
<body>
<script type = "text/javascript">
var value = Math.round( 0.5 );
document.write("First Test Value : " + value );

var value = Math.round( 20.7 );
document.write("<br />Second Test Value : " + value );
```

```
var value = Math.round( 20.3 );  
  
document.write("<br />Third Test Value : " + value );  
  
var value = Math.round( -20.3 );  
  
document.write("<br />Fourth Test Value : " + value );  
  
</script>  
  
</body>  
  
</html>
```

Output

First Test Value : 1

Second Test Value : 21

Third Test Value : 20

Fourth Test Value : -20

2. Math.pow()

It provides the value of x to the power of y. It can be written as: Math.pow(x, y), where x is a base number and y is an exponent to the given base.

Description

This method returns the base to the exponent power, that is, **base**^{exponent}.

Syntax

Its syntax is as follows – Math.pow(base, exponent) ;

Parameter Details

base – The base number.

exponents – The exponent to which to raise base.

Return Value

Returns the base to the exponent power, that is, **base**^{exponent}.

Example

```
<html>
```

```
<head>
```

```
<title>JavaScript Math pow() Method</title>
```

```
</head>
```

```
<body>
```

```
<script type = "text/javascript">
var value = Math.pow(7, 2);
document.write("First Test Value : " + value );

var value = Math.pow(8, 8);
document.write("<br />Second Test Value : " + value );

var value = Math.pow(-1, 2);
document.write("<br />Third Test Value : " + value );

var value = Math.pow(0, 10);
document.write("<br />Fourth Test Value : " + value );
</script>
</body>
</html>
```

Output

First Test Value : 49

Second Test Value : 16777216

Third Test Value : 1

Fourth Test Value : 0

3. Math.sqrt()

It gives the square root of a given integer. It can be written as: Math.sqrt(x), where x is a number.

Description

This method returns the square root of a number. If the value of a number is negative, sqrt returns NaN.

Syntax

Its syntax is as follows – Math.sqrt(x) ;

Parameter Details

x – A number

Return Value

Returns the square root of a given number.

Example

```
<html>

<head>

<title>JavaScript Math sqrt() Method</title>

</head>
```

```
<body>

<script type = "text/javascript">

var value = Math.sqrt( 0.5 );

document.write("First Test Value : " + value );


var value = Math.sqrt( 81 );

document.write("<br />Second Test Value : " + value );


var value = Math.sqrt( 13 );

document.write("<br />Third Test Value : " + value );


var value = Math.sqrt( -4 );

document.write("<br />Fourth Test Value : " + value );

</script>

</body>

</html>
```

Output

First Test Value : 0.7071067811865476

Second Test Value : 9

Third Test Value : 3.605551275463989

Fourth Test Value : NaN

4. Math.abs()

It provides the absolute i.e. positive value of a number. It can be written as:

Math.abs(x); where x is a number.

Description

This method returns the absolute value of a number.

Syntax

Its syntax is as follows – Math.abs(x) ;

Parameter Details

x – A number.

Return Value

Returns the absolute value of a number.

Example

```
<html>
```

```
<head>
```



```
<title>JavaScript Math abs() Method</title>
</head>
<body>
<script type = "text/javascript">
var value = Math.abs(-1);
document.write("First Test Value : " + value );

var value = Math.abs(null);
document.write("<br />Second Test Value : " + value );

var value = Math.abs(20);
document.write("<br />Third Test Value : " + value );

var value = Math.abs("string");
document.write("<br />Fourth Test Value : " + value );
</script>
</body>
</html>
```

Output

First Test Value : 1

Second Test Value : 0

Third Test Value : 20

Fourth Test Value : NaN

5. Math.ceil()

It gives a smaller number, which is greater or equal to the given integer. It can be written as:

Math.ceil(x); where x is a number

Description

This method returns the smallest integer greater than or equal to a number.

Syntax

Its syntax is as follows – Math.ceil(x) ;

Parameter Details

x – A numbers.

Return Value

Returns the smallest integer greater than or equal to a number.

Example

```
<html>
<head>
<title>JavaScript Math ceil() Method</title>
</head>
<body>
<script type = "text/javascript">
var value = Math.ceil(45.95);
document.write("First Test Value : " + value );

var value = Math.ceil(45.20);
document.write("<br />Second Test Value : " + value );

var value = Math.ceil(-45.95);
document.write("<br />Third Test Value : " + value );

var value = Math.ceil(-45.20);
document.write("<br />Fourth Test Value : " + value );
</script>
</body>
</html>
```

Output

First Test Value : 46

Second Test Value : 46

Third Test Value : -45

Fourth Test Value : -45

6. Math.floor()

It gives a larger number, which is lesser or equal to the given integer. It can be written as:

Math.floor(x); where x is a number.

Description

This method returns the largest integer less than or equal to a number.

Syntax

Its syntax is as follows – Math.floor(x) ;

Parameter Details

x – A numbers.

Return Value

Returns the largest integer less than or equal to a number x.

Example

```
<html>

<head>

<title>JavaScript Math floor() Method</title>

</head>

<body>

<script type = "text/javascript">

var value = Math.floor(10.3);

document.write("First Test Value : " + value );


var value = Math.floor(30.9);

document.write("<br />Second Test Value : " + value );


var value = Math.floor(-2.9);

document.write("<br />Third Test Value : " + value );


var value = Math.floor(-2.2);

document.write("<br />Fourth Test Value : " + value );

</script>

</body>
```

</html>

Output

First Test Value : 10

Second Test Value : 30

Third Test Value : -3

Fourth Test Value : -3

8. Math.min()

The min() method is used to display the lowest value of the given arguments. It can be written as: Math.min(val1, val2.....valn); where val1, val2.....valn are numbers.

Description

This method returns the smallest of zero or more numbers. If no arguments are given, the results is **+Infinity**.

Syntax

Its syntax is as follows – Math.min(value1, value2, ... valueN) ;

Parameter Details

value1, value2, ... valueN : Numbers.

Return Value

Returns the smallest of zero or more numbers.

Example

```
<html>

<head>

<title>JavaScript Math min() Method</title>

</head>

<body>

<script type = "text/javascript">

var value = Math.min(10, 20, -1, 100);

document.write("First Test Value : " + value );


var value = Math.min(-1, -3, -40);

document.write("<br />Second Test Value : " + value );


var value = Math.min(0, -1);

document.write("<br />Third Test Value : " + value );
```

```
var value = Math.min(100);  
document.write("<br />Fourth Test Value : " + value );  
</script>  
</body>  
</html>
```

Output

First Test Value : -1

Second Test Value : -40

Third Test Value : -1

Fourth Test Value : 100

9.Math.max()

The max() method is used to display the highest value of the given arguments. It can be written as:
Math.max(val1, val2.....valn); where val1, val2.....valn are numbers.

Description

This method returns the largest of zero or more numbers. If no arguments are given, the results is –Infinity.

Syntax

Its syntax is as follows – `Math.max(value1, value2, ... valueN) ;`

Parameter Details

value1, value2, ... valueN : Numbers.

Return Value

Returns the largest of zero or more numbers.

Example

```
<html>
<head>
<title>JavaScript Math max() Method</title>
</head>
<body>
<script type = "text/javascript">
var value = Math.max(10, 20, -1, 100);
document.write("First Test Value : " + value );

var value = Math.max(-1, -3, -40);
```

```
document.write("<br />Second Test Value : " + value );
```

```
var value = Math.max(0, -1);
```

```
document.write("<br />Third Test Value : " + value );
```

```
var value = Math.max(100);
```

```
document.write("<br />Fourth Test Value : " + value );
```

```
</script>
```

```
</body>
```

```
</html>
```

Output

First Test Value : 100

Second Test Value : -1

Third Test Value : 0

Fourth Test Value : 100

10. Math.random()

It provides a random number between 0 and 1. It can be written as:

```
Math.random();
```

Description

This method returns a random number between 0 (inclusive) and 1 (exclusive).

Syntax

Its syntax is as follows –

```
Math.random() ;
```

Return Value

Returns a random number between 0 (inclusive) and 1 (exclusive).

Example

```
<html>
```

```
<head>
```

```
<title>JavaScript Math random() Method</title>
```

```
</head>
```

```
<body>
```

```
<script type = "text/javascript">
var value = Math.random( );
document.write("First Test Value : " + value );

var value = Math.random( );
document.write("<br />Second Test Value : " + value );

var value = Math.random( );
document.write("<br />Third Test Value : " + value );

var value = Math.random( );
document.write("<br />Fourth Test Value : " + value );
</script>
</body>
</html>
```

Output

First	Test	Value	:	0.6900944475682764
Second	Test	Value	:	0.25206762923149983
Third	Test	Value	:	0.1539028693438469
Fourth Test Value : 0.18501499702094137				

