

# Math module

## What is the math module?

- It's used to perform mathematical operations.
- Rounding, getting absolute values, random values, removing fractions...
- Math is a module, and an object. Math has its own namespace.
- Math isn't a constructor, the new keyword can't be used with it.
- As is typical with JavaScript, Math module method results can be stored in variables.

# Math.random

- Is a method that's used to generate pseudorandom numbers.
- Using Math.random() gives a number between 0 and 1, excluding 1.
- The generated numbers are approximately uniformly distributed over the range.
- It's useful for generating random numbers in a simple manner for applications, games, simulations...
- Math.random isn't cryptographically secure: if you know how the algorithm works, you can predict the next number. It shouldn't be used for generating passwords for example.

## Using Math.random()

- The first letter of Math is capitalized.

```
console.log(Math.random());
```

```
0.538993895234176
```

```
let rand1 = Math.random();
```

```
0.7219282810752123
```

```
console.log(rand1);
```

```
0.5253692360610125
```

## Getting specific values from Math.random()

- To get numbers from a range other than 0-1, you can multiply the output.

- 0-10 `console.log(Math.random() * 10);` 7.234405390774188

- To get whole numbers, truncate the result:

`console.log(Math.trunc(Math.random() * 10));`

8

## Math.round(x)

- Returns the nearest integer to x.

`console.log(Math.round(0.9));`

1

`console.log(Math.round(0.4));`

0

## Math.ceil(x)

- Returns the value of x rounded up to its nearest integer

```
console.log(Math.ceil(1.99));
```

2

## Math.floor(x)

- Returns the value of x rounded down to its nearest integer

```
console.log(Math.floor(0.456));|
```

0

```
console.log(Math.floor(1.1));
```

1

## Math.trunc(x)

- Returns the integer part of x.
- It removes decimals. It doesn't round the number.

```
console.log(Math.trunc(5.555));
```

5

## Math.pow(x, y)

- Returns the value of x to the power of y

```
console.log(Math.pow(2, 2));|
```

4

## Math.sqrt(x)

- Returns the square root of a number.

```
console.log(Math.sqrt(4));
```

2

## Math.abs(x)

- Returns the absolute (meaning positive) value of x.

```
console.log(Math.abs(-15.45))
```

15.45

```
console.log(Math.abs(15.45));
```

15.45

# Keywords

- math module

JavaScript Math:

- object
- abs
- truncate
- ceil
- floor
- random