JavaScript Random

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Example

```
// Returns a random number:
Math.random();
```

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JavaScript Math.random()

`Math.random()` returns a random number between 0 (inclusive), and 1 (exclusive):

`Math.random()` always returns a number lower than 1.

JavaScript Random Integers

`Math.random()` used with `Math.floor()` can be used to return random integers.

Note

There is no such thing as JavaScript integers.

We are talking about numbers with no decimals here.

Example

```
// Return a random integer from 0 to 9 (both included):
Math.floor(Math.random() * 10);
```

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Explained:

`Math.random()` returns a floating-point number between 0 (inclusive) and 1 (exclusive).

Example outputs: 0.0, 0.237, 0.9999, but never 1.

`Math.random() * 10` gives a range from 0 up to but not including 10.

Example possible results: 0.0, 3.5, 9.99, etc.

`Math.floor()` rounds a number down to the nearest whole integer:

- 3.5 becomes 3
- 9.99 becomes 9
- 0.1 becomes 0

The possible integer results are then **0 through 9** (both inclusive).

In other words, the range is **[0, 9]**.

Example

```
// Return a random integer from 0 to 10 (both included):
Math.floor(Math.random() * 11);
```

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Example

```
// Return a random integer from 0 to 99 (both included):
Math.floor(Math.random() * 100);
```

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Example

```
// Return a random integer from 0 to 100 (both included):
Math.floor(Math.random() * 101);
```

Try it Yourself »

Example

```
// Return a random integer between 1 and 10 (both included):
Math.floor(Math.random() * 10) + 1;
```

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Explained:

`Math.random()` returns a **number** from 0 (inclusive) up to but not including 1.

Multiplying by 10 gives a number from 0 up to but not including 10.

Adding 1 shifts that range to 1 up to but not including 11.

`Math.floor()` then rounds down, so you get an **integer** between 1 and 10.

Example

```
// Returns a random integer from 1 to 100 (both included):
Math.floor(Math.random() * 100) + 1;
```

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Summary

Expression	Range from	Range to
Math.random()	0	<1
Math.random() * 10	0	<10
Math.random() * 100	0	<100
Math.floor(Math.random() * 10)	0	9

A Proper Random Function

As you can see from the examples above, it might be a good idea to create a proper random function to use for all random integer purposes.

This JavaScript function always returns a **random integer** between min (included) and max (excluded):

Example

```
function getRndInteger(min, max) {
  return Math.floor(Math.random() * (max - min) ) + min;
}
```

Try it Yourself »

This JavaScript function always returns a **random integer** between min and max (both included):

Example

```
function getRndInteger(min, max) {
  return Math.floor(Math.random() * (max - min + 1) ) + min;
}
```

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Exercise

How many parameters can the `Math.random()` method take?

- 0
- 1
- 2

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