

Creating Numbers

1. Literal Number:

javascript

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```
const score = 21;
```

```
console.log(score); // 21
```

- This is a simple way to define a number using a literal.

2. Number Object:

javascript

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```
const balance = new Number(100);
```

```
console.log(balance); // [Number: 100]
```

- The new Number() syntax creates a number object rather than a primitive.
- Rarely used because it can lead to unexpected behaviors during comparisons.

Number Methods

1. toString()

javascript

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```
console.log(balance.toString().length); // 3
```

- Converts the number to a string.
- Useful for finding the length of a number (by converting it to a string first).

2. toFixed()

javascript

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```
console.log(balance.toFixed(2)); // 100.00
```

- Rounds the number to a fixed number of decimal places.
- Commonly used in financial applications (e.g., displaying prices).

3. toPrecision()

javascript

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```
const otherNumber = 1234.789;
```

```
console.log(otherNumber.toPrecision(4)); // 1235
```

- Formats the number to the specified length (total digits).
- Good for scientific and engineering calculations.

4. **toLocaleString()**

javascript

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```
const hundreds = 10000000;
```

```
console.log(hundreds.toLocaleString('en-IN')); // 1,00,00,000
```

- Formats the number according to local conventions.
- In this case, it uses Indian formatting with commas.

Math Methods in JavaScript

JavaScript's Math object contains properties and methods for mathematical constants and functions.

Basic Math Methods

1. **Math.abs()** - Returns the absolute value:

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```
console.log(Math.abs(-4)); // 4
```

- Removes any negative sign and returns the positive version of the number.

2. **Math.round()** - Rounds to the nearest integer:

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```
console.log(Math.round(4.6)); // 5
```

```
console.log(Math.round(4.2)); // 4
```

- Rounds up or down based on decimal value.

3. **Math.ceil()** - Rounds up to the nearest integer:

javascript

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```
console.log(Math.ceil(4.2)); // 5
```

- Always rounds up, even if the decimal is small.

4. **Math.floor()** - Rounds down to the nearest integer:

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```
console.log(Math.floor(4.2)); // 4
```

- Always rounds down, regardless of the decimal.
-

Generating Random Numbers

Math.random()

- Generates a random floating-point number between 0 (inclusive) and 1 (exclusive).

javascript

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```
console.log(Math.random()); // Example: 0.4579871
```

- Multiply to get a wider range:

javascript

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```
console.log((Math.random() * 10) + 1); // Between 1 and 11
```

Generating Random Integers within a Range

1. Formula to generate a random integer between a min and max value:

javascript

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```
const min = 10;
```

```
const max = 20;
```

```
console.log(Math.floor(Math.random() * (max - min + 1)) + min); // Between 10 and 20
```

- The Math.floor() ensures it's an integer.
- The + 1 ensures the max value is included.