9 JavaScript Math Operations that You must know

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The Math.PI

```
// Printing PI value
document.write(Math.PI);  // Prints: 3.141592653589793

// Function to calculate circle area
function calculateCircleArea(radius){
    var area = (Math.PI) * radius * radius;
    return area;
}

document.write(calculateCircleArea(5));
// Prints: 78.53981633974483
document.write(calculateCircleArea(10));
// Prints: 314.1592653589793
```

The Math.PI property represents the ratio of the circumference of a circle to its diameter. PI (π) is a mathematical constant, which is approximately 3.14159:

Math.PI = π ≈ 3.14159

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Math.random()

```
document.write(Math.random());
        // Expected output: a number between 0 and 1

// Function to create random integer
function getRandomInt(max) {
    return Math.floor(Math.random() * max);
}

document.write(getRandomInt(3));
            // Expected output: 0, 1 or 2
document.write(getRandomInt(1));
            // Expected output: 0
```

The Math.random() method is used to generate a floating-point random number in the range from 0 inclusive up to but not including 1. However, if you want a random integer between zero and an integer higher than one

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Math.abs()

```
document.write(Math.abs(-1));  // Prints: 1
document.write(Math.abs(1));  // Prints: 1
document.write(Math.abs(-5));  // Prints: 5
document.write(Math.abs(-10.5)); // Prints: 10.5
```

The Math.abs() method is used to calculate the absolute (positive) value of a number. Therefore, -1 is returned as 1, -5 as 5, and so on.

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Math.sqrt()

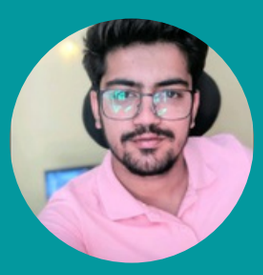
```
document.write(Math.sqrt(4));  // Prints: 2
document.write(Math.sqrt(16));  // Prints: 4
document.write(Math.sqrt(0.25));  // Prints: 0.5
document.write(Math.sqrt(-9));  // Prints: NaN

/* Function to calculate hypotenuse.
Hypotenuse is the longest side of a right-angled triangle.*/
function calculateHypotenuse(a, b) {
    return Math.sqrt((a * a) + (b * b));
}

document.write(calculateHypotenuse(3, 4));  // Prints: 5
document.write(calculateHypotenuse(5, 12));  // Prints: 13
```

The Math.sqrt() method is used to calculate the square root of a number: Math.sqrt(x) = x

If the number is negative, NaN is returned



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Math.ceil()

```
document.write(Math.ceil(3.5));  // Prints: 4
document.write(Math.ceil(-5.7));  // Prints: -5
document.write(Math.ceil(9.99));  // Prints: 10
document.write(Math.ceil(-9.99));  // Prints: -9
document.write(Math.ceil(0));  // Prints: 0
```

Math.ceil() method rounds a number up to the next highest integer. So, 3.5 becomes 4, -5.7 becomes -5 (because -5 is greater than -6).

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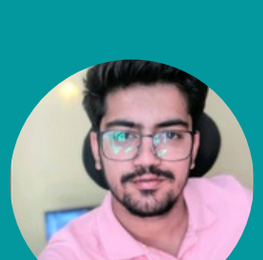
Math.floor()

```
document.write(Math.floor(3.5));  // Prints: 3
document.write(Math.floor(-5.7));  // Prints: -6
document.write(Math.floor(9.99));  // Prints: 9
document.write(Math.floor(-9.99));  // Prints: -10
document.write(Math.floor(0));  // Prints: 0
```

Math.floor() method rounds a number down to the next lowest integer. So, 3.5 becomes 3, -5.7 becomes -6 (because -6 is lesser than -5).



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Math.round()

```
document.write(Math.round(3.5));  // Prints: 4
document.write(Math.round(-5.7));  // Prints: -6
document.write(Math.round(7.25));  // Prints: 7
document.write(Math.round(4.49));  // Prints: 4
document.write(Math.round(0));  // Prints: 0
```

Math.round() method rounds a number to the nearest integer in such a way that if the decimal part is .5 or greater, number is rounded up, otherwise rounded down. So, 3.5 becomes 4, -5.7 becomes -6, 4.49 becomes 4, and so on.

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Math.max() and Math.min()

```
document.write(Math.max(1, 3, 2));  // Prints: 3
document.write(Math.max(-1, -3, -2));  // Prints: -1

document.write(Math.min(1, 3, 2));  // Prints: 1
document.write(Math.min(-1, -3, -2));  // Prints: -3
```

Math.max() and Math.min() methods is used to find which number is the largest or smallest in a group of numbers, respectively.

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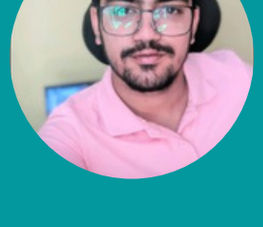
Math.pow()

```
document.write(Math.pow(3, 2));  // Prints: 9
document.write(Math.pow(0, 1));  // Prints: 0
document.write(Math.pow(5, -2));  // Prints: 0.04
document.write(Math.pow(8, 1/3));  // Prints: 2 (cube root of 8)
```

Math.pow() method is used to raise a number to a specified power.



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Reference: www.tutorialrepublic.com