

## ◆ Rounding Numbers in JavaScript (Math.round, Math.ceil, Math.floor)

When working with numerical ratings, rounding is essential. JavaScript provides three main methods for rounding numbers:

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### 1 □ Math.round() – Round to the Nearest Integer

```
var scoreAvg = 2.6;  
var numberOfStars = Math.round(scoreAvg); // 3
```

#### ✓ How It Works

- **Rounds up if the decimal is 0.5 or higher** ( $2.5 \rightarrow 3$ )
- **Rounds down if the decimal is less than 0.5** ( $2.4 \rightarrow 2$ )
- **Handles both positive and negative numbers properly**

#### ◆ Examples

##### Input Rounded Output

2.4    2

2.5    3

-2.5   -2

-2.6   -3

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### 2 □ Math.ceil() – Always Rounds Up

```
var scoreAvg = 2.1;  
var numberOfStars = Math.ceil(scoreAvg); // 3
```

#### ✓ How It Works

- Always rounds **up** to the next highest integer.
- **Even if the fraction is very small (0.000001), it still rounds up.**

#### ◆ Examples

##### Input Rounded Output

2.1    3

2.9    3

-2.1   -2

## Input Rounded Output

-2.9   -2

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### 3 Math.floor() – Always Rounds Down

```
var scoreAvg = 2.9;  
var numberOfStars = Math.floor(scoreAvg); // 2
```

#### ✓ How It Works

- Always rounds **down** to the next lowest integer.
- Works for **both positive and negative numbers**.

#### 🔗 Examples

##### Input Rounded Output

2.9   2

2.1   2

-2.1   -3

-2.9   -3

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### 🔗 Best Practice: When to Use Each

Method	When to Use It?
Math.round()	General purpose rounding (closest integer)
Math.ceil()	Always round up (e.g., ensure at least 1 star)
Math.floor()	Always round down (e.g., prevent exceeding max rating)

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### 🎵 Example: Converting a Music Rating to Stars

```
var scoreAvg = 3.7; // Average user rating  
var stars = Math.round(scoreAvg);  
  
console.log("★".repeat(stars)); // Output: ★ ★ ★ ★
```

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### ◆ Bonus: Controlling Decimal Places (toFixed)

If you need to **round to a certain number of decimal places**, use `.toFixed(n)`:

```
var score = 3.6789;  
console.log(score.toFixed(2)); // "3.68" (rounded to 2 decimal places)
```

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