

Operators and Conditions in JavaScript

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Common Mathematical Operators in JavaScript

JavaScript supports commonly used mathematical operators. Let's explore them:

Example:

```
var a = 2;  
var b = 3;  
var c = a + b; // Addition  
var d = a * b; // Multiplication  
var e = a / b; // Division  
var f = a - b; // Subtraction
```

Output:

```
c = 5  
d = 6  
e = 0.6666666666666666  
f = -1
```

Modulo (Remainder) Operator

The modulo operator (%) returns the remainder when one variable is divided by another. This is useful for checking if a number is odd or even.

Example:

```
var a = 10 % 7;  
var b = 11 % 2;  
var c = 10 % 2;
```

Output:

```
a = 3
b = 1
c = 0
```

Check if a number is even or odd:

```
console.log(10 % 2); // 0 (even)
console.log(11 % 2); // 1 (odd)
```

Exponentiation Operator

The exponentiation operator (******) returns the result of the first operand raised to the power of the second operand.

Example:

```
var a = 2 ** 4;
var b = 3 ** 2;
var c = 10 ** 1.5;
```

Output:

```
a = 16
b = 9
c = 31.622776601683793
```

String Concatenation

Strings can be concatenated using the **+** operator.

Example:

```
var word1 = "Welcome";
var word2 = "Masai";
var word3 = word1 + " to " + word2 + " school!";
```

```
console.log(word3);
```

Output:

```
Welcome to Masai school!
```

Strings can also be concatenated with other types like numbers:

Example:

```
var num1 = 1;  
var num2 = 2;  
var output = "1 + 2 = " + (num1 + num2);  
console.log(output);
```

Output:

```
1 + 2 = 3
```

Relational Operators

Greater Than (>) and Greater Than Equal To (>=)

Used to compare values and return `true` or `false`.

Example:

```
console.log(20 > 10); // true  
console.log(10 >= 10); // true
```

Lesser Than (<) and Lesser Than Equal To (<=)

Used to check if one value is less than the other.

Example:

```
console.log(10 < 20); // true
console.log(10 <= 10); // true
```

Comparison Operators

Equality (==) and Strict Equality (===)

== checks for value equality, while === checks both value and type.

Example:

```
console.log(1 == '1'); // true
console.log(1 === '1'); // false
```

Inequality (!=) and Strict Inequality (!==)

Used to check if values are not equal.

Example:

```
console.log(1 != 2); // true
console.log(1 !== '1'); // true
```

Conditional Statements

1. If Statement

Executes a block of code if the condition is `true`.

Example:

```
if (5 > 3) {
  console.log("5 is greater than 3");
}
```

2. If-Else Statement

Executes one block of code if the condition is **true**, otherwise executes another block.

Example:

```
var a = 3;
var b = 20;
if (a > b) {
  console.log("a is greater");
} else {
  console.log("b is greater");
}
```

3. Else-If Statement

Used when there are multiple conditions to be checked.

Example:

```
var total_bill = 799;
if (total_bill > 1000) {
  console.log("20% discount");
} else if (total_bill > 500) {
  console.log("10% discount");
} else {
  console.log("No discount");
}
```