<!-- ! Expression and Operators -->

- **Expression**
  Expression is a combination of operators and operands .

- **Operator**:
  An operator is a symbol that tells the compiler or interpreter to perform a specific mathematical, relational, or logical operation and produce a final result.

- **Operand**:
  An operand is a quantity on which an operation is performed. Operands can be variables, constants, or expressions.

<!--! Types Of Operators: -->

1) Arithmetic Operators
2) Assignment Operators
3) Comparison/Relational Operators
4) Logical Operators
5) Conditional Operators

<!-- ! 1) Arithmetic Operator -->

Types of Arithmetic Operators in JavaScript

Arithmetic operators are used to perform arithmetic operations on numbers. Here are the types of arithmetic operators in JavaScript:

1. **Addition (`+`)**
   - Adds two operands.
   - Example
     ```
     let sum = 5 + 3;        <!-- 8 -->
     ```

2. **Subtraction (`-`)**
   - Subtracts the second operand from the first operand.
   - Example
     ```
     let difference = 5 - 3;    <!-- 2 -->
     ```

3. **Multiplication (`*`)**
   - Multiplies two operands.
   - Example:
     ```
     let product = 5 * 3;     <!-- 15 -->
     ```

4. **Division (`/`)**

   - Divides the first operand by the second operand.
   - Example
     let quotient = 10 / 2;   <!-- 5 -->

5. **Modulus (`%`)**

   - Returns the remainder of the division of the first operand by the second operand.
   - Example:
     let remainder = 10 % 3;   <!-- 1 -->

6. **Exponentiation (``)**

   - Raises the first operand to the power of the second operand.
   - Example:
     let power = 2**3;   <!-- 8 -->

7. **Increment (`++`)**
   - Increases an operand by 1.
   - Can be used as a prefix (`++x`) or postfix (`x++`).
   - Example:

     let x = 5;
     x++;   <!-- x is now 6 -->

8. **Decrement (`--`)**

   - Decreases an operand by 1.
   - Can be used as a prefix (`--x`) or postfix (`x--`).
   - Example:

     let x = 5;
     x--;   <!-- x is now 4 -->

```
// !  Arithmetic Operator


// ! 1. Addition

let num1 = 20
let num2 = 30

let add = num1 + num2

console.log(add)

console.log(` the addition of ${num1} and ${num2} is ${add}`)

// output:  the addition of 20 and 30 is 50


// !  2. subtraction

let sub = num2 - num1

console.log(`the subtraction of ${num2} and ${num1} is ${sub}`)

// output: the subtraction of 30 and 20 is 10

// !  3. multiplication

let mul = num2 * num1

console.log(`the multiplication of ${num2} and ${num1} is ${mul}`)

// output: the multiplication of 30 and 20 is 600


// ! 4. division

let div = num2 / num1;

console.log(`the division of ${num2} and ${num1} is ${div}`)

// output: the division of 30 and 20 is 1.5
```

```
// ! 5. modulus

let num3 = 21
let num4 = 10
let mod = num3 % num4 ;

console.log(`the modulus of ${num3} and ${num4} is ${mod}`)


// ! 6.  Increment (post and pre)

let a = 5

let ans = a++ + ++a + ++a + a++
console.log(ans)                        // output: 28

// ! 7.  Decrement (post and pre)

let b = 6

let c = b--;

console.log(`c value is ${c}`)      //6
console.log(`b value is ${b}`)      //5

let d = --b;

console.log(`d value is ${d}`)   // 4
console.log(`b value is ${b}`)   // 4


// ! 8.   Exponentiation

let power = 2 ** 3 ;

console.log(power)    // 8
```