

# ❖ Operators in PHP:

## Operators in Programming (with Examples in PHP)

### 1. Arithmetic Operators

These operators perform mathematical calculations.

```
php

$a = 10;
$b = 1;

echo $a + $b; // Addition: 10 + 3 = 13 echo $a -
$b; // Subtraction: 10 - 3 = 7 echo $a * $b; //
Multiplication: 10 * 3 = 30 echo $a / $b; //
Division: 10 / 3 = 3.3333 echo $a % $b; //
Modulus (Remainder): 10 % 3 = 1 echo $a ** $b; //
Exponentiation: 10^3 = 1000
```

### 2. Assignment Operators

These are used to assign values to variables.

```
php

$x = 5; // Assign 5 to $x
$x += 2; // Same as $x = $x + 2 (Now $x = 7)
$x -= 3; // Same as $x = $x - 3 (Now $x = 4)
$x *= 2; // Same as $x = $x * 2 (Now $x = 8)
$x /= 4; // Same as $x = $x / 4 (Now $x = 2)
$x %= 2; // Same as $x = $x % 2 (Now $x = 0)

php

$a = 10;
$b = 5;

var_dump($a == $b); // false (10 is not equal to 5) var_dump($a
!= $b); // true (10 is not equal to 5) var_dump($a > $b); //
true (10 is greater than 5) var_dump($a < $b); // false (10 is
not less than 5) var_dump($a >= $b); // true (10 is greater than
or equal to 5) var_dump($a <= $b); // false (10 is not less than
or equal to 5)
```

### 4. Increment/Decrement Operators

#### <sup>1</sup>. Comparison Operators

These compare two values and return `true` or `false`.

These increase or decrease the value of a variable.

```
php

$x = 5;

$x++; // Post-increment (Increases $x by 1, now $x = 6)
++$x; // Pre-increment (Increases $x by 1 first, now $x = 7)

$x--; // Post-decrement (Decreases $x by 1, now $x = 6)
--$x; // Pre-decrement (Decreases $x by 1 first, now $x = 5)
```

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## 5. Logical Operators

These are used in conditions (if-else statements).

```
php

$a = true;
$b = false;

var_dump($a && $b); // false (Both must be true) var_dump($a || $b); // true (At least one must
be true) var_dump(!$a); // false (Negates $a, since $a is true)
```

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## 6. String Operators

Used to manipulate strings.

```
php

$str1 = "Hello";
$str2 = " World"; echo $str1 . $str2; //

Concatenation: "Hello World"

$str1 .= $str2; // Assignment concatenation (same as $str1 = $str1 . $str2) echo
$str1; // Output: "Hello World"
```

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## 7. Bitwise Operators

These work on binary numbers.

```
php

$a = 5; // In binary: 0101
$b = 3; // In binary: 0011

echo $a & $b; // Bitwise AND: 0101 & 0011 = 0001 (1) echo
$a | $b; // Bitwise OR: 0101 | 0011 = 0111 (7) echo $a ^
$b; // Bitwise XOR: 0101 ^ 0011 = 0110 (6)
echo ~$a; // Bitwise NOT: ~0101 = 1010 (-6 in two's complement)
echo $a << 1; // Left shift: 0101 << 1 = 1010 (10) echo
$a >> 1; // Right shift: 0101 >> 1 = 0010 (2)
```

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**Conclusion:**

These operators are the building blocks for performing operations in PHP or any other programming language.

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