

# 4. Arithmetic Operators

## 4.1 Basic Arithmetic Operators

Operator	Operation	Python Example	C Example
+	Addition	<code>a + b</code>	<code>a + b</code>
-	Subtraction	<code>a - b</code>	<code>a - b</code>
*	Multiplication	<code>a * b</code>	<code>a * b</code>
/	Division	<code>a / b</code>	<code>a / b</code>
%	Modulus	<code>a % b</code>	<code>a % b</code>

## 4.2 Important Division Differences

### Integer Division:

```
# Python 3
print(7 / 3) # Output: 2.333...
print(7 // 3) # Output: 2 (floor division)
```

```
// C
printf("%f\n", 7.0 / 3.0); // Output: 2.333333
printf("%d\n", 7 / 3); // Output: 2 (integer division)
printf("%f\n", (float)7 / 3); // Output: 2.333333 (type casting)
```

## 4.3 Assignment Operators

Operator	Equivalent	Python	C
=	Basic assignment	<code>x = 5</code>	<code>x = 5;</code>
+=	Add and assign	<code>x += 3</code>	<code>x += 3;</code>
-=	Subtract and assign	<code>x -= 3</code>	<code>x -= 3;</code>
*=	Multiply and assign	<code>x *= 3</code>	<code>x *= 3;</code>
/=	Divide and assign	<code>x /= 3</code>	<code>x /= 3;</code>
%=	Modulus and assign	<code>x %= 3</code>	<code>x %= 3;</code>

# 4.4 Increment and Decrement Operators

## Pre-increment vs Post-increment:

```
int x = 5;
int y, z;

y = ++x; // Pre-increment: x becomes 6, then y = 6
z = x++; // Post-increment: z = 6, then x becomes 7

// Equivalent operations:
x = x + 1; // Same as x++ or ++x when used alone
x += 1;    // Same as above
```

## Python vs C:

Python	C
<code>x += 1</code>	<code>x++</code> or <code>++x</code> or <code>x += 1</code>
<code>x -= 1</code>	<code>x--</code> or <code>--x</code> or <code>x -= 1</code>

# 4.5 Operator Precedence

Priority	Operators	Associativity
1 (Highest)	<code>++</code> , <code>--</code> (postfix)	Left to right
2	<code>++</code> , <code>--</code> (prefix), <code>+</code> , <code>-</code> (unary)	Right to left
3	<code>*</code> , <code>/</code> , <code>%</code>	Left to right
4	<code>+</code> , <code>-</code> (binary)	Left to right
5 (Lowest)	<code>=</code> , <code>+=</code> , <code>-=</code> , etc.	Right to left

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