

Chapter 4: Python Operators

1. Python Arithmetic Operators

Arithmetic operators are used with numeric values to perform common mathematical operations:

Operator	Name	Example
+	Addition	$x + y$
-	Subtraction	$x - y$
*	Multiplication	$x * y$
/	Division	x / y
%	Modulus	$x \% y$

2. Python Assignment Operators

Assignment operators are used to assign values to variables:

Operator	Example	Same As
=	$x = 5$	$x = 5$
+=	$x += 3$	$x = x + 3$
-=	$x -= 3$	$x = x - 3$
*=	$x *= 3$	$x = x * 3$
/=	$x /= 3$	$x = x / 3$
%=	$x \% = 3$	$x = x \% 3$

3. Python Comparison Operators

Comparison operators are used to compare two values:

Operator	Name	Example
<code>==</code>	Equal	<code>x == y</code>
<code>!=</code>	Not equal	<code>x != y</code>
<code>></code>	Greater than	<code>x > y</code>
<code><</code>	Less than	<code>x < y</code>
<code>>=</code>	Greater than or equal to	<code>x >= y</code>
<code><=</code>	Less than or equal to	<code>x <= y</code>

4. Python Logical Operators

Logical operators are used to combine conditional statements:

Operator	Description	Example
<code>and</code>	Returns True if both statements are true	<code>x < 5 and x < 10</code>
<code>or</code>	Returns True if one of the statements is true	<code>x < 5 or x < 4</code>
<code>not</code>	Reverse the result, returns False if the result is true	<code>not(x < 5 and x < 10)</code>

5. Python Identity Operators

Identity operators are used to compare the objects, not if they are equal, but if they are actually the same object, with the same memory location:

Operator	Description	Example
<code>is</code>	Returns True if both variables are the same object	<code>x is y</code>
<code>is not</code>	Returns True if both variables are not the same object	<code>x is not y</code>

6. Python Membership Operators

Membership operators are used to test if a sequence is presented in an object:

Operator	Description	Example
In	Returns True if a sequence with the specified value is present in the object	x in y
not in	Returns True if a sequence with the specified value is not present in the object	x not in y

7. Python Bitwise Operators

Bitwise operators are used to compare (binary) numbers:

Operator	Name	Description	Example
&	AND	Sets each bit to 1 if both bits are 1	x & y
 	OR	Sets each bit to 1 if one of two bits is 1	x y
^	XOR	Sets each bit to 1 if only one of two bits is 1	x ^ y
~	NOT	Inverts all the bits	~x