



Python Operators

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Python Operators

Operators are used to perform operations on variables and values.

In the example below, we use the `+` operator to add together two values:

Example

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```
print(10 + 5)
```

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Python divides the operators in the following groups:

- Arithmetic operators
- Assignment operators
- Comparison operators
- Logical operators
- Identity operators
- Membership operators
- Bitwise operators

Python Arithmetic Operators

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

Operator	Name	Example	Try it
+	Addition	x + y	Try it »
-	Subtraction	x - y	Try it »
*	Multiplication	x * y	Try it »
/	Division	x / y	Try it »
%	Modulus	x % y	Try it »
**	Exponentiation	x ** y	Try it »
//	Floor division	x // y	Try it »

Python Assignment Operators

Assignment operators are used to assign values to variables:

Operator	Example	Same As	Try it
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-=	x -= 3	x = x - 3	Try it »
*=	x *= 3	x = x * 3	Try it »
/=	x /= 3	x = x / 3	Try it »
%=	x %= 3	x = x % 3	Try it »
//=	x //= 3	x = x // 3	Try it »
**=	x **= 3	x = x ** 3	Try it »
&=	x &= 3	x = x & 3	Try it »
=	x = 3	x = x 3	Try it »
^=	x ^= 3	x = x ^ 3	Try it »
>>=	x >>= 3	x = x >> 3	Try it »
<<=	x <<= 3	x = x << 3	Try it »
:=	print(x := 3)	x = 3 print(x)	Try it »

Python Comparison Operators

Comparison operators are used to compare two values:

Operator	Name	Example	Try it
==	Equal	x == y	Try it »
!=	Not equal	x != y	Try it »
>	Greater than	x > y	Try it »
<	Less than	x < y	Try it »
>=	Greater than or equal to	x >= y	Try it »
<=	Less than or equal to	x <= y	Try it »

Python Logical Operators

Logical operators are used to combine conditional statements:

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

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:



is not

Returns True if both variables are not the same object

x is not y

Try it »

Python Membership Operators

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

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

Python Bitwise Operators

Bitwise operators are used to compare (binary) numbers:

Operator	Name	Description	Example	Try it
&	AND	Sets each bit to 1 if both bits are 1	x & y	Try it »
	OR	Sets each bit to 1 if one of two bits is 1	x y	Try it »
^	XOR	Sets each bit to 1 if only one of two bits is 1	x ^ y	Try it »
~	NOT	Inverts all the bits	~x	Try it »
<<	Zero fill left shift	Shift left by pushing zeros in from the right and let the leftmost bits fall off	x << 2	Try it »
>>	Signed right shift	Shift right by pushing copies of the leftmost bit in from the left, and let the rightmost bits fall off	x >> 2	Try it »

Operator Precedence

Operator precedence describes the order in which operations are performed.

Example

Parentheses has the highest precedence, meaning that expressions inside parentheses must be evaluated first:

```
print((6 + 3) - (6 + 3))
```

Run example »

Example

Multiplication * has higher precedence than addition +, and therefor multiplications are evaluated before additions:

```
print(100 + 5 * 3)
```

Run example »





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<code>()</code>	Parentheses													Try it »
<code>**</code>	Exponentiation													Try it »
<code>+x</code> <code>-x</code> <code>~x</code>	Unary plus, unary minus, and bitwise NOT													Try it »
<code>*</code> <code>/</code> <code>//</code> <code>%</code>	Multiplication, division, floor division, and modulus													Try it »
<code>+</code> <code>-</code>	Addition and subtraction													Try it »
<code><<</code> <code>>></code>	Bitwise left and right shifts													Try it »
<code>&</code>	Bitwise AND													Try it »
<code>^</code>	Bitwise XOR													Try it »
<code> </code>	Bitwise OR													Try it »
<code>==</code> <code>!=</code> <code>></code> <code>>=</code> <code><</code> <code><=</code> <code>is</code> <code>is not</code> <code>in</code> <code>not in</code>	Comparisons, identity, and membership operators													Try it »
<code>not</code>	Logical NOT													Try it »
<code>and</code>	AND													Try it »
<code>or</code>	OR													Try it »

If two operators have the same precedence, the expression is evaluated from left to right.

Example

Addition `+` and subtraction `-` has the same precedence, and therefor we evaluate the expression from left to right:

```
print(5 + 4 - 7 + 3)
```

[Run example »](#)

Test Yourself With Exercises

Exercise:

Multiply `10` with `5`, and print the result.

```
print(10  5)
```

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