Operators in Python

1. Arithmetic Operators

Used for basic mathematical operations:

Operator	Description	Example
`+`	Addition	`a + b`
`-`	Subtraction	`a - b`
`*`	Multiplication	`a * b`
`/`	Division	`a / b`
`%`	Modulus (remainder)	`a % b`
`**`	Exponentiation	`a ** b`
`//`	Floor division	`a // b`

2. Comparison Operators (Relational)

Used to compare two values:

Operator	Description	Example
`==`	Equal to	`a == b`
`!=`	Not equal to	`a != b`
`>`	Greater than	`a > b`
`<`	Less than	`a < b`
`>=`	Greater than or equal to	`a >= b`
`<=`	Less than or equal to	`a <= b`

3. Logical Operators

Used to combine conditional statements:

Operator	Description	Example
and	Returns True if both are True	a and b
or	Returns True if one is True	a or b
not	Reverses the result	not a

4. Assignment Operators

Used to assign values to variables:

Operator	Description	Example
=	Assign	a = 5
+=	Add and assign	a += 2
-=	Subtract and assign	a -= 2
*=	Multiply and assign	a *= 2
/=	Divide and assign	a /= 2
//=	Floor divide and assign	a //= 2
%=	Modulus and assign	a %= 2
**=	Exponent and assign	a **= 2

5. Bitwise Operators

Operate on bits:

Operator	Description	Example
&	AND	a & b
|	|	a | b
^	XOR	a ^ b
~	NOT	~a
<<	Left shift	a << 1
>>	Right shift	a >> 1

6. Membership Operators

Used to test for membership in a sequence:

Operator	Description	Example
in	True if value is found	'a' in 'cat'
not in	True if not found	'x' not in 'cat'

7. Identity Operators

Check if two variables refer to the same object:

Operator	Description	Example
is	True if same object	a is b
is not	True if not same	a is not b