**Python Operators**

Operators are particular symbols which operate on some values and produce an output.

The values are known as Operands.

**Eg:**

1. 4 + 5 = 9

Here 4 and 5 are Operands and (+) , (=) signs are the operators. They produce the output 9.

**Python supports the following operators:**

1. Arithmetic Operators.
2. Relational Operators.
3. Assignment Operators.
4. Logical Operators.
5. Membership Operators.
6. Identity Operators.
7. Bitwise Operators.

**Arithmetic Operators:**

|  |  |
| --- | --- |
| **Operators** | **Description** |
| // | Perform Floor division(gives integer value after division) |
| + | To perform addition |
| - | To perform subtraction |
| \* | To perform multiplication |
| / | To perform division |
| % | To return remainder after division(Modulus) |
| \*\* | Perform exponent(raise to power) |

**eg:**

1. >>> 10+20
2. 30
3. >>> 20-10
4. 10
5. >>> 10\*2
6. 20
7. >>> 10/2
8. 5
9. >>> 10%3
10. 1
11. >>> 2\*\*3
12. 8
13. >>> 10//3
14. 3
15. >>>

**Relational Operators:**

|  |  |
| --- | --- |
| **Operators** | **Description** |
| < | Less than |
| > | Greater than |
| <= | Less than or equal to |
| >= | Greater than or equal to |
| == | Equal to |
| != | Not equal to |
| <> | Not equal to(similar to !=) |

**eg:**

1. >>> 10<20
2. True
3. >>> 10>20
4. False
5. >>> 10<=10
6. True
7. >>> 20>=15
8. True
9. >>> 5==6
10. False
11. >>> 5!=6
12. True
13. >>> 10<>2
14. True
15. >>>

**Assignment Operators:**

|  |  |
| --- | --- |
| **Operators** | **Description** |
| = | Assignment |
| /= | Divide and Assign |
| += | Add and assign |
| -= | Subtract and Assign |
| \*= | Multiply and assign |
| %= | Modulus and assign |
| \*\*= | Exponent and assign |
| //= | Floor division and assign |

**eg:**

1. >>> c=10
2. >>> c
3. 10
4. >>> c+=5
5. >>> c
6. 15
7. >>> c-=5
8. >>> c
9. 10
10. >>> c\*=2
11. >>> c
12. 20
13. >>> c/=2
14. >>> c
15. 10
16. >>> c%=3
17. >>> c
18. 1
19. >>> c=5
20. >>> c\*\*=2
21. >>> c
22. 25
23. >>> c//=2
24. >>> c
25. 12
26. >>>

**Logical Operators:**

|  |  |
| --- | --- |
| **Operators** | **Description** |
| and | Logical AND(When both conditions are true output will be true) |
| or | Logical OR (If any one condition is true output will be true) |
| not | Logical NOT(Compliment the condition i.e., reverse) |

**eg:**

1. a=5>4 and 3>2
2. print a
3. b=5>4 or 3<2
4. print b
5. c=not(5>4)
6. print c

**Output:**

1. >>>
2. True
3. True
4. False
5. >>>

**Membership Operators:**

|  |  |
| --- | --- |
| **Operators** | **Description** |
| in | Returns true if a variable is in sequence of another variable, else false. |
| not in | Returns true if a variable is not in sequence of another variable, else false. |

**eg:**

1. a=10
2. b=20
3. list=[10,20,30,40,50];
4. if (a in list):
5. print "a is in given list"
6. else:
7. print "a is not in given list"
8. if(b not in list):
9. print "b is not given in list"
10. else:
11. print "b is given in list"

**Output:**

1. >>>
2. a is in given list
3. b is given in list
4. >>>

**Identity Operators:**

|  |  |
| --- | --- |
| **Operators** | **Description** |
| is | Returns true if identity of two operands are same, else false |
| is not | Returns true if identity of two operands are not same, else false. |

**Example:**

1. a=20
2. b=20
3. if( a is b):
4. print  ?a,b have same identity?
5. else:
6. print ?a, b are different?
7. b=10
8. if( a is not b):
9. print  ?a,b have different identity?
10. else:
11. print ?a,b have same identity?

**Output:**

1. >>>
2. a,b have same identity
3. a,b have different identity
4. >>>