```
# Arithmetic Operators +, -, *, / , // , ** , %
a,b = 5, 2
print(a+b) #7
print(a-b) #3
print(a*b) #10
print(a/b) #2.5
print(a%b) #1
print(a**b) #25 # a**b (a to the power b)
print(a//b) #2 #Floor Division returns the whole number of division
```

```
# Assignment Operators  =, +=, -=, *=, /= , //== , **= , %= , &=, |=, ^=, >>==, <<==

a = 20
b = 10
a+=1 #a = a+1 -->20+1 = 21
b+=1 #b = b+1 -->10+1 = 11
print(a) #21
print(b) #11

c = 30
d = 30
c+=d # c= c+d --> 30+30 = 60
print(c) #60
```

```
# Comparison Operators ==, !=, >, <, >=, <=
a = 10
b = 10
c = 20
print(a==b) #10==10 #True
print(a==c) #10==20 #False

print(a!=b) #False

print(a>c) #10>20 #False

print(a<c) #10<20 #True

print(1>=2) # False
print(1<=2) # True
```

```
# Logical Operators and, or, not

print(True and True)  #True
print(True and False) #False
print(False and True) #False
print(False and False)#False

x = 5
print(x == 3 and x == 5) #False and True = False

y = 15
print(y == 10 and y==20) #False and False = True

z = 20
print(z == 20 and z == 20) #True and True = True

xyz = 10
print(xyz==10 and xyz==30) #True and False = False
```

```
# Logical Operators
print(True or True)  #True
print(True or False) #True
print(False or True) #False
print(False or False)#False

# Or -->At least one expression needs to be true
print(10==20 or 20==20) #True

# not -->but false here, used for reversing the result
print(not(10==10 or 30==30)) #False
```

```
# Logical Operators
# if any condition is (not True) then false and (not False) then true
print(not True)    # False
print(not False)   # True
```

```
# Bitwise NOT ~
# All the binary 0`s become 1`s and all the binary 1`s become 0`s (Binary signed 2's complement)

a = 6 # Binary Number : 110, Binary signed 2's complement: 1111111111111001
print(~a)  # -7,

b = -7 # Binary Number: -111, Binary signed 2's complement: 0000000000000110
print(~b)  # 6
```

```
# Membership Operators
# Returns True if a sequence value is present in the object
l = [1,2,3,4,5]
print(2 in l)  # True
print(10 in l)  # False

# Returns True if a sequence value is not present in the object
l = [1,2,3,4,5]
print(2 not in l)  # False
print(10 not in l)  # True
```

```
# Identity Operators
# Reference Equality
l1 = [1,2,3,4,5]
l2 = [1,2,3,4,5]
l3 = l1

print(id(l1), id(l2), id(l3))
print(l1 is l2)  # Refers to diff object ref so False
print(l3 is l1)  # Refers to same object ref so True
```

```
1014065548672 1014065583424 1014065548672
False
True
```

```
# == value equality
l1 = [1,2,3,4,5]
l2 = [1,2,3,4,5]
l3 = l1

print(id(l1), id(l2)) # diff objects
print(l1 == l2)  # Value equality, Two objects have the same value so True
print(l3 == l1)  # Value equality, Two objects have the same value so True
```

```
1008298446272 1008298481024
True
True
```