In [ ]:
```
#What is an Operator?
#operators are the symbols that are used to perform a specific task.
+ --> add
- --> sub
* --> mult
```

In [ ]:
```
a=2   #a is variable , = operator , 2 int object
b=3   #b is a variable , = operator , 3 int object
c=a+b --> + is an operator , = is an operator ,c is variable , a and b are operand
```

In [ ]:
```
a+b --> expression
```

In [1]:
```
3+2
```

Out[1]:
```
5
```

In [ ]:
```
a=10
b=29
#c=a+b-a
operand-->  a, b
expersion-->a+b-a
operator --> +,-,=
variable -->c
```

In [ ]:
```
#How many Types of Operator we have?
1.Arithmetic operators
2.Comparison and relational operators
3.Assignment operator
4.Membership
5.Identitty Operator
6.Logical
```

In [ ]:
```
#Arithmetic Operators
1) --> + --> Addition
2) --> - -->Subtraction
3) --> * --> Multiplication
4) --> / --> Division
5) --> // --> Floor Division
6) --> % --> Modulus --> Reminder
7) --> ** --> Exponential ---> power x^y
```

In [2]:
```
a=40
b=20
print("a+b = ",a+b)   #30
print("a-b = ",a-b)   #-10
print("a*b = ",a*b)    #200
print("a/b = ",a/b)   #2
print("a//b = ",a//b)   #2
print("a%b = ",a%b)     #0
print("a**b = ",a**b) #40^20
```

```
a+b =  60
a-b =  20
a*b =  800
a/b =  2.0
a//b =  2
a%b =  0
a**b =  109951162777600000000000000000000
```

Note: / division operator always perform floating point arthmetic opertions that means it will always return float value // floor division performs both floating and intergral Arthmetic operations. if all arguments are of int type then it will return output as integer value . if atleast one argument is float then you will get reuslt as float

In [ ]:
```
floor --> bottom(lower)
ceil --> top
```

In [13]:
```
a=7
b=28.5
a//b
```

Out[13]:
```
0.0
```

In [ ]:
```
#Comparison Operators or Relational Operators
> --> Grater Than
< --> Less than
>= --> Greater than equal to
<= --> Less than equal to
== --> Equal to  --> will check the content if content are sam e the  ture
!= --> Not equal to

Result as True or False
```

In [20]:
```
a=10
b=10
a==b
#Generally comparision or relational operators are used in loops and if else conditon
```

Out[20]:
```
True
```

In [24]:
```
#Write a code that will check weather the first value is greater or second
x=int(input())
y=int(input())
if x>y:
    print("x is greater")
else:
    print("y is greater")
```

```
10
20
y is greater
```

In [ ]:
```
#Assignment Operators

we can use assignment operators for assigning a value into a variable
ex - x=10

We can also combine more than one operators with assignment operator
x+=10
x=x+10
```

In [ ]:
```
x+=10 -->     x =x+10
x-=10 ---> x=x-10
x*=1- --> x=x*10
x/=10  --> x=x/10
x//=10  -->x=x//10
x%=10 --> x=x%10
**=10 --> x=x**10
```

In [ ]:
```
a==b  #Comparing the content
a=b # Assiging the value a into b
is is used for comparing the address of the object
```

In [ ]:
```
#Membership Operators: We can use membership operators to check weather a given element is
present in the given sequence or not
in  --> if element is present then we wil get answer as true

not in --> if element is not present the we will get answer as true
 this operator is used in case of for and conditional loop
```

In [28]:
```
x=[10,20,30,40]
20 not in x
```

Out[28]:
```
False
```

In [ ]:
```
#Identity Operators--> used for address comparison

is
is not
```

In [31]:
```
a=[10,20,30]
b=[10,20,30]
a == b
```

Out[31]:
```
True
```

In [ ]:
```
#Logical Operators
#Most important operator and it is also used in for and while loop along conditionl statements
```

In [ ]:
```
#For boolean datatypes behaviour
#and --> if both arguments are True then you will get answer as tRUE ELSE FALSE
#or  --> IF ANY ONE ARGUMENT IS TRUE THEN YOU WILL GET ANSWER AS TRUE ELSE FALSE
#not --> complement --> If true is argument then it return complement as False

True and False  --> False
True and True -->True
True or False --> True
True or True --> True
not True --> False
not False --> True
```

In [ ]:
```
#For non boolean datatypes
0 means False
non zero means True
empty string means False
```

In [43]:
```
100 and 200
```

Out[43]:
```
200
```

In [34]:
```
52 and 95
```

Out[34]:
```
95
```

In [ ]:
```
two arguments like x and y
x and  y
if   x evaluates to false  return x otherwise return y
```

In [ ]:
```
two arguments like x or y
x or  y
if   x evaluates to True  return x otherwise return y
```

In [33]:
```
#example
0 and 20
```

Out[33]:
```
0
```

In [35]:
```
10 or 20
```

Out[35]:
```
10
```

In [37]:
```
0 and 20
```

Out[37]:
```
0
```

In [39]:
```
not 0
```

Out[39]:
```
True
```

In [ ]:
```
#Operator Procedence
```

In [ ]:
```
if we have more than one operator in an expression then we should
use operator procedence  for the evaluation
```

Operator Procedence Operators Meaning () Parentheses ** Exponent *, /, //, % Multiplication, Division, Floor division, Modulus +, - Addition, Subtraction ==, !=, >, >=, <, <=, is, is not, in, not in Comparisons, Identity, Membership operators not Logical NOT and Logical AND or Logical OR

In [ ]:
```
3/2*4+3+(10/5)**3-2
3/2*4+3+2.0**3-2
3/2*4+3+8.0-2
1.5*4+3+8.0-2
6.0+3+8.0-2
17.0-2
15.0
```

In [42]:
```
2*3**3*3**3
2*27*3**3
2*27*27
54*27
```

Out[42]:
```
1458
```

In [40]:
```
3/2*4+3+(10/5)**3-2
```

Out[40]:
```
15.0
```

In [41]:
```
int(1.5*4)
```

Out[41]:
```
6
```

Practice Questions:

Problem 1: We need to take input from the user and perform addition , subtraction , multiplication , division , floor division , modulus and power operations Example: input : 10 2 Output: Additon of given numbers is - 12 Subtraction of given numbers is - 8 Multiplication of given numbers is - 20 Divison of given numbers is - 5.0Problem 2: We need to take input from the user as Principle , amount , and rate and based on the given value we need to find the simple interest? Example input : 200 2 2 Output: Simple interest is 8Problem 3: Temperature conversion in which you will have ferneheit scale and based on that scale you need to convert that temperature into celsious? T(oC) = ((T(oF) - 32) × 5)/9 Algorithm: Define temperature in Fahrenheit unit. Apply in the formula. Print the temperature in Celsius. Example: Input : Farenhrit value is 54 Output: Temperature in Celsius value is 12.22222

In [ ]:
```
```