Math

For more math module you can go for
Link —> https://docs.python.org/3/library/math.html

math.ceil( ) :

- It will take the float value and return the next integer value (upper value)

ex — math.ceil(12.3)
13

math.floor( ) :

- It will take the float value and return the previous value (lower value)

ex — math.floor(13.9)
13

math.fabs( )

- Whenever we pass negative number it will return a positive number

ex — math.fabs(-5)
5

- If we give +ve number it will return positive

math.fmod( )

- It will return the modules . It will gives the remainder

```
>>> math.fabs(-12.34567)
12.34567
>>> math.fabs(12.34567)
12.34567
>>> math.fmod(11,3)
2.0
>>> math.fmod(12,5)
2.0
```

math.sqrt( )

It will give you the square root of a number

math.isqrt( )

It will return the result of square root only in integer form not in float form

```
>>> import math
>>> math.sqrt(25)
5.0
>>> math.sqrt(27)
5.196152422706632
>>> math.isqrt(27)
5
```

math.pow( )
It will give you the power value

math.factorial( )
Lets find out factorial of 5
5 —> 1*2*3*4*5
—> 120

```
>>> math.pow(10,2)
100.0
>>> math.pow(2,10)
1024.0
>>> math.factorial(5)
120
```

math.gcd( )
Greatest common divisor
How to find ?

- Step 1: Write the divisors of positive integer "a".
- Step 2: Write the divisors of positive integer "b".
- Step 3: Enlist the common divisors of "a" and "b".
- Step 4: Now find the divisor which is the highest of both "a" and “b".

```
>>> import math
>>> math.gcd(35,21)
7
```

math.perm( )
It will give the result in npr . And its formula is nPr = n!/(n-r)!

ex —> 5P2 = 5!/(5-2)!
—> 5! / 3!
—>5*4*~~3*2*1~~/ ~~3*2*1~~
—>5*4
—> 20

math.comb( )

nCr = n! / (n-r)! r !

```
>>> math.perm(5,2)
20
>>> math.comb(5,2)
10
```

math.prod( )

It will give the product list of item

ex—> [1,2,3,4,5]
—> 1*2*3*4*5
—> 120

It will multiply this values and gives you the product values

math.fsum( )

It will give the value of sum

ex—> [1,2,3,4,5]
—> 1+2+3+4+5
—> 15

```
>>> math.prod([1,2,3,4,5])
120
>>> math.prod([0,1,2,3,4])
0
>>> math.fsum([2,2,2,2,2])
10.0
>>> math.fsum([1,2,3,4,5])
15.0
```

math.radians( )
Convert angle x from degrees to radians.

math.degree( ) :
Convert angle x from radians to degrees.

```
>>> import math
>>> math.radians(30)
0.5235987755982988
>>> math.radians(180)
3.141592653589793
```

math.sin( ) , math.cos( ) , math.tan( ) :

It will take it as a form of radians

```
>>> math.sin(math.radians(30))
0.49999999999999994
>>> math.cos(math.radians(60))
0.5000000000000001
>>> math.tan(math.radians(45))
0.9999999999999999
```

math.log( ) , math.log10 , math.log2 ( ) :

```
>>> import math
>>>
>>> math.log2(1024)
10.0
>>> math.log2(256)
8.0
```

math.pi , math.e , math.nan

```
>>> math.pi
3.141592653589793
>>> math.e
2.718281828459045
>>> math.nan
nan
>>>
```