

```
def greet(name):  
    print("hello," + name + "!")  
greet("alice")  
hello,alice!
```

#positional arguments

```
def add(a, b):  
    return a + b  
print(add(5, 3))  
8
```

keyword arguments

```
def greet(name, message):  
    print(message + "," + name + "!")  
greet(name="alice", message="hello")  
hello,alice!
```

default arguments

```
def greet(name, message="hello"):  
    print(message + "," + name + "!")  
greet("alice")  
hello,alice!
```

variable length argument

1. positional arguments

```
def sum_arguments(*numbers):  
    return sum(numbers)  
print(sum_arguments(1, 2, 3, 4))  
10
```

keyword argument

```
def rajesh(**numbers):  
    for key, value in numbers.items():  
        print(f"{key}: {value}")  
rajesh(name="rajesh", age=30, city="new york")
```

```
name: rajesh
age: 30
city: new york
```

return statement

```
def square(num):
    return num * num
result=square(5)
print(result)
```

```
25
```

modules

```
import math
print(math.sqrt(16))
```

```
4.0
```

Import specific functions

```
from math import pi, sin
print(pi)
print(sin(math.radians(90)))
```

```
3.141592653589793
```

```
1.0
```

```
def is_prime(num):
    if num < 1:
        return False
    for i in range(2, int(num ** 0.5) + 1):
        if num % i == 0:
            return False
    return True
number = int(input("enter a number : "))
if is_prime(number):
    print("the number is prime. ")
else:
    print("the number is not prime. ")
```

```
enter a number : 2
the number is prime.
```

create a function to generate fibonacci sequence

```
def fibonacci(n):
    sequence = []
```

```

a,b = 0,1
for _ in range(n):
    sequence.append(a)
    a, b = b, a + b
return sequence
terms = int(input("enter the number of terms:"))
result = fibonacci(terms)
print("fibonacci sequence:",result)

```

```

enter the number of terms:23
fibonacci sequence: [0]

```

use the 'mat' module to solve a problem

```

import math
angle=float(input("enter an angle in degrees:"))
radian=math.radians(angle)
print("since of angle:", math.sin(radian))
print("cosine of angle:",math.cos(radian))

enter an angle in degrees:90
since of angle: 1.0
cosine of angle: 6.123233995736766e-17

```

Factorial using Recursion

```

def factorial(n):
    if n == 0:
        return 1
    else:
        return n * factorial(n - 1)
num = int(input("enter a number : "))
print("factorial:", factorial(num))

enter a number : 3
factorial: 6

```

Reverse a string using a function

```

def reverse_string(s):
    return s[::-1]
text = input("enter a string:")
print("reversed string:", reverse_string(text))

enter a string:34
reversed string: 43

```

Find GCD of two numbers using a function

```
def gcd(a, b):  
    while b:  
        a, b = b, a % b  
    return a  
num1 = int(input("enter first number:"))  
num2 = int(input("enter second number:"))  
print("GCD:", gcd(num1,num2))
```

```
enter first number:123  
enter second number:248  
GCD: 1
```