Program :-

```
import math
import random
import os
import sys
import statistics as stats
from pathlib import Path

print ("\n--- MATH & RANDOM ---")
print ("sqrt (5) = ", math.sqrt(5))
print ("radians (30) = ", math.radians(30))
print ("random() in [0,1] =", random.random())
print ("randint [2,6] = ", random.randint (2,6))
print ("pi = ", math.pi)
print ("ceil(2,3) = ", math.ceil(2,3))
print ("gcd (5,15) = ", math.gcd(5,15))
print ("abs(-10) = ", abs(-10))
print ("pow(3,5) = ", pow(3,5))
print ("log base 3 of 2 = ", math.log(2,3))
a_val = 100
print (f"log 10({a_val}) = ", math.log10(a_val))
inf_val = float ('inf')
nan_val = float ('nan')
print (f"isinf(inf) = {math.isinf(inf_val)},
    isnan(NaN) = {math.isnan(nan_val)}")
print ("\n--- OS & SYS ---")
Path_pythonlab = Path ("C:\Pythonlab")
Path_pythonlab.mkdir (parents = True, exist_ok
= True)
print (f"created/ensured : {Path_pythonlab}")
print ("current working directory :", os.getcwd())
target_dir = Path ("C:\Pythonlab\SELF")
```

2025/25 Teste - 3.1 : Importing and Creating python modules.

AIM :- To implement and demonstrate the process of importing built-in modules, creating user-defined modules, and organizing code into packages in Python, thereby promoting code reusability, modularity, and maintainability.

ALGORITHM :-

1) Import required modules : math, random, mode, standard deviation, os, sys, statistics, pathlib.
2) Math & random :
   - Compute sqrt(5), radians(30), a random float in [0.0, 1.0],
   a random integer in [2,6].
3) OS & sys :
4) statics.
5. Print neatly.

```
target_dir.mkdir(parents=True, exist_ok=True)
os.chdir(target_dir)
print(f"Changed into: {target_dir}")
print("Directory contents:", os.listdir())
print("Python version:", sys.version)

print(f"mean({data}) =", stats.mean(data1))
print(f"median({data}) =", stats.median(data1))
print(f"mode({data2}) =", stats.mode(data2))
print(f"stdev({data}) =", stats.stdev(data2))
```

RESULT :- Thus the program for importing built-in modules is successfully completed.

Task No: 13.2
Date: 2018/12/5

Program:

```
import random
def func():
cards = []
for i in range (1,53):
cards.append(i)
shuffled_cards = random.sample(cards, k=52)
Print ("\n\n", shuffled_cards, "\n\n").
```

OUTPUT:

RESTART:

[5, 24, 13, 22, 20, 41,

AIM:- To create a Python Package named Cardpack Containing a module Cardfun that imports the random module.

ALGORITHM:-

Step 1: Start
Step 2: To create a package Cardpack.
Step 3: To create a module Cardfun and import built random function.
Step 4: Assign a cards range.
Steps: Call a module function.
Step 6: Display the random sample cards Step 7. Stop.

RESULT:- Creating a Python Package named Cardpack containing a module and successfully imported the random module

PROGRAM :-

```
def add (a,b):
return a+b
def subtract (a,b):
return a-b
def multiply (a,b):
return a*b
def divide (a,b):
  if b==0;
  raise value Error "(cannot divide by zero")
  return a/b

import mymath
a=10
b=5

Print ("Addition :", mymath.add (a,b))
Print ("Subtraction :", mymath.subtract (a,b))
Print ("Multiplication :", mymath.multiply (a,b))
Print ("Division :", mymath.divide (a,b))
```

Task 3.3

Date : 20/8/25

You are tasked with developing a modular calculator application in Python. The calculator should support basic arithmetic operation.

AIM :- To develop a modular calculator application in Python which supports basic arithmetic operations.

ALGORITHM :-

1. Define function for addition, subtraction, multiplication and division.
2. Handle division by zero by raising an error if the division is 0.
3. Import the module containing these function.
4. Initialize two numbers (a=10, b=5).
5. Call each function using mymath.<function_name> (a,b).
6. Print the results of all operations.

~~RESULT~~

Task 3.4

Date :- 20/9/25

You are working on a Python project that requires you to perform various mathematical operations and geometric area calculations.

AIM :-

ALGORITHM :-

1. Create mathfunctions.py module:
2. Create Areafunctions.py module:
3. Create main.py
4. Print the output as expected.

PROGRAM :-

1. Create the mathfunctions.py module

```
def add(a,b):
return a+b
def subtract(a,b):
 return a-b
 def multiply(a,b):
 return a*b
 def divide(a,b):
  if b==0:
  return "Error: Division by zero"
  return a/b
```

Output :-

Addition : 15
Subtraction : 5
multiplication : 50
Division : 2.0

Circle area : 153.93
Rectangle area : 50
Triangle area : 240

2. Create the area funtion Py module.

```
import math
def Circle_area(radius)
return math.Pi * radius * radius
def rectangle_area (length, width):
return length * width
def triangle_area (base, height)
return 0.5 * base * height
```

3.

```
Import math functions
import area functions.
Print ("addition :", math functions. add)
Print ("subtraction : ", ". Substract)
Print ("multiplication :", "multiply)
Print ("Division : ", ". divide)
Print ("Circle Area (radius=7: ", area functions,
                    Circle_Area (7))
Print ("Rectangle area (5x10):", area functions.
rect_area (5,10))
```

VEL TECH - CSE	
EX NO.	3
PERFORMANCE (5)	5
RESULT AND ANALYSIS (3)	5
VIVA VOCE (3)	5
RECORD (4)	
TOTAL (15)	15

SIGN WITH DATE

Result :- Thus the program for importing Python modules and packages was successfully executed.