1.

import math

print("Enter 3 sides of the triangle : ")

a=int(input("Enter a = "))

b=int(input("Enter b = "))

c=int(input("Enter c = "))

if (a+b>c and a+c>b and b+c>a):

s = (a+b+c)/2

area = math.sqrt((s\*(s-a)\*(s-b)\*(s-c)))

print("Area is : "+str(area))

else:

print('Error')

Output:

Enter 3 sides of the triangle :

Enter a = 5

Enter b = 5

Enter c = 5

Area is : 10.825317547305483

2.

import math

a = int(input("Enter First Number : "))

b = int(input("Enter Second Number : "))

mean = (a+b)/2

dev = (math.sqrt((a-mean)\*\*2+(b-mean)\*\*2))/mean

print("Mean = "+str(mean))

print("The Standard Deviation = "+str(dev))

Output:

Enter First Number : 1

Enter Second Number : 4

Mean = 2.5

The Standard Deviation = 0.8485281374238569

3.

exam1 = int(input("Enter marks out of 100 for exam1 : "))

exam2 = int(input("Enter marks out of 100 for exam2 : "))

sport = int(input("Enter marks out of 50 for sport : "))

act1 = int(input("Enter marks out of 20 for Activity 1 : "))

act2 = int(input("Enter marks out of 20 for Activity 2 : "))

act3 = int(input("Enter marks out of 20 for Activity 3 : "))

exam = exam1+exam2

act = act1+act2+act3

if (exam <=200 and sport <= 50 and act <= 60):

exam = (exam/200)\*100

act = (act/60)\*100

sport = (sport/50)\*100

examf = (exam\*50)/100

sportf = (sport\*20)/100

actf = (act\*30)/100

total\_stu = examf+sportf+actf

print("Student's Marks is : "+str(total\_stu))

100

else:

print("Try Again, Invalid Input!")

Output:

Enter marks out of 100 for exam1 : 90

Enter marks out of 100 for exam2 : 87

Enter marks out of 50 for sport : 46

Enter marks out of 20 for Activity 1 : 18

Enter marks out of 20 for Activity 2 : 17

Enter marks out of 20 for Activity 3 : 19

Student's Marks is : 89.65

4.

a = int(input("Enter a : "))

b = int(input("Enter b : "))

exp = a\*\*b

print("Result : "+str(exp))

Output:

Enter a : 5

Enter b : 2

Result : 25

5.

m = int(input("Enter Mass in Kg : "))

v = int(input("Enter Velocity m/s : "))

momentum = m\*v

energy = m\*v\*v

print("Momentum is : "+str(momentum)+" Energy is : "+str(energy))

Output:

Enter Mass in Kg : 500

Enter Velocity m/s : 2

Momentum is : 1000 Energy is : 2000

6.

f = str(input("FirstName : "))

l = str(input("LastName : "))

print("Hello! "+f+" "+l)

Output:

FirstName : Agnibesh

LastName : Mukherjee

Hello! Agnibesh Mukherjee

7.

a = int(input("a = "))

b = int(input("b = "))

c = int(input("c = "))

if(a>b and a>c):

print("a is greatest")

elif(b>c):

print("b is greatest")

else:

print("c is greatest")

Output:

a = 8

b = 6

c = 7

a is greatest

8.

income = float(input("Enter Income in Lakhs (e.g. 5.5) to Calc. Tax : "))

if(income<=1.5):

print("No TAX for you!")

elif(income>1.5 and income<=3):

tax = (income\*10)/100

print("Tax : "+str(tax)+" Lakhs")

elif(income>3 and income<=5):

tax = (income\*20)/100

print("Tax : "+str(tax)+" Lakhs")

elif(income>5):

tax = (income\*30)/100

print("Tax : "+str(tax)+" Lakhs")

else:

print("BYE")

Output:

Enter Income in Lakhs (e.g. 5.5) to Calc. Tax : 8.9

Tax : 2.67 Lakhs

9.

import math

print("Quadratic function : (a \* x^2) + b\*x + c")

a = float(input("a: "))

b = float(input("b: "))

c = float(input("c: "))

if a == 0:

print("Invalid")

d = b \* b - 4 \* a \* c

sqrt\_val = math.sqrt(abs(d))

if d > 0:

print((-b + sqrt\_val)/(2 \* a))

print((-b - sqrt\_val)/(2 \* a))

print("Roots are real and different ")

elif d == 0:

print("Roots are real and same")

print(-b / (2\*a))

else: #d<0

print("Roots are complex")

print(- b / (2\*a) , " + i", sqrt\_val)

print(- b / (2\*a) , " - i", sqrt\_val)

Output:

a: 1

b: 4

c: 2

-0.5857864376269049

-3.414213562373095 Roots are real and different

10.

from operator import add

l1 = [1,2,3,4,5]

l2 = l1[::-1]

print(list(map(add,l1,l2)))

Output:

[6, 6, 6, 6, 6]

11.

sum = 0

GROCERY = {"Water" : 500,

"Air" : 960,

"Food" : 1700,

"Shelter" : 30000,

"Internet" : 20

}

print("The Items with their Prices : ")

for x,y in GROCERY.items():

print(x,y)

for j in GROCERY.values():

sum = sum + j

print("\nTotal Bill is : ",str(sum))

Output:

The Items with their Prices :

Water 500

Air 960

Food 1700

Shelter 30000

Internet 20

Total Bill is : 33180