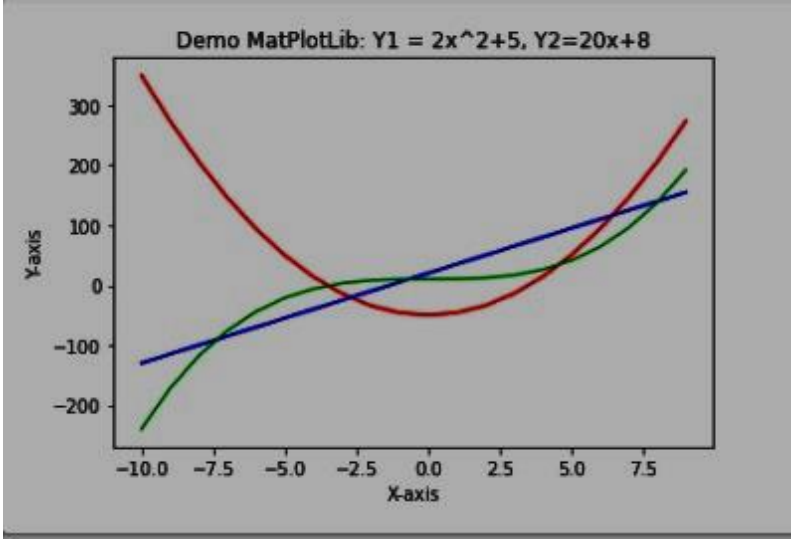
ชื่อ: นิธิศ ธีรวรวิทย์ รหัส: 23243

E1

Python Code and Program Result

```
import numpy as np
from matplotlib import pyplot as plt
x = np.array(range(-10,10))
y1 = 4*x**2-50  #function_1 : Parabola
y2 = 15*x+20    #function_2 : Linear
y3 = x**3/4+10
plt.title('Demo MatPlotLib: Y1 = 2x^2+5, Y2=20x+8')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.plot(x,y1,"r", x,y2,"b")
plt.plot(x,y1,"r", x,y2,"b", x,y3,"g")
plt.show()
```

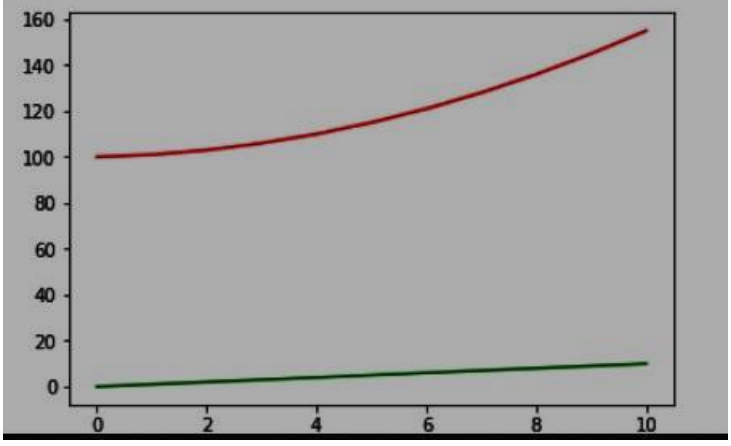


E2

Python Code and Program Result

```
import numpy as np
from matplotlib import pyplot as plt
Y = [100]
y1 = [0]
y = np.zeros([1,11],dtype=int)
for i in range(1,11):
    y[0][i] = input()
    y1.append(y[0][i])
    y[0][i] = y[0][i]+y[0][i-1]
    if i == 1:
      y[0][i] = y[0][i]+100
    Y.append(y[0][i])
x = [0,1,2,3,4,5,6,7,8,9,10]
plt.plot(x,Y,'r',x,y1,'g')
plt.show()
```

```
1
2
3
4
5
6
7
8
9
10
```



E3

Python Code and Program Result

```
import numpy as np
from matplotlib import pyplot as plt
a = np.array([22,87,5,43,56,73,55,54,11,20,51,5,
              79,31,27,65,60,99] )
hist,bins = np.histogram(a, bins = [0,50,60,70,80])
print(hist)
print(bins)
print('Obtain grade D',hist[0])
print('Obtain grade C',hist[1])
print('Obtain grade B',hist[2])
print('Obtain grade A',hist[3])
plt.title('Demo Histogram')
plt.hist(a, bins)
plt.show()
```

```
[8 4 2 2]
[ 0 50 60 70 80]
Obtain grade D 8
Obtain grade C 4
Obtain grade B 2
Obtain grade A 2
```