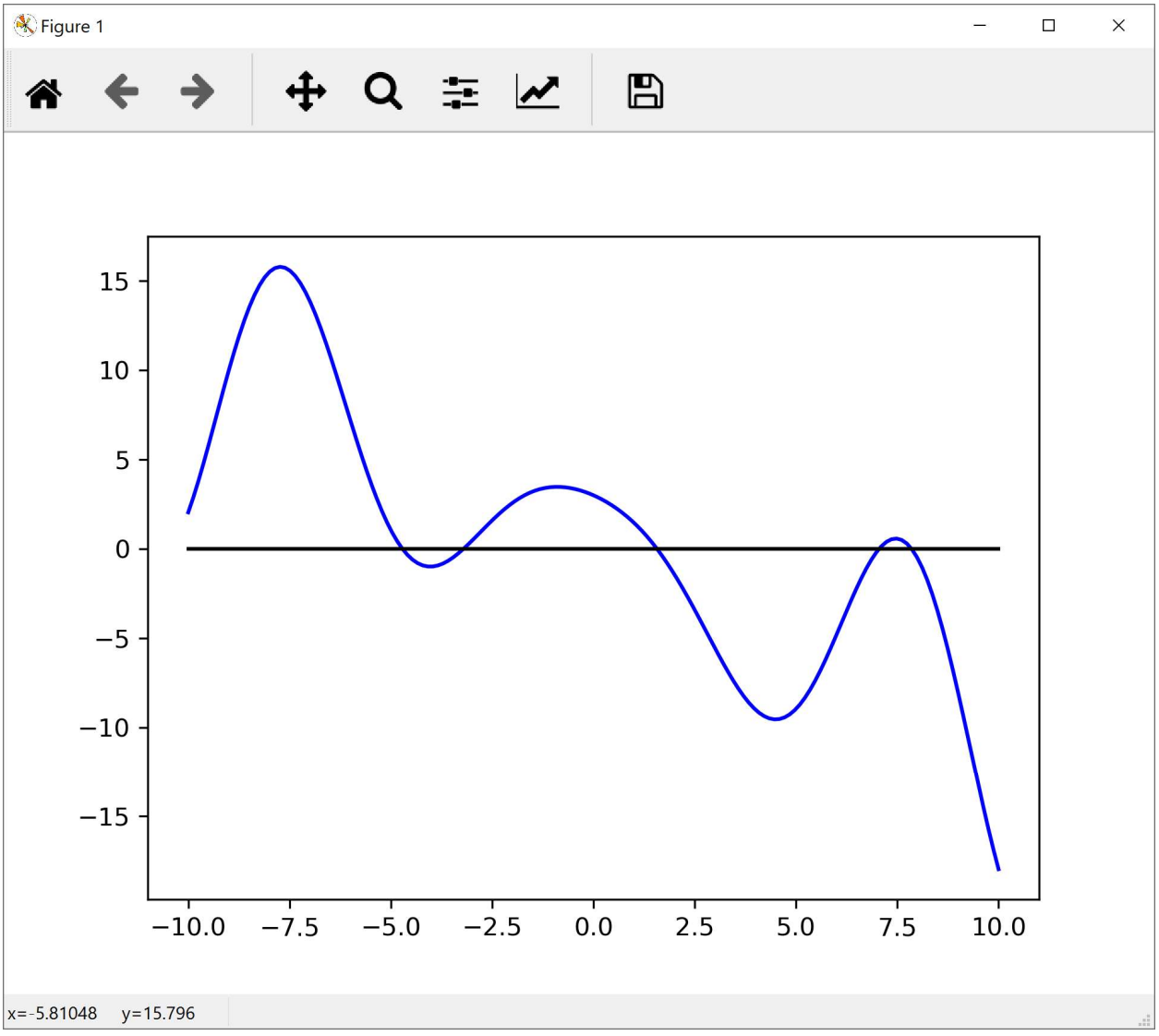
Task 4

```
-1 :algorithm terminated normally (due to error being sufficiently small)
-1 :algorithm terminated normally (due to error being sufficiently small)
[-4.712890625, -3.208984375, 1.5703125]
-1 :algorithm terminated normally (due to error being sufficiently small)
-1 :algorithm terminated normally (due to error being sufficiently small)
-1 :algorithm terminated normally (due to error being sufficiently small)


Task 4
Usign Bisect metion with bound for Y1 in incremetn of 1, Y2 in incremetns of 2 and Y3 in increments of 11. from -6-6
Y1 [-4.712890625, -3.208984375, 1.5703125]
Y2 [-4.493408203125, 4.493408203125]
Y3 [2.53466796875]

(base) C:\Users\ripti\Documents\GitHub\MEEN 357\Home Work>
main*  Python 3.7.4 64-bit ('base': conda)  0 4
```

I used bisection method for all code and iterated though an interval for ach after selecting an interval form the graph. See code for detail and values above ^



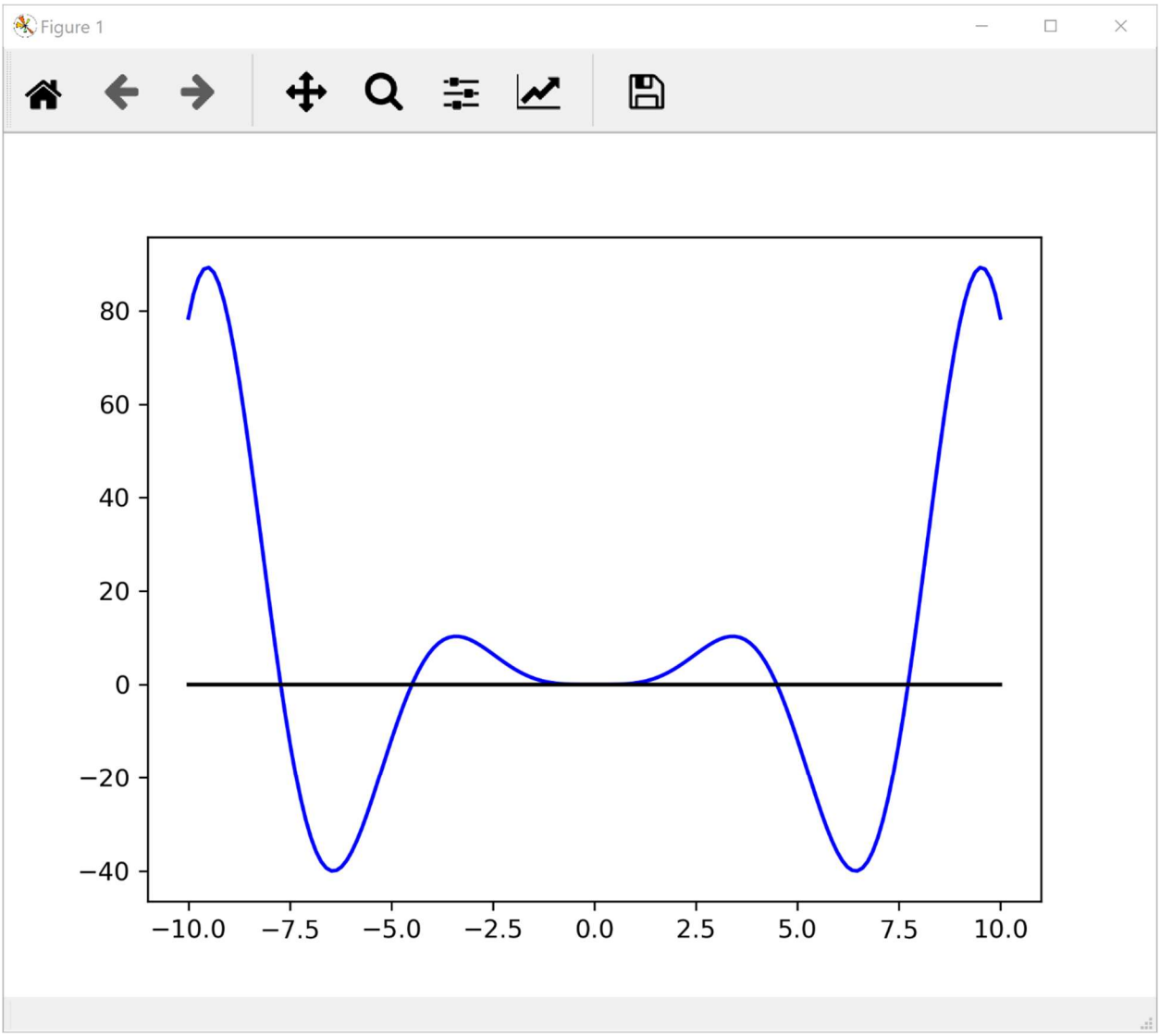


Figure 1
80
60
40
20
0
−20
−40
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

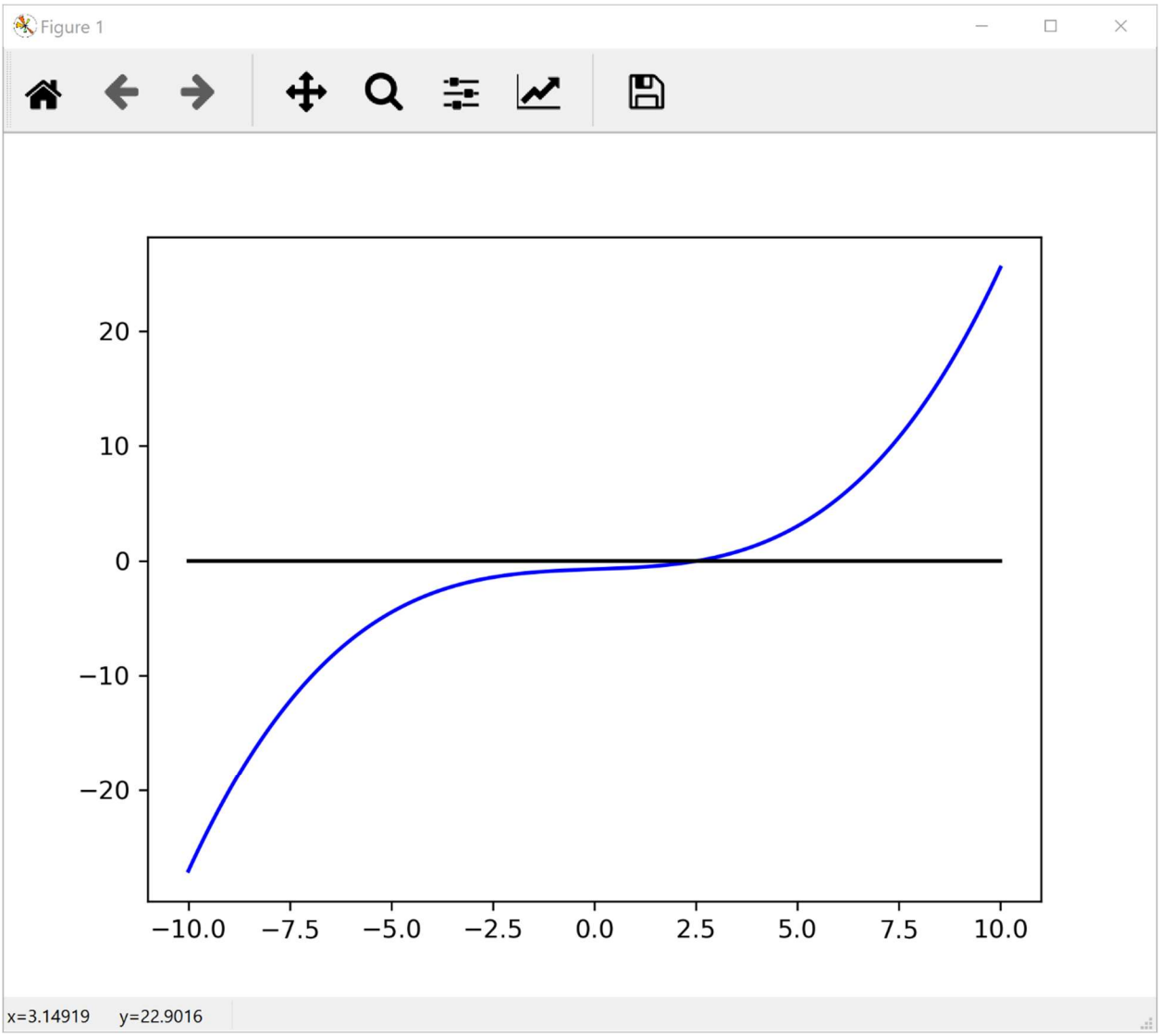
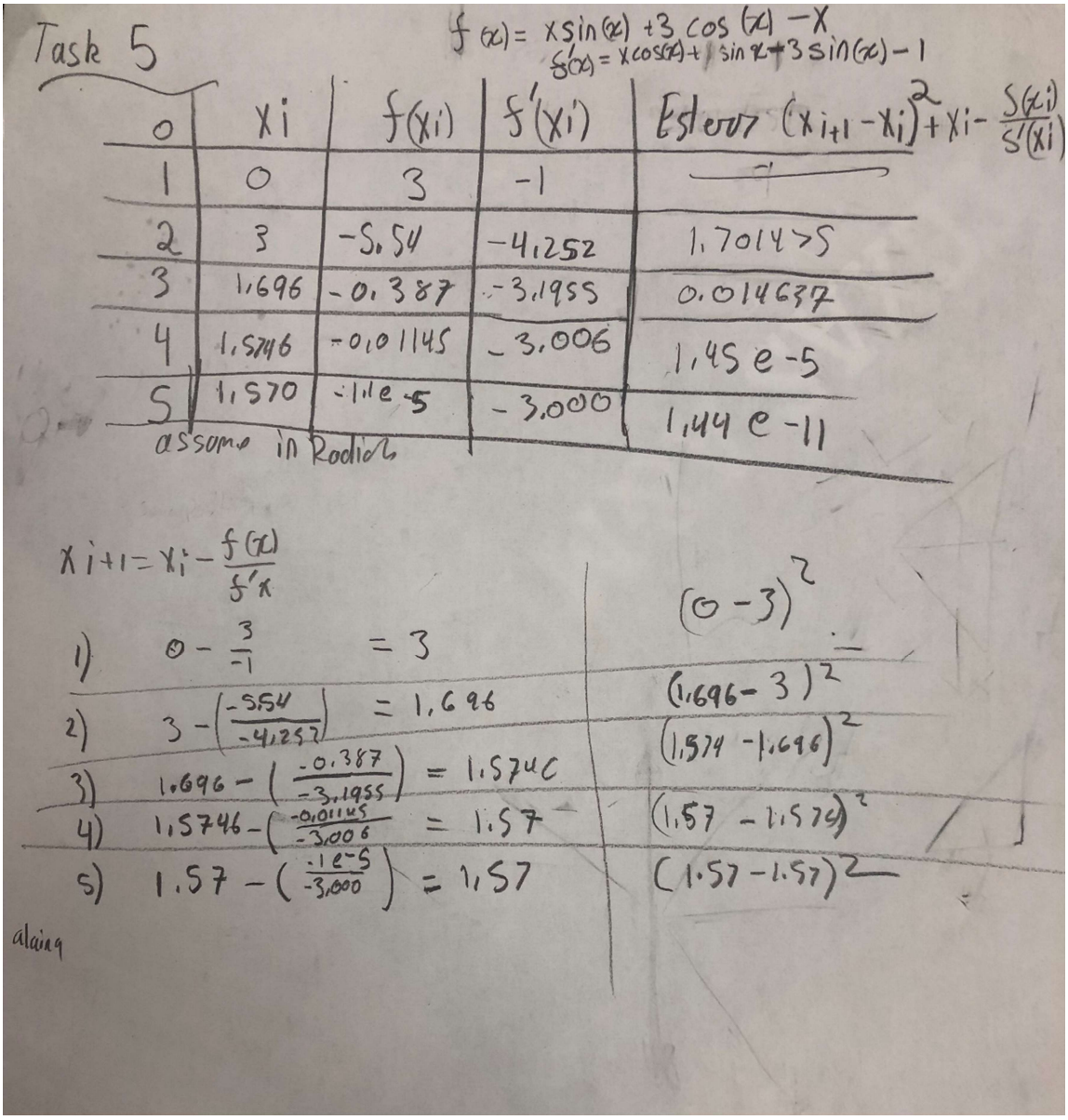


Figure 1
20
10
0
−10
−20
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
x=3.14919
y=22.9016

Task 5



Task 5

$f(x) = x\sin(x) + 3\cos(x) - x$

$f'(x) = x\cos(x) + \sin x + 3\sin(x) - 1$

0	Xi	f(Xi)	f'(Xi)	Estimate $(x_{i+1} - x_i)^2 + x_i - \frac{f(x_i)}{f'(x_i)}$
1	0	3	-1	—
2	3	-5.54	-4.252	1.701475
3	1.696	-0.387	-3.1955	0.014637
4	1.5746	-0.01145	-3.006	1.45 e-5
5	1.570	-1.1e-5	-3.000	1.44 e-11

assume in Radian

$X_{i+1} = X_i - \frac{f(x)}{f'x}$

1) $0 - \frac{3}{-1} = 3$ — $(0-3)^2$ —

2) $3 - \left(\frac{-5.54}{-4.252}\right) = 1.696$ — $(1.696-3)^2$

3) $1.696 - \left(\frac{-0.387}{-3.1955}\right) = 1.574$ — $(1.574-1.696)^2$

4) $1.5746 - \left(\frac{-0.01145}{-3.006}\right) = 1.57$ — $(1.57-1.574)^2$

5) $1.57 - \left(\frac{-1e-5}{-3.000}\right) = 1.57$ — $(1.57-1.57)^2$

alaing