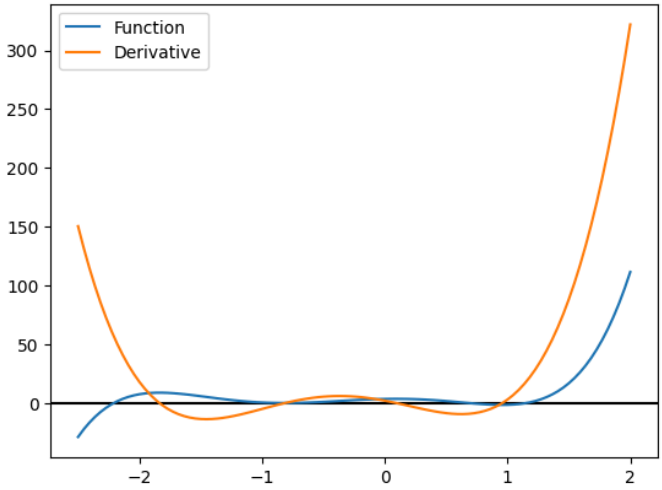
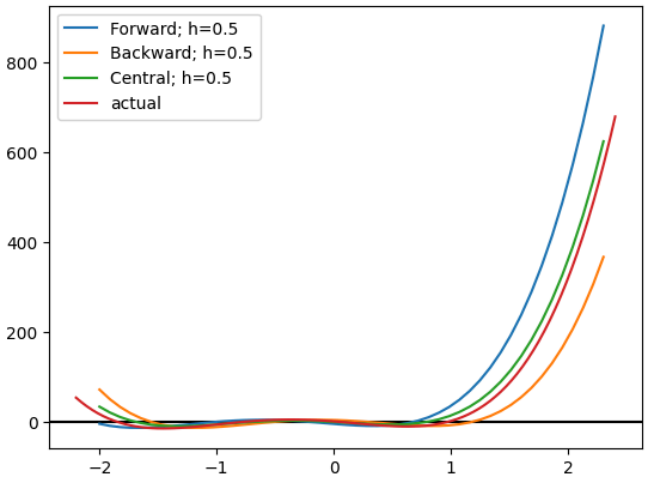
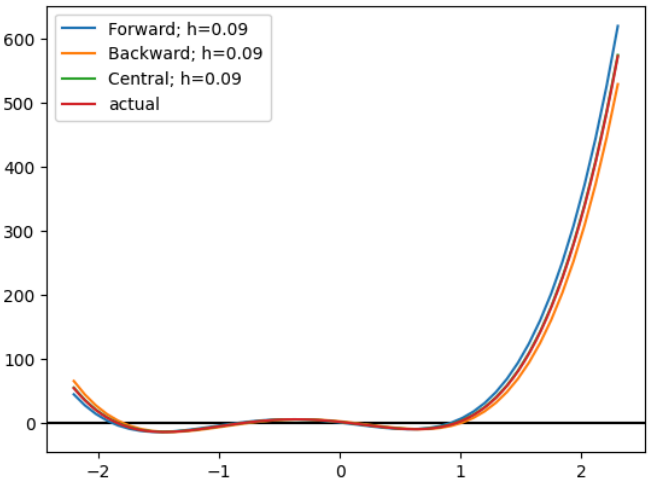
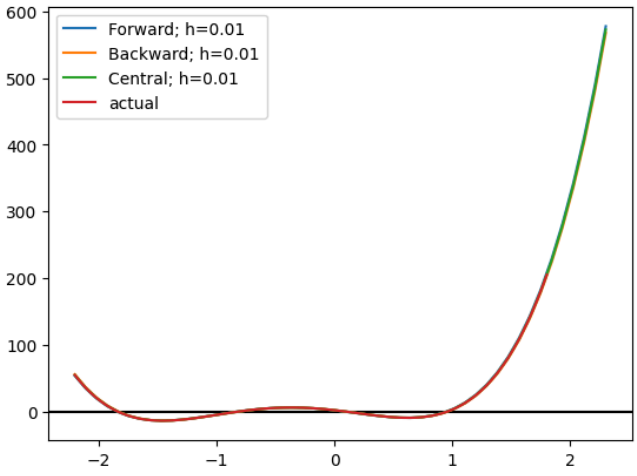
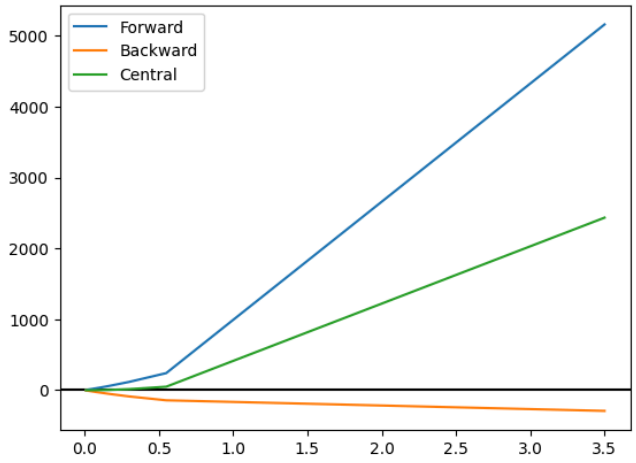
# Part 1


Function
Derivative
300
250
200
150
100
50
0
−2
−1
0
1
2

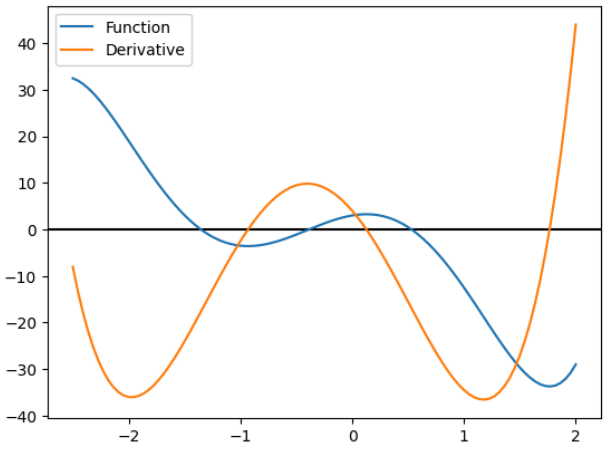

Forward; h=0.5
Backward; h=0.5
Central; h=0.5
actual
800
600
400
200
0
−2
−1
0
1
2

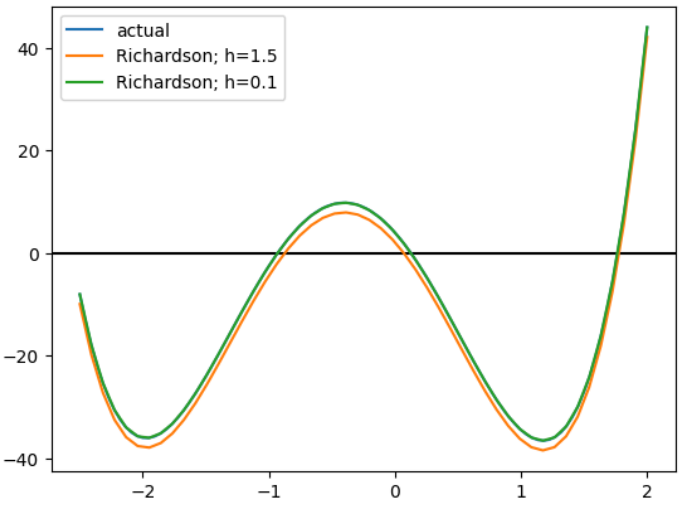

Forward; h=0.09
Backward; h=0.09
Central; h=0.09
actual
600
500
400
300
200
100
0
−2
−1
0
1
2

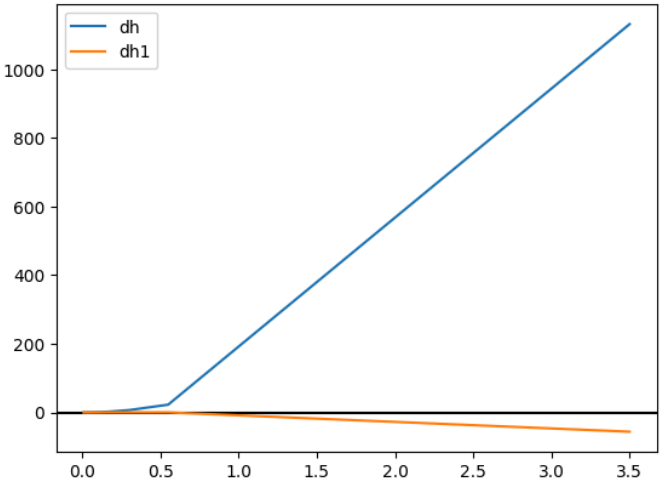

Forward; h=0.01
Backward; h=0.01
Central; h=0.01
actual
600
500
400
300
200
100
0
−2
−1
0
1
2


Forward
Backward
Central
5000
4000
3000
2000
1000
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

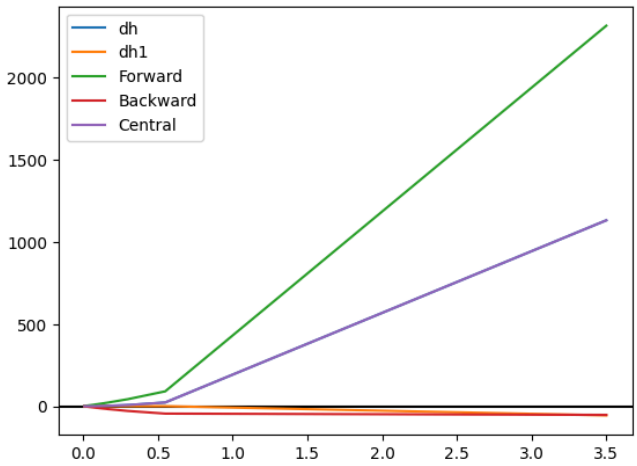
## Part 2


Function
Derivative
40
30
20
10
0
−10
−20
−30
−40
−2
−1
0
1
2


actual
Richardson; h=1.5
Richardson; h=0.1
40
20
0
−20
−40
−2
−1
0
1
2


dh
dh1
1000
800
600
400
200
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

## Homework


dh
dh1
Forward
Backward
Central
2000
1500
1000
500
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5