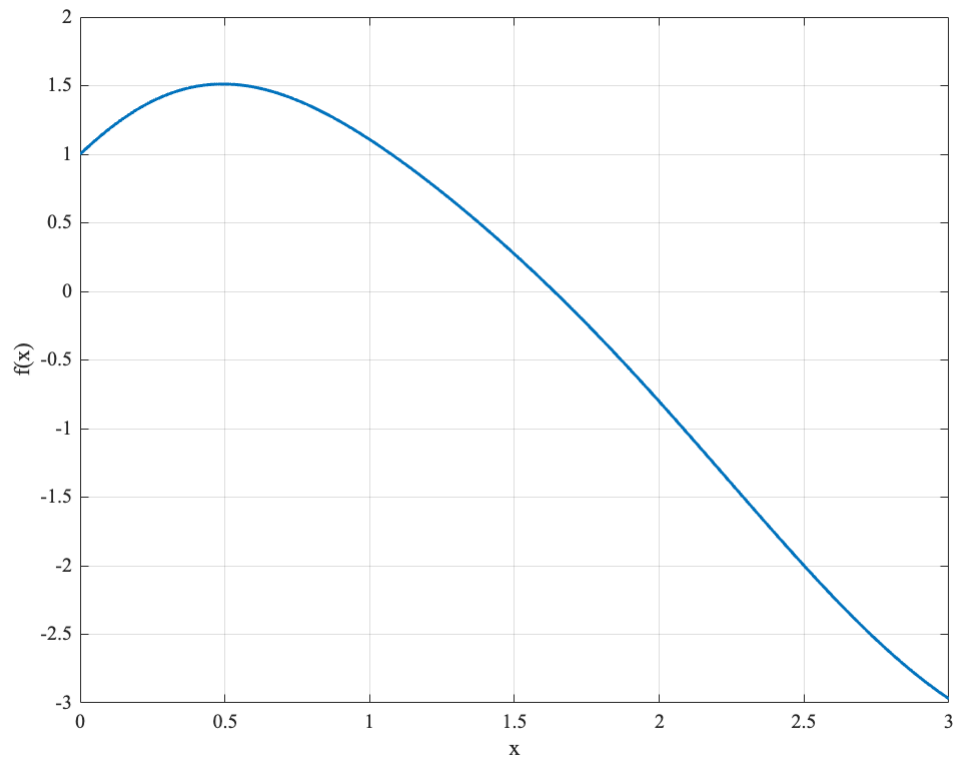


Lab 2

Jessie Li // September 27, 2023

2.A

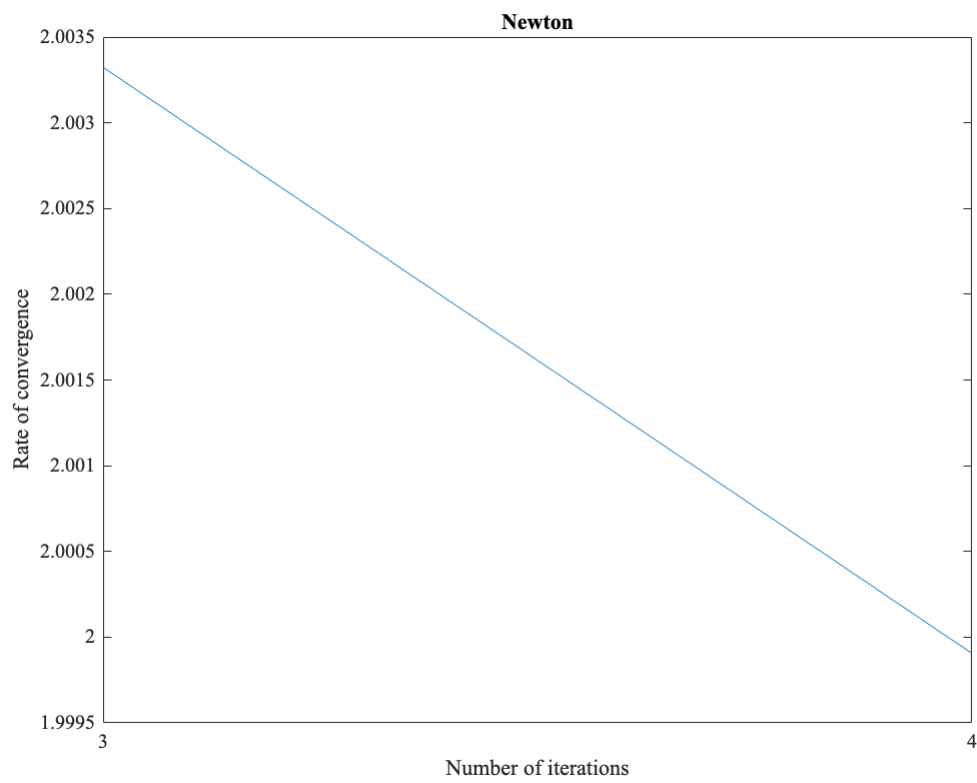
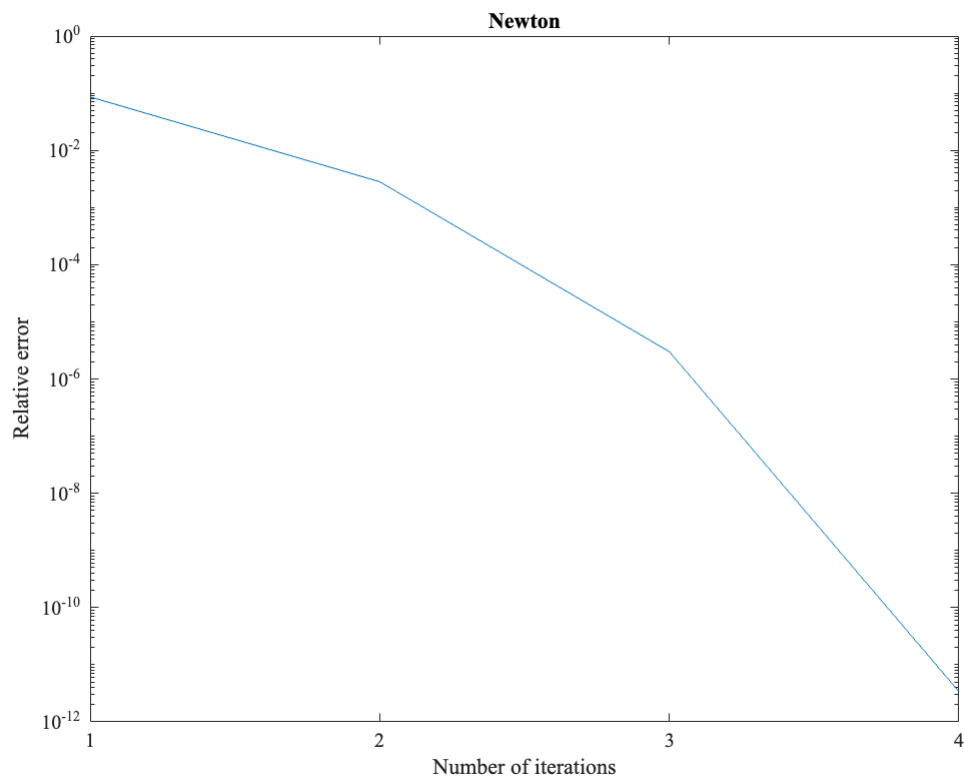
q2a



```
x = 1.636723
f'(x): -2.051855
f''(x) should be non-zero: -0.944544
```

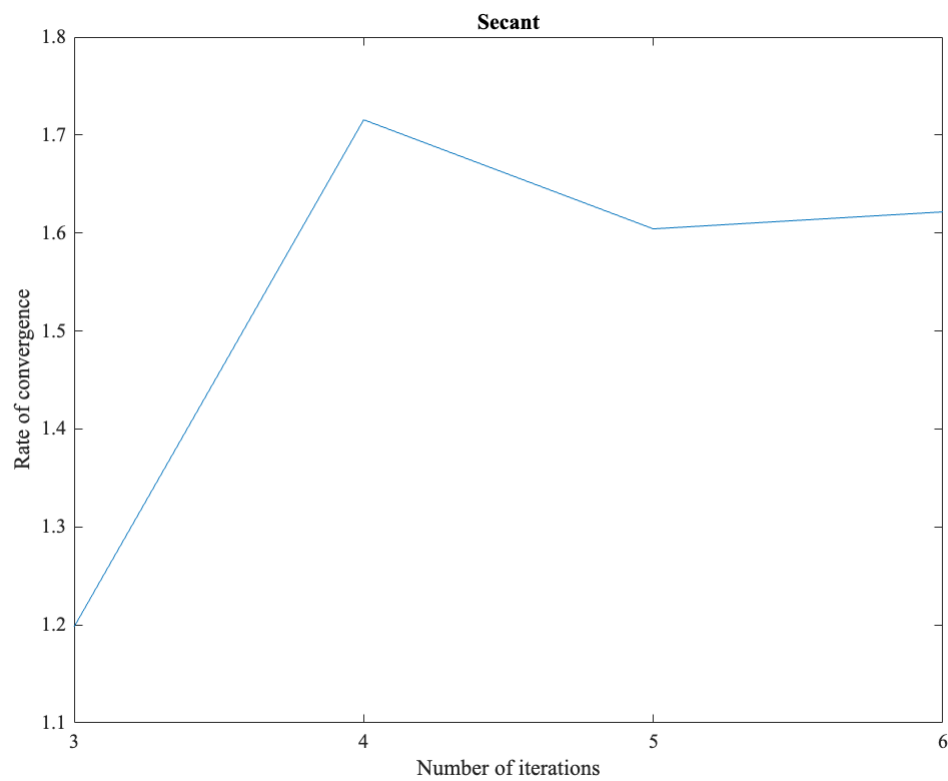
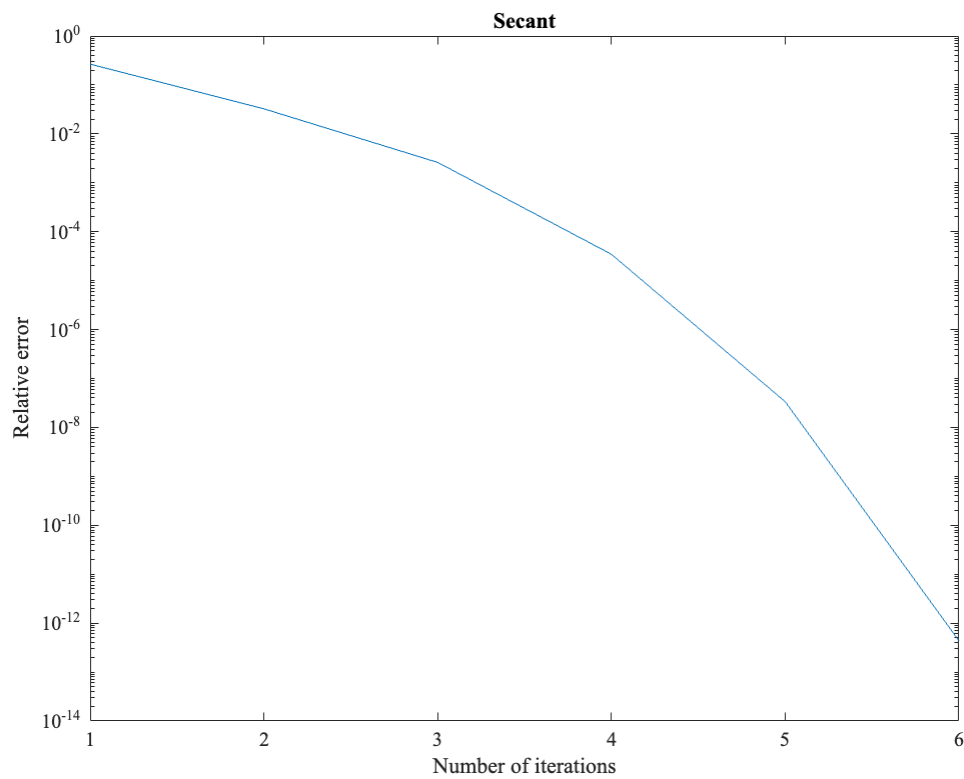
```
main2a('newton')
```

```
root: 1.63672, iterations: 5, error: +0.000000e+00
```



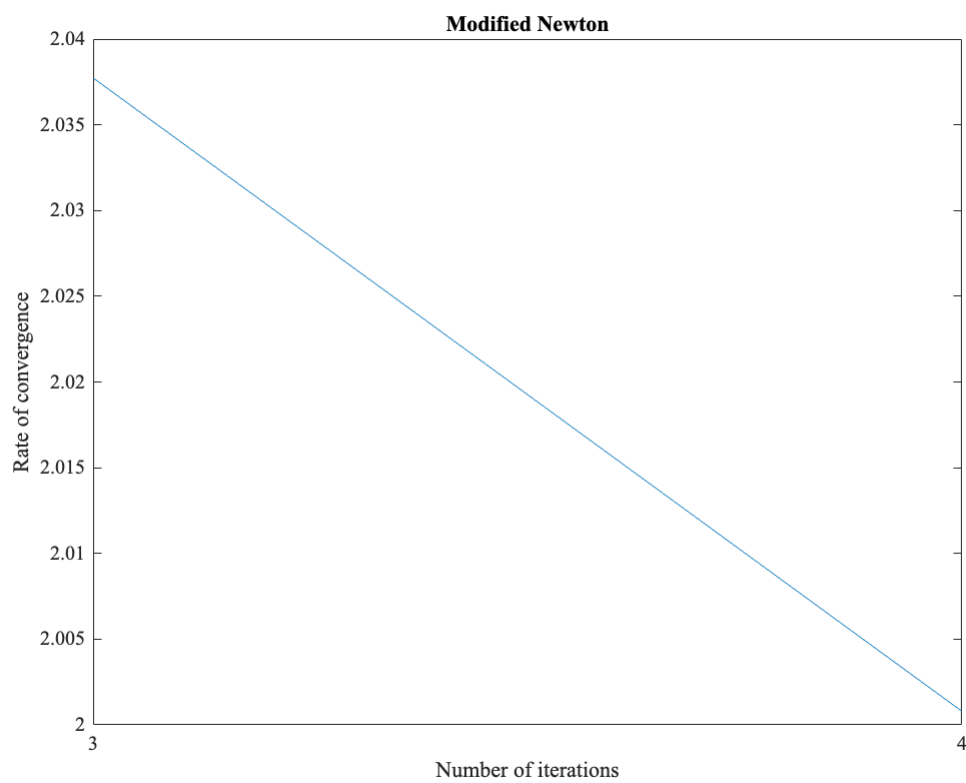
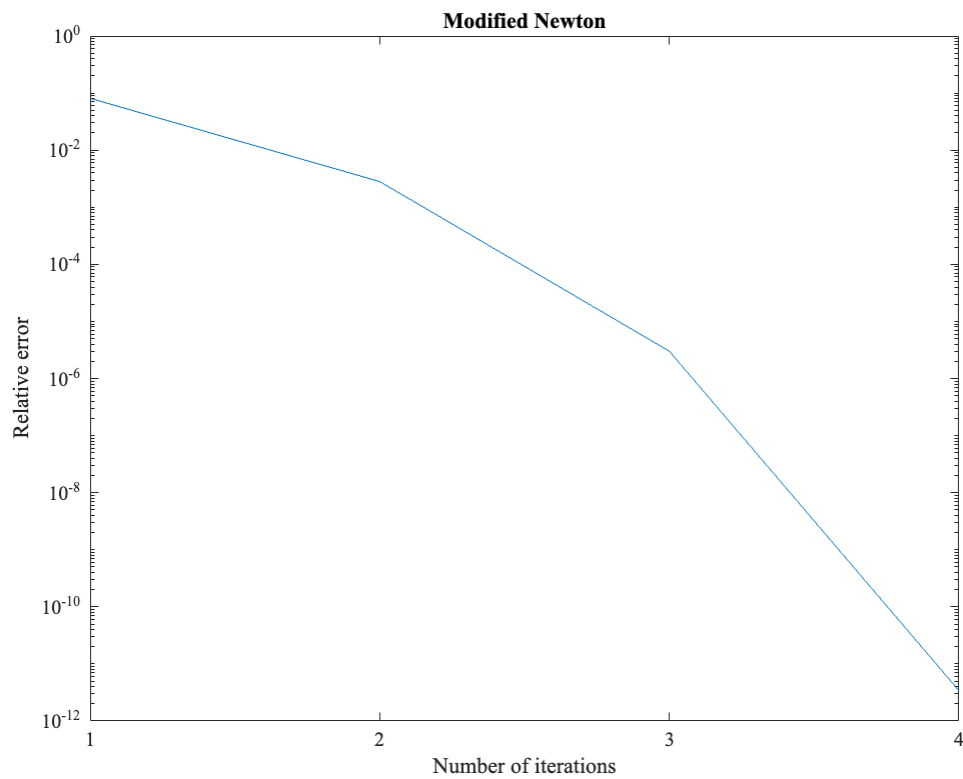
```
main2a('secant')
```

root: 1.63672, iterations: 7, error: +0.000000e+00



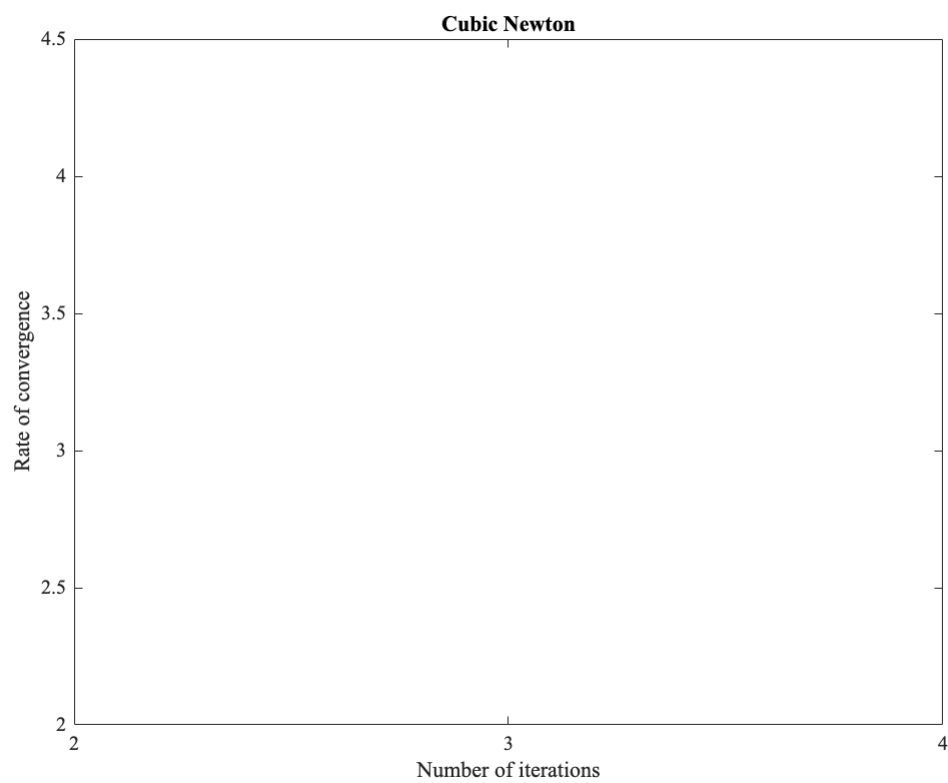
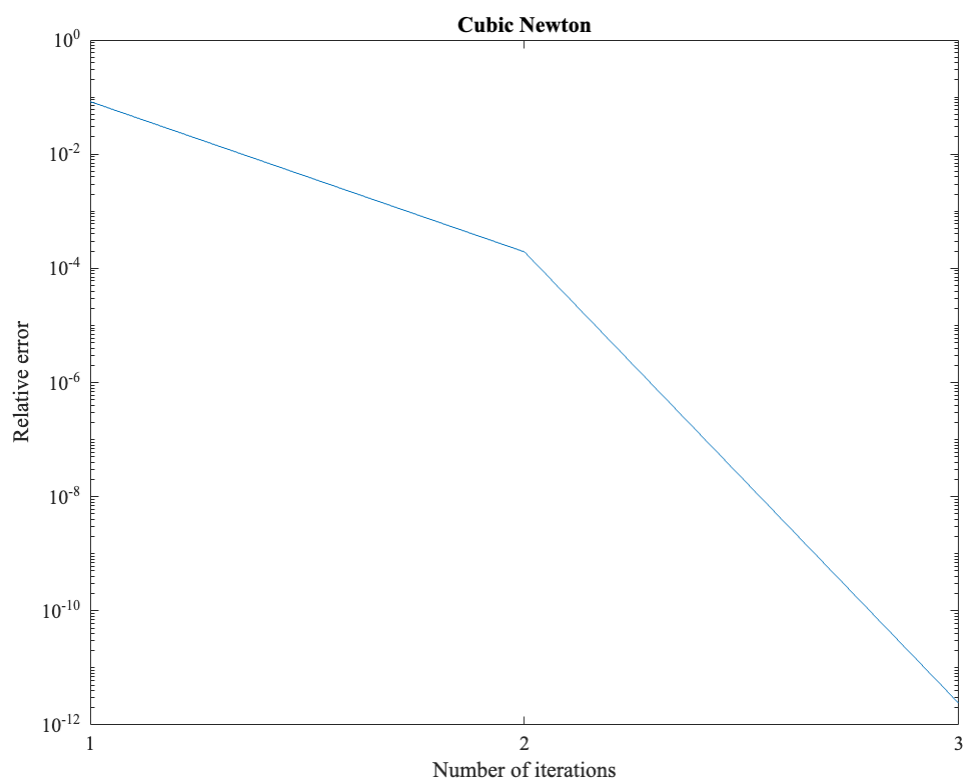
```
main2a('newtonModified')
```

root: 1.63672, iterations: 5, error: +0.000000e+00



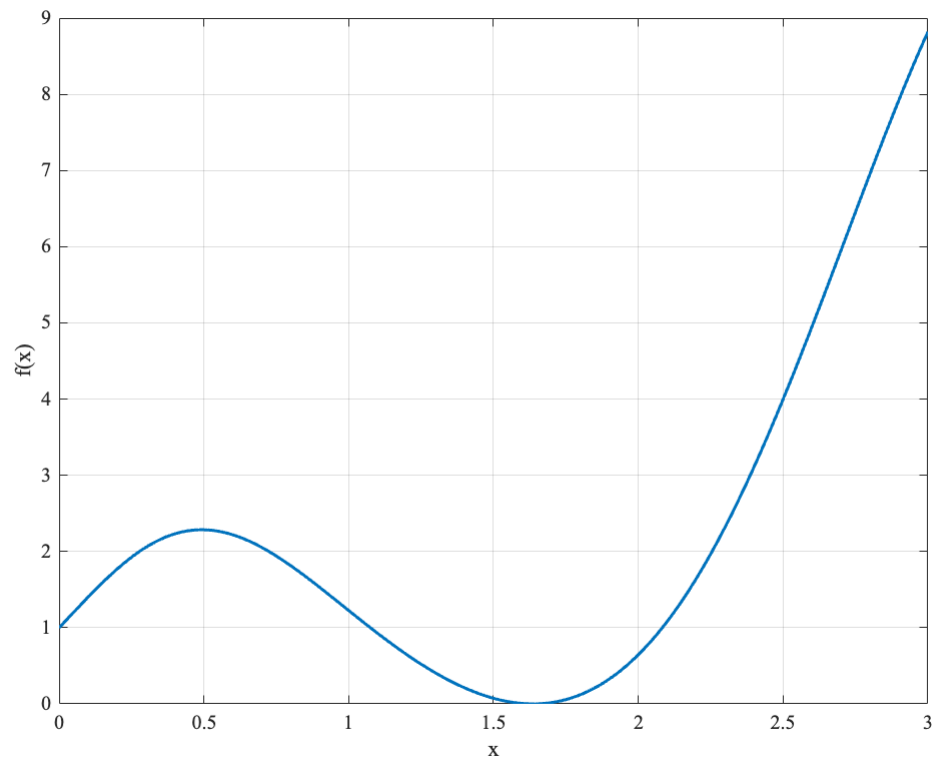
```
main2a('newtonCubic')
```

root: 1.63672, iterations: 4, error: +0.000000e+00



2.B

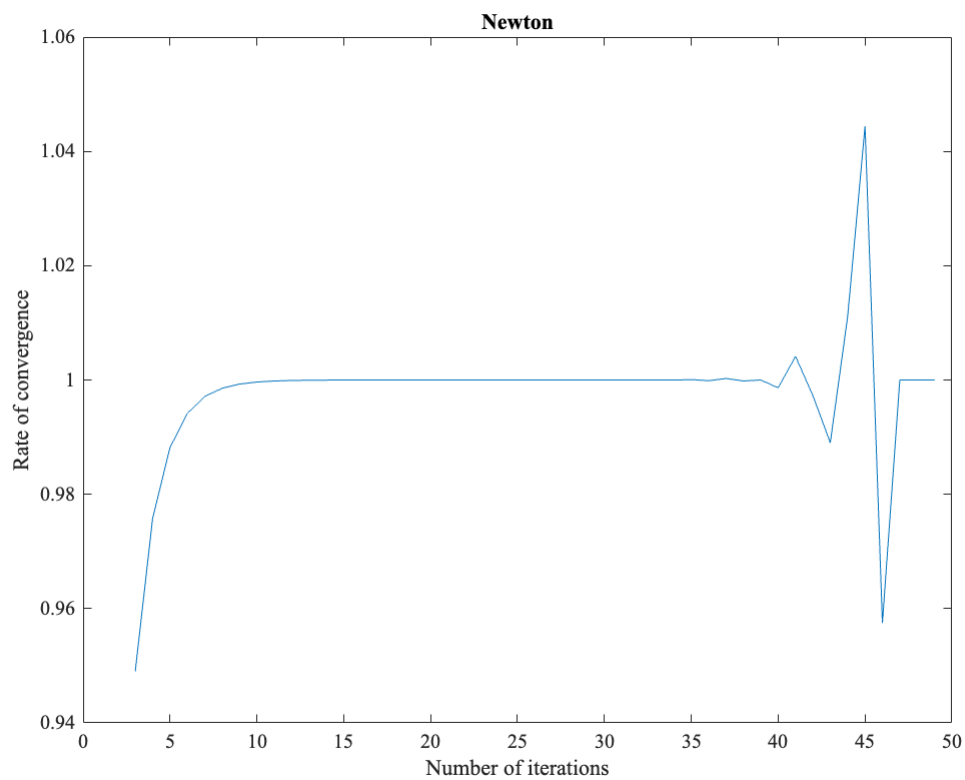
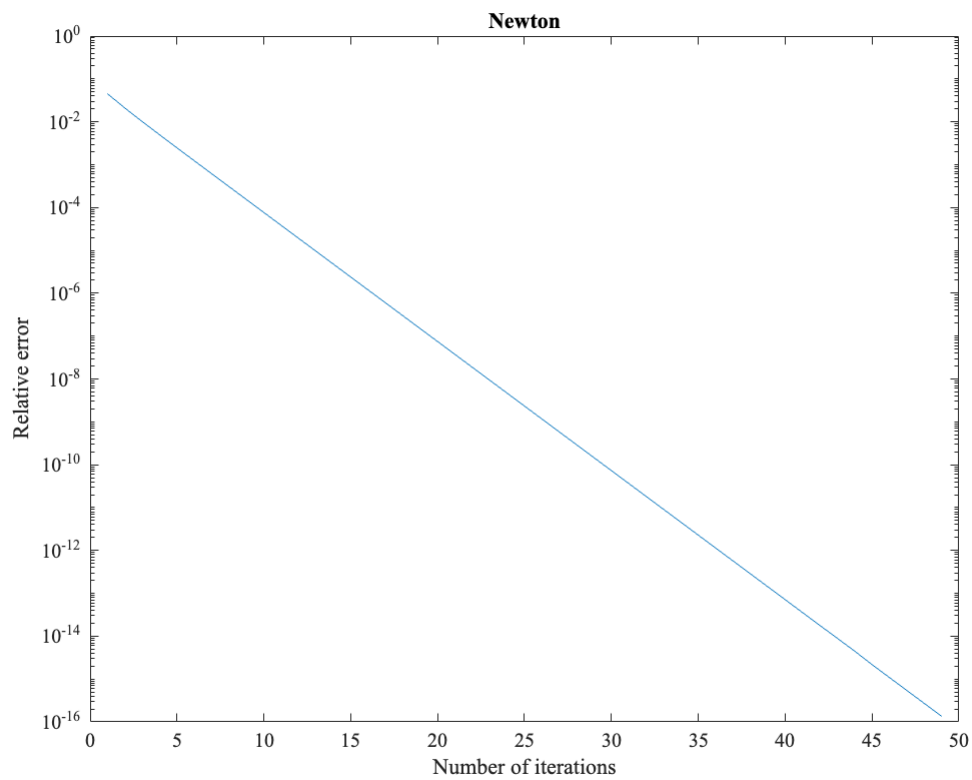
q2b



$x = 1.636723$ (from 2A)
 $f'(x)$ should be zero: 0.000004
 $f''(x)$ should be non-zero: 8.420223

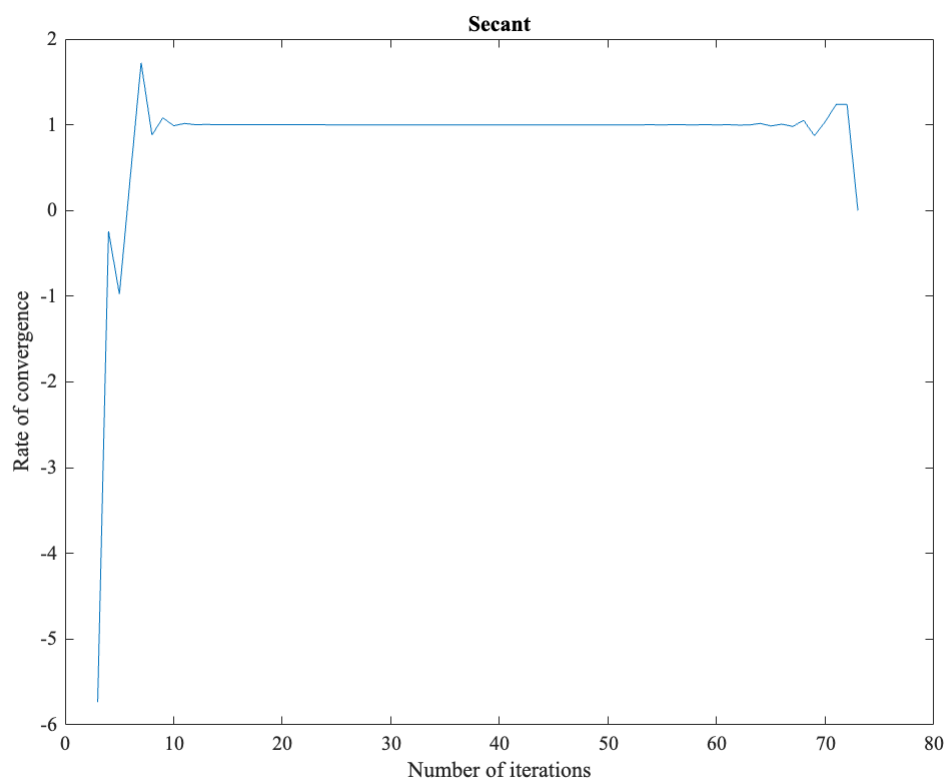
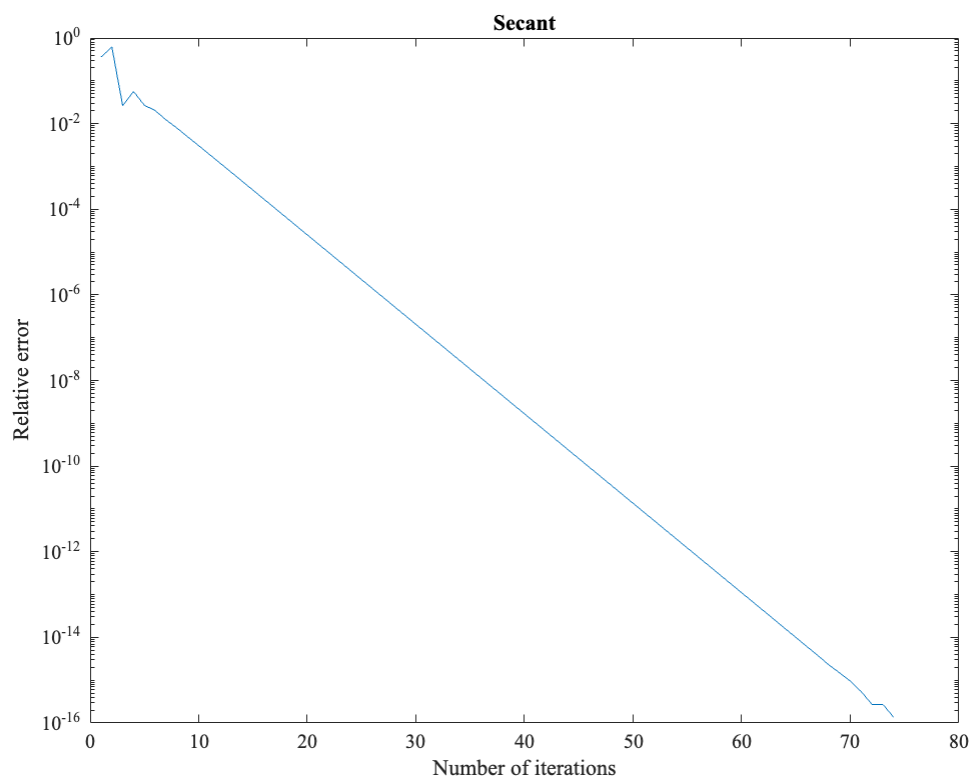
`main2b('newton')`

root: 1.63672, iterations: 49, error: $+1.356642e-16$



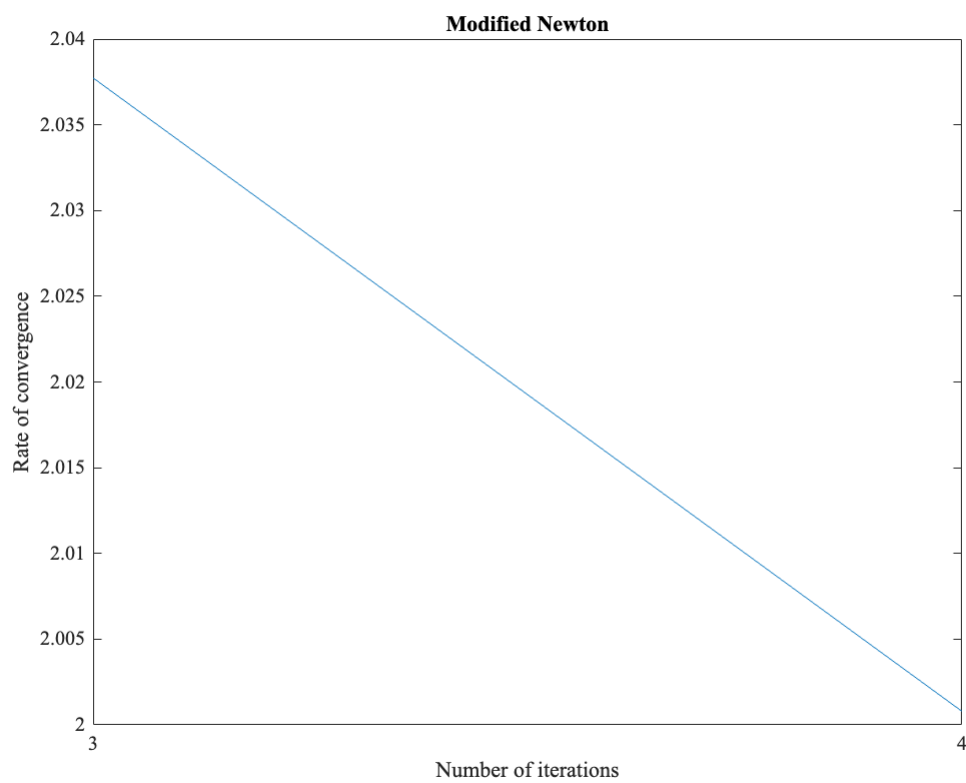
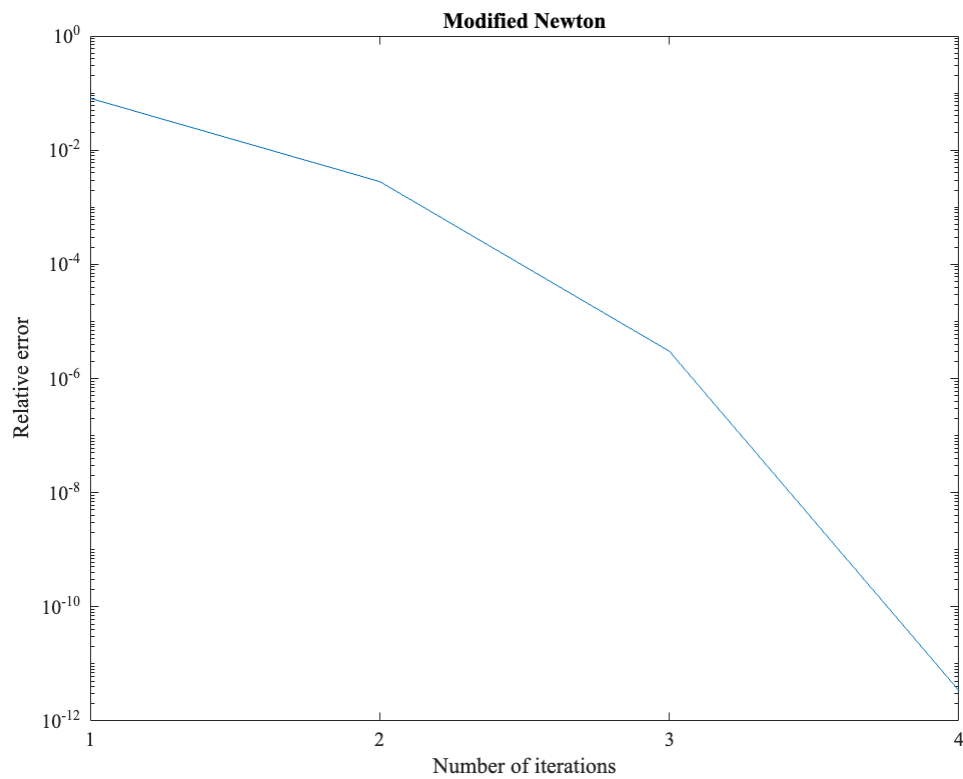
```
main2b('secant')
```

root: 1.63672, iterations: 74, error: +1.356642e-16



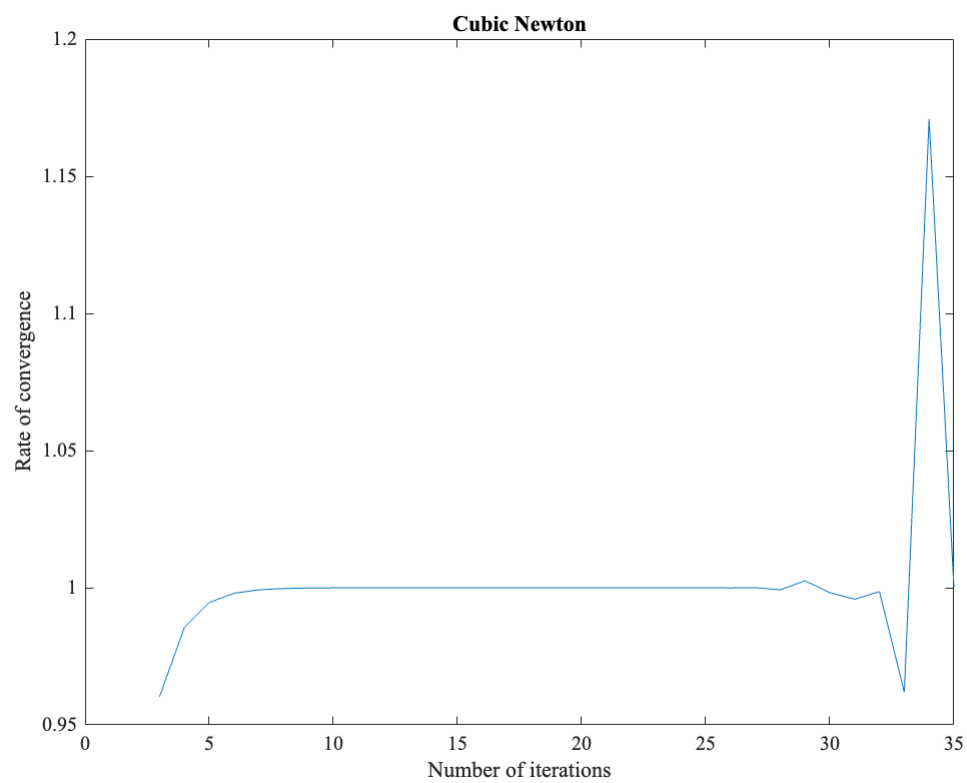
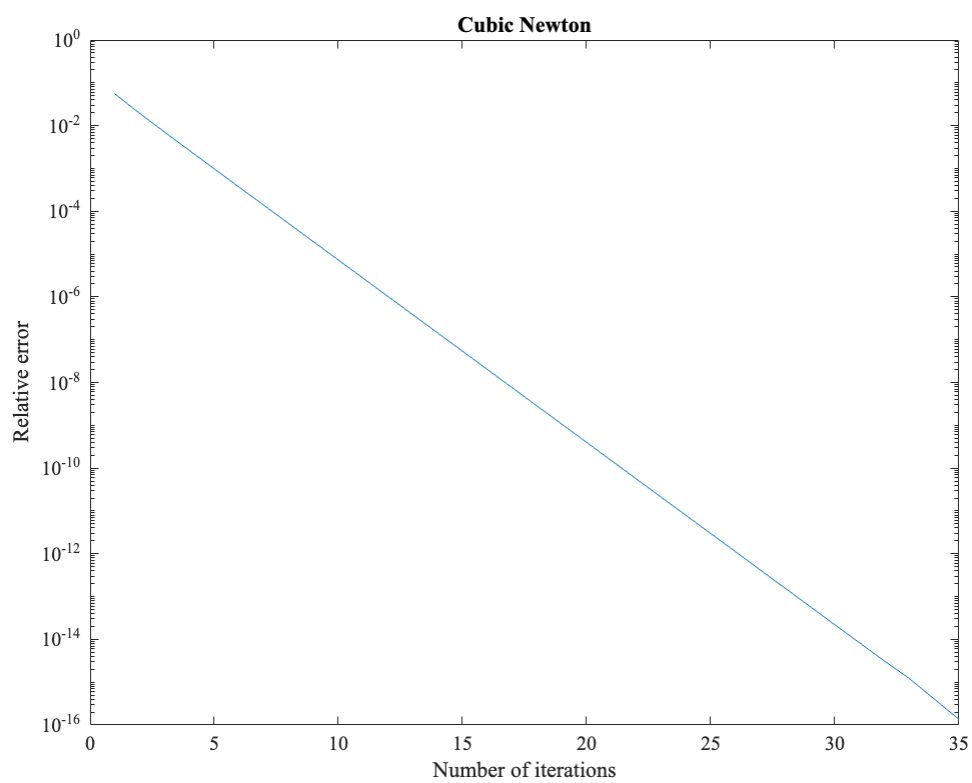
```
main2b('newtonModified')
```


root: 1.63672, iterations: 5, error: +0.000000e+00



```
main2b('newtonCubic')
```

root: 1.63672, iterations: 35, error: +1.356642e-16



main3

root: [1.0342;6.075], iterations: 4, error: +1.611413e-16
root, in degrees: [59.2543208857394;348.070653851159]

