Appendix

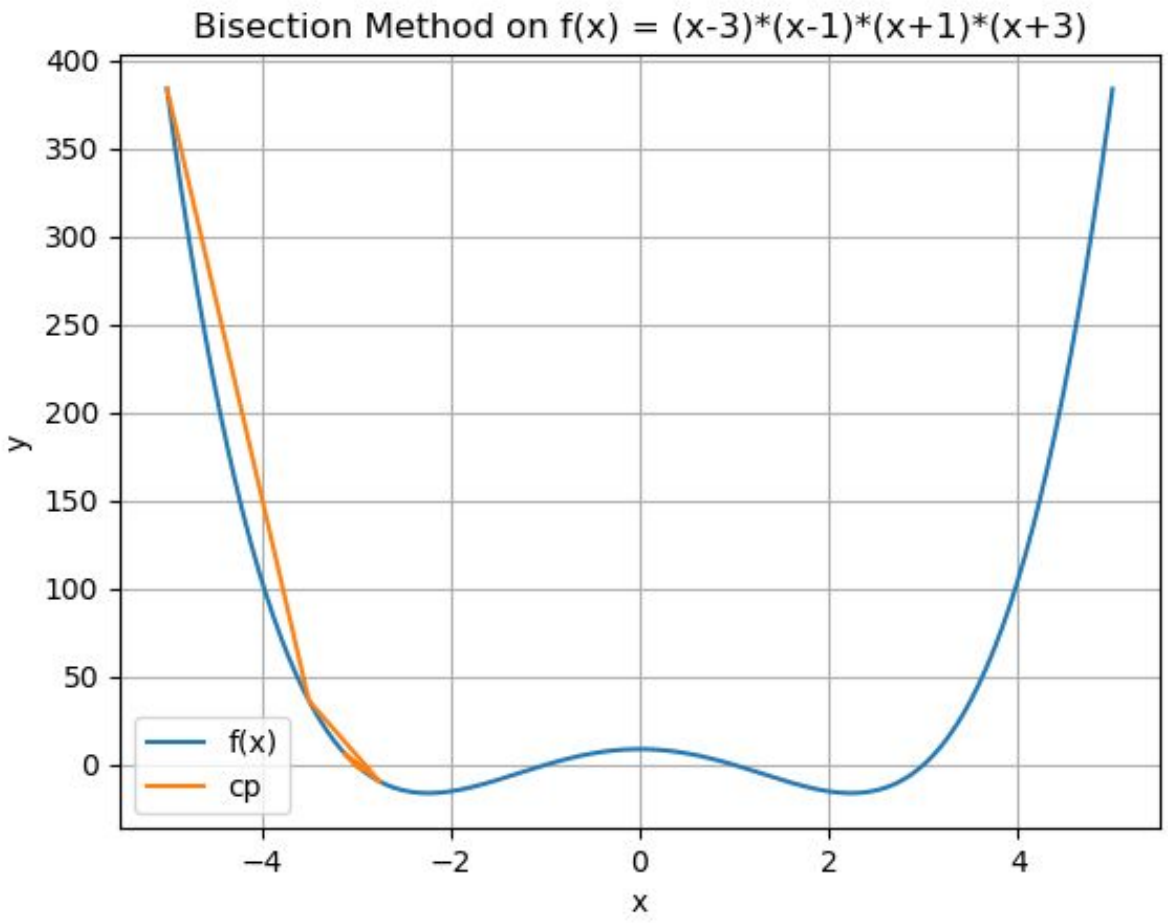

Figure 1: Bisection Method on f(x) = (x-3)*(x-1)*(x+1)*(x+3)

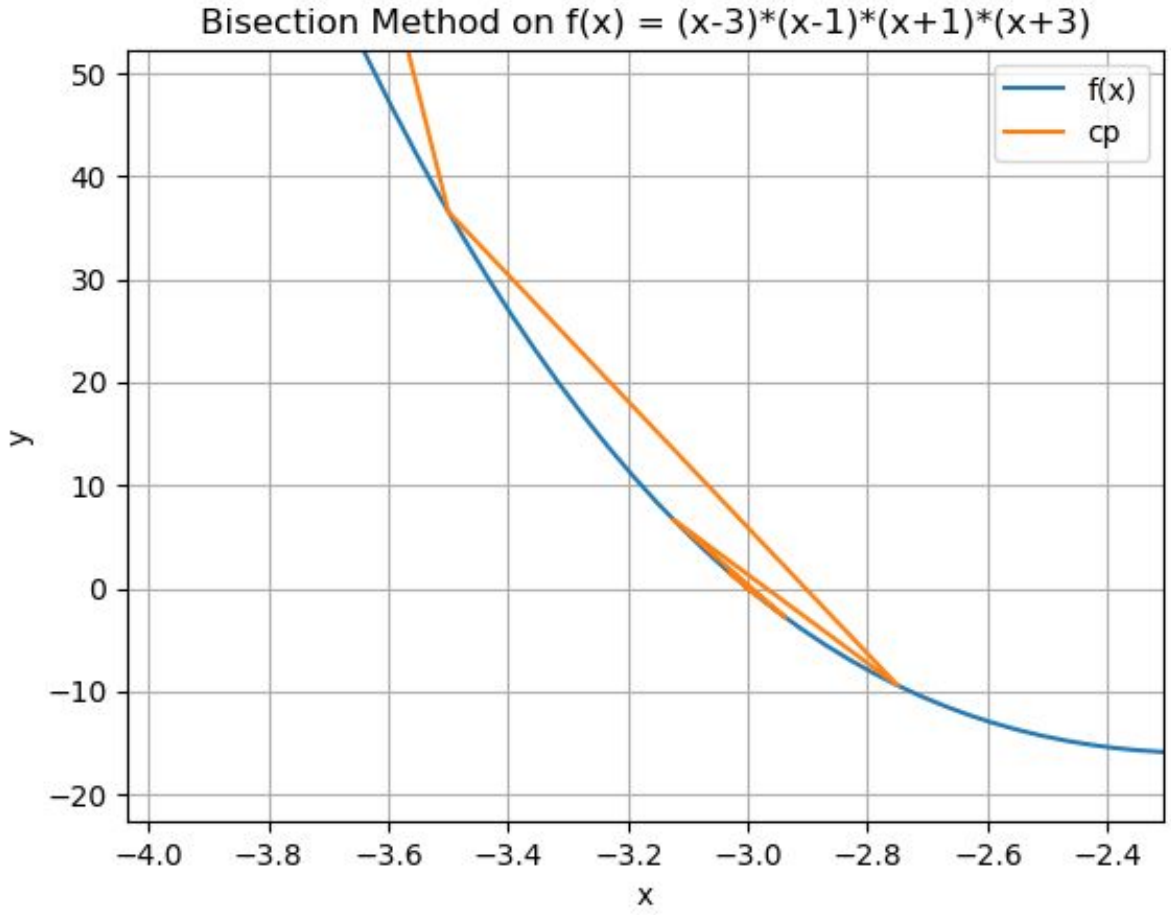

Figure 2: Bisection Method on f(x) = (x-3)*(x-1)*(x+1)*(x+3)

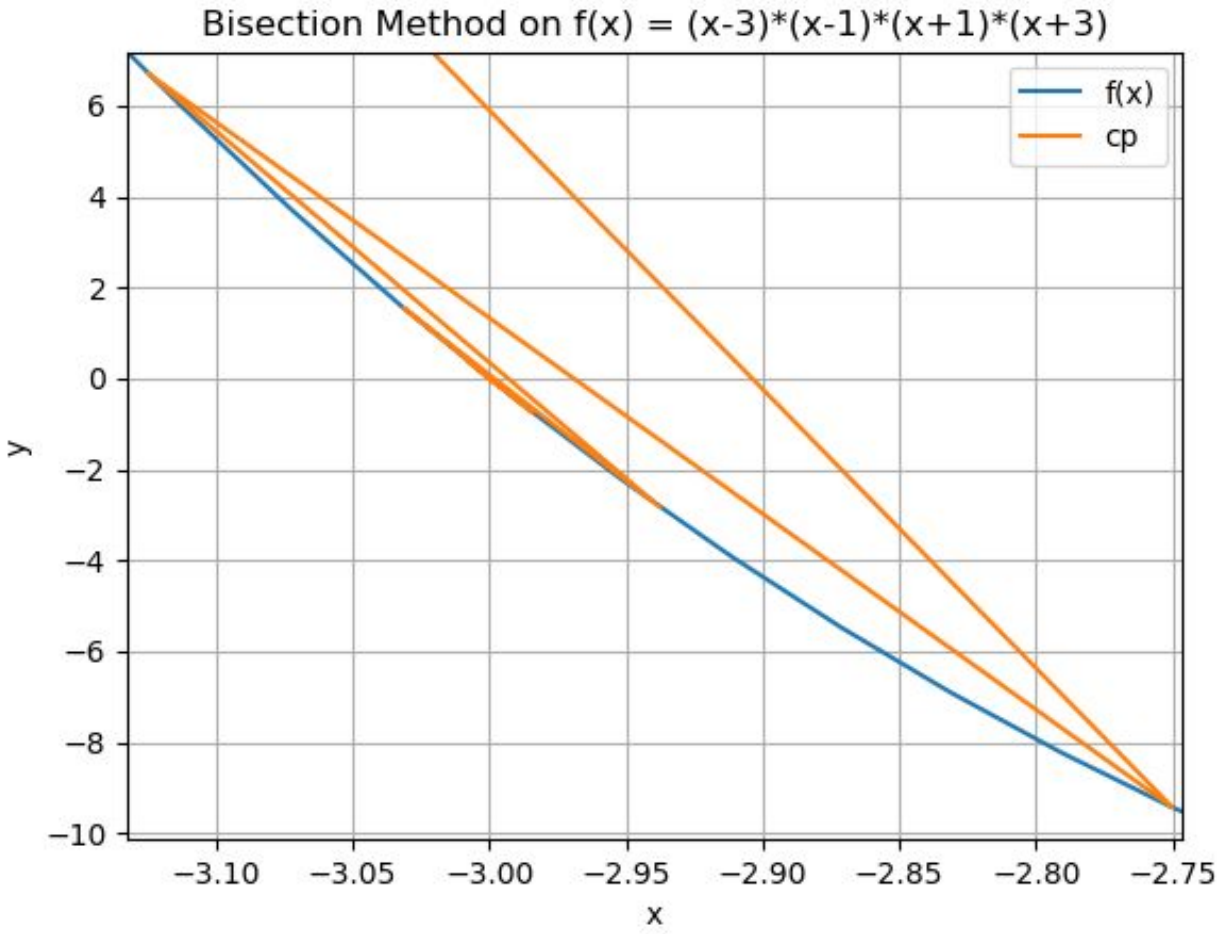

Figure 3: Bisection Method on f(x) = (x-3)*(x-1)*(x+1)*(x+3)

a=	-10	-100	-1000	-10000
root	-3	-2.999929428	-3.000009656	-3.000040397
iterations	4	21	25	28
time	0.00198340416	0.007001638412	0.008001804352	0.01000261307
relative error	0	0.002352451986	0.0003218640458	0.001346550134
a=	-100000	-1000000	-10000000	-100000000
root	-2.999941049	-2.999947407	-2.999934655	-2.999989405
iterations	31	35	38	41
time	0.01100230217	0.01000142097	0.01200389862	0.01500272751
relative error	0.001965067158	0.001753132946	0.002178216437	0.0003531812625
a=	-1000000000	-10000000000	-100000000000	-1000000000000
root	-3.000046266	-2.999946792	-3.000000083	-3.000033389
iterations	45	48	51	55
time	0.01300287247	0.01600408554	0.01700329781	0.02000451088
relative error	0.00154217682	0.001773636951	2.76E-06	0.001112968583

Figure 4: Table with various values of a for the Bisection Method

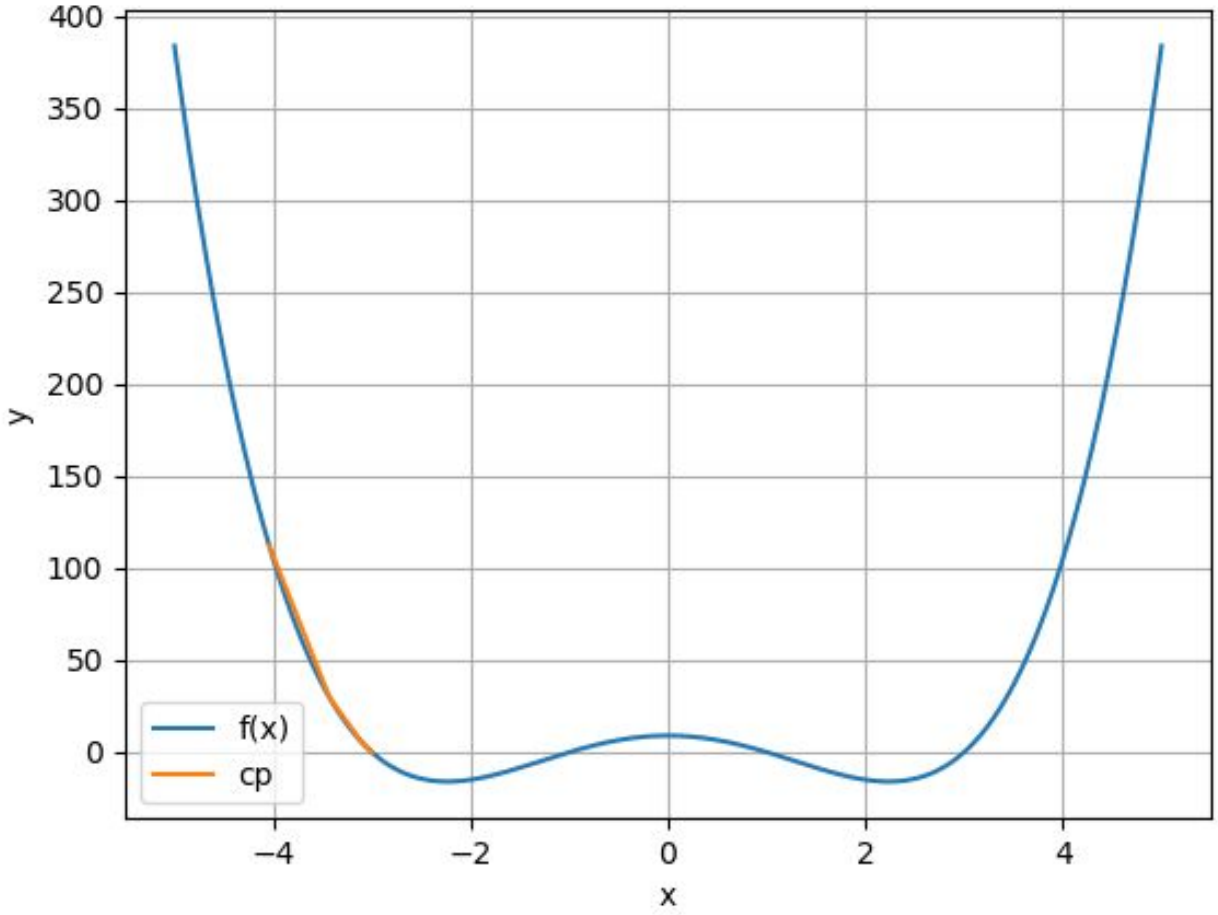

Figure 5: Newton Raphson Method on f(x) = (x-3)*(x-1)*(x+1)*(x+3)

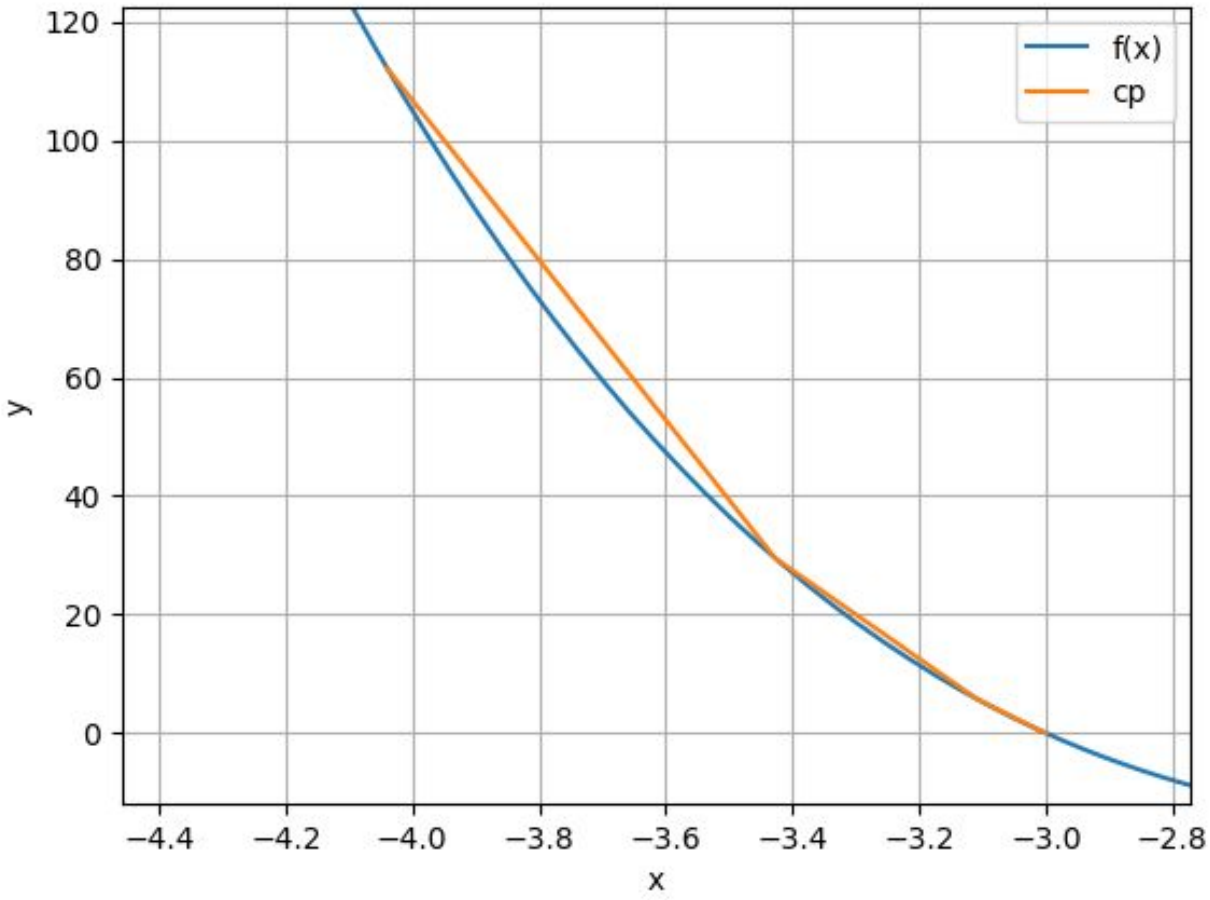

Figure 6: Newton Raphson Method on f(x) = (x-3)*(x-1)*(x+1)*(x+3)

x=	-10	-100	-1000	-10000
root	-3.00000000005691	-3.00000000020472	-3.00000000021964	3.00000000024131
iterations	9	17	25	33
time	0.003000497818	0.007001161575	0.01000261307	0.0130033493
relative error	1.90E-09	6.82E-09	7.32E-09	8.04E-09
x=	-100000	-1000000	-10000000	-100000000
root	-3.00000000028674	-3.00000000326349	-3.00000023247024	-3.0000000070258
iterations	41	49	57	53
time	0.01533603668	0.01799988747	0.02025341988	0.02200484276
relative error	9.56E-09	1.09E-07	7.75E-06	2.34E-07
x=	-1000000000	-10000000000	-100000000000	-1000000000000
root	Doesn’t Converge	Doesn’t Converge	Doesn’t Converge	Doesn’t Converge

Figure 7: Table with various values of x for the Newton Raphson Method

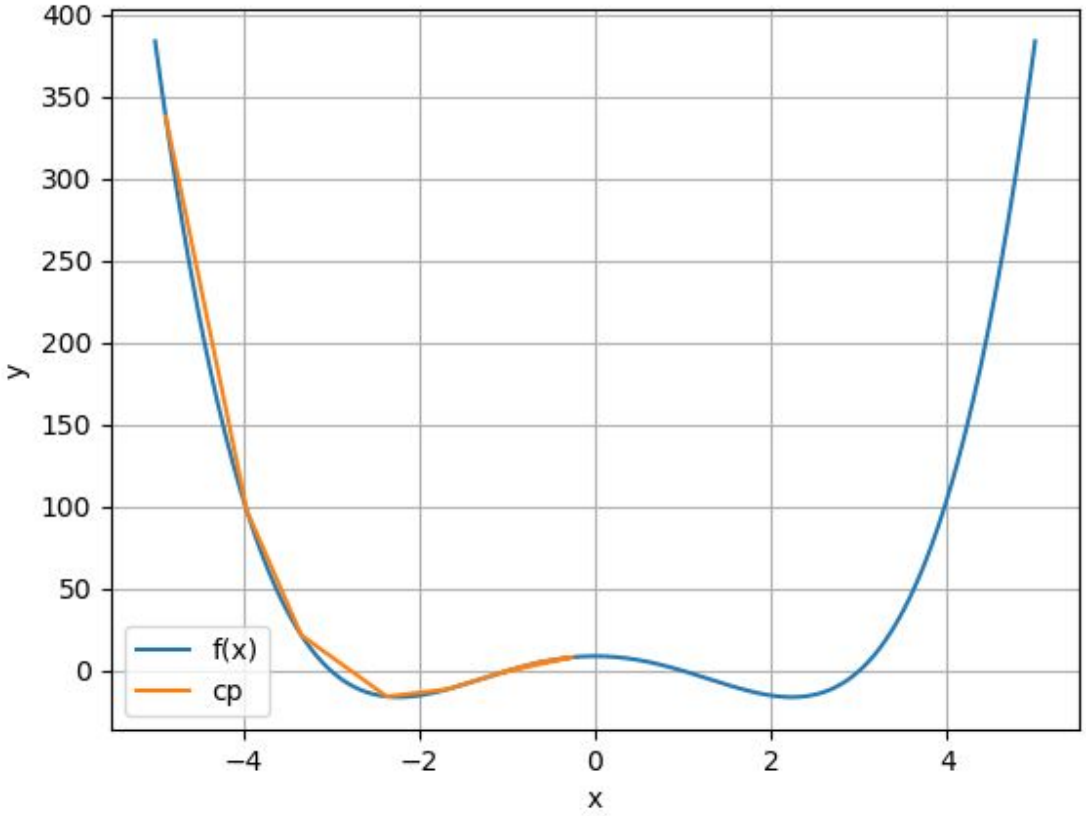

Figure 8: Muller Method on f(x) = (x-3)*(x-1)*(x+1)*(x+3)

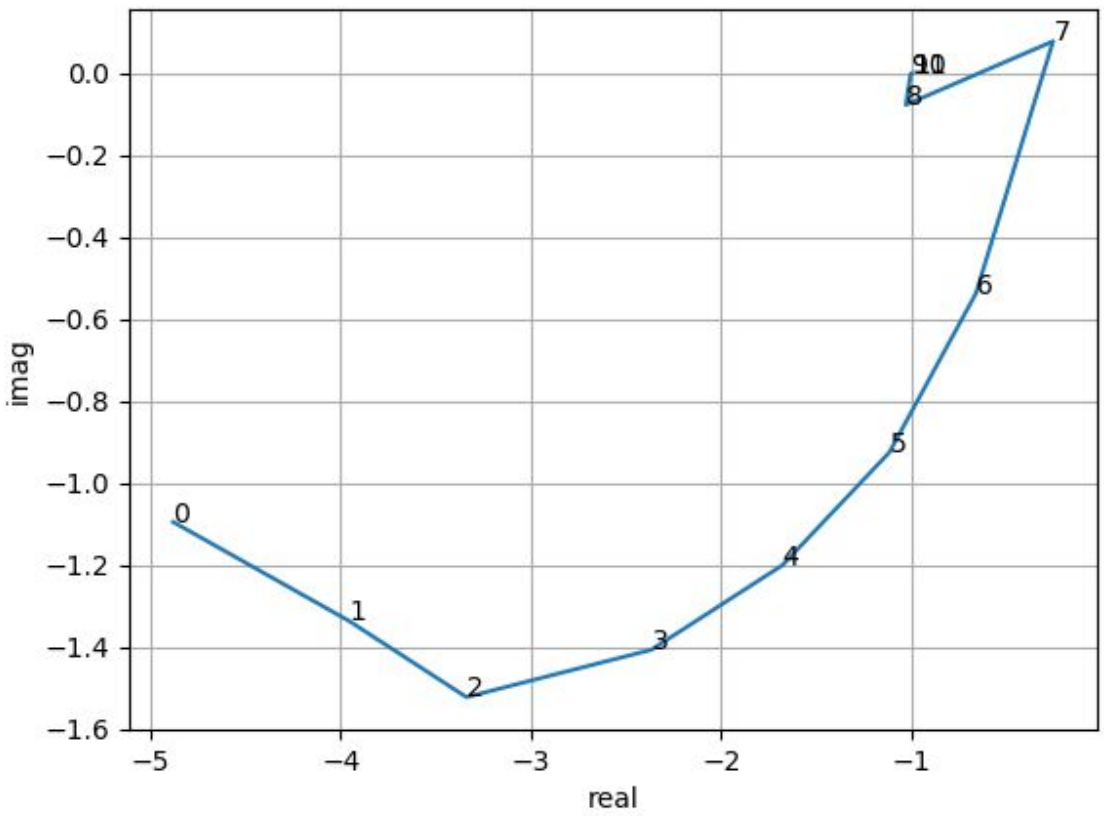

Figure 9: Graph of complex iterations from the Muller Method on f(x) = (x-3)*(x-1)*(x+1)*(x+3)

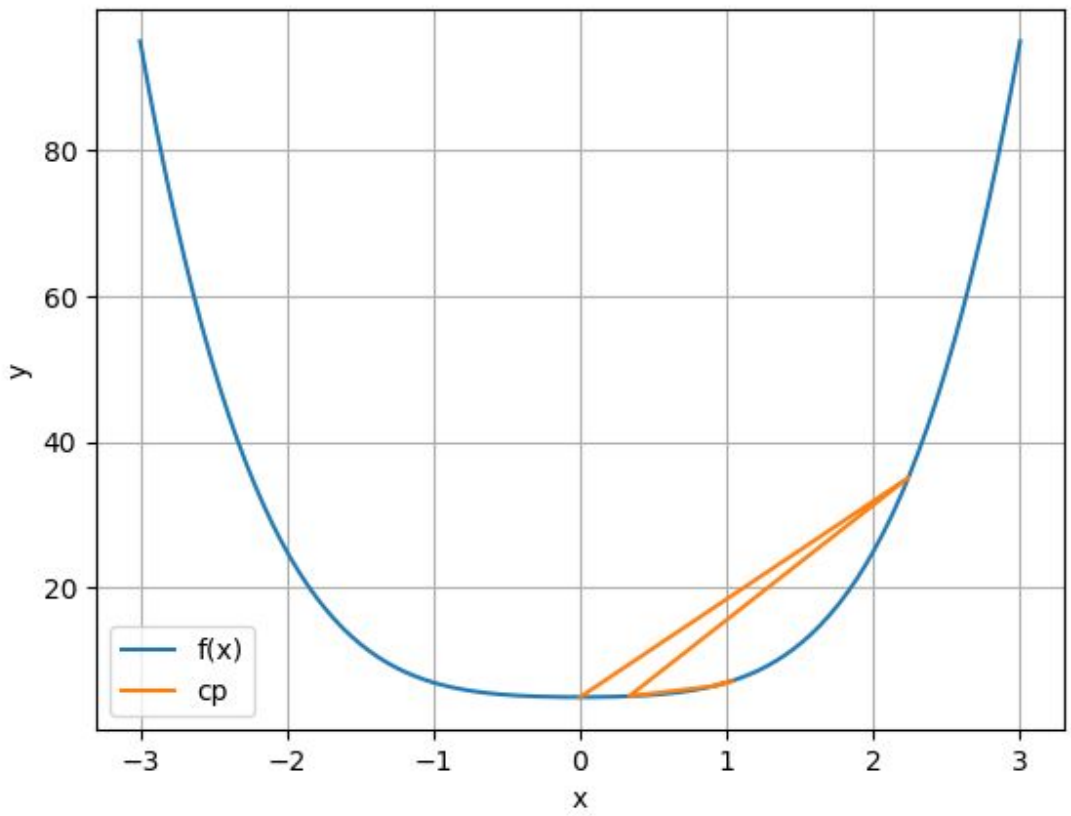

Figure 10: Muller Method on $f(x) = x^4+x^2+5$

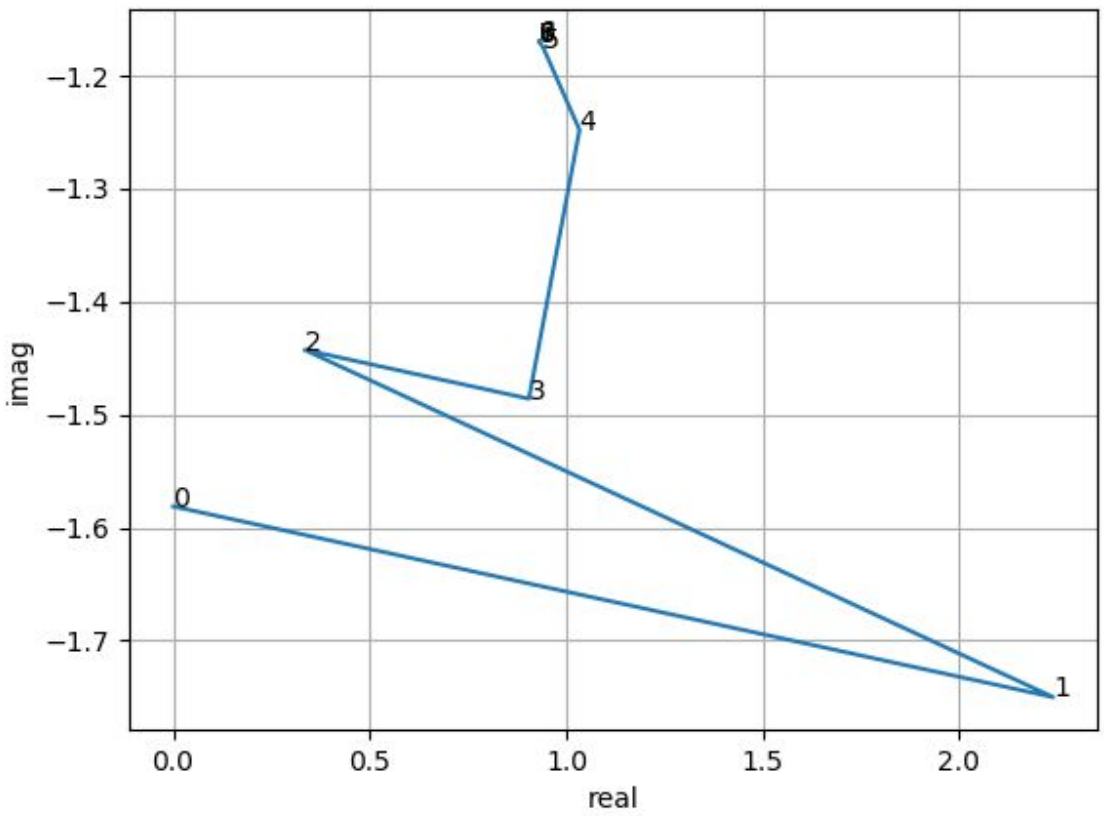

Figure 11: Graph of complex iterations from the Muller Method on f(x) = x^4+x^2+5

guesses	(-10, 0, 10)	(-100, 0, 100)	(-1000, 0, 1000)	(-10000, 0, 10000)
root	(0.999999999997583 7 +1.497337637858566 2e-12j)	(0.999999996208622 6 -5.833559541194218 e-10j)	(0.999999996411887 5 -5.357773770794911 e-11j)	(0.999999996413898 4 -5.244816553066258 e-12j)
iterations	7	6	6	6
time	0.002992153168	0.006001472473	0.002999782562	0.002000808716
relative error	2.42E-10	3.79E-07	3.59E-07	3.59E-07
guesses	(-100000, 0, 100000)	(-1000000, 0, 1000000)	(-10000000, 0, 10000000)	(-100000000, 0, 100000000)
root	Doesn't Converge	Doesn't Converge	Doesn't Converge	Doesn't Converge
guesses	(-1000000000, 0, 1000000000)	(-10000000000, 0, 10000000000)	(-100000000000, 0, 100000000000)	(-1000000000000, 0, 1000000000000)
root	Doesn't Converge	Doesn't Converge	Doesn't Converge	Doesn't Converge

Figure 12: Table with various values of initial guesses for the Muller Method