

CDS251HW8 Report

Submission: Make a table whose columns are: The root, starting x - values (Bisection will have 2, Newton's will have only 1), value of the function at the root, and the number of iterations needed for convergence. There will be 10 rows, 5 for each of the two different methods. Label the columns and the rows.

	Root	x1	x2	f(root)	Count
Bisection	4.1975429268019582	0	5	-3.2196467714129540E-015	45
Bisection	5.5529289827640582	5	7	4.3298697960381105E-015	45
Bisection	9.4998682181811631	7	10	0.0000000000000000	46
Bisection	13.039839094508920	10	14	6.8833827526759706E-015	45
Bisection	14.885498813555330	14	15	-4.4408920985006262E-015	44
Newton's	4.1975429268019528	0	N/A	2.2204460492503131E-016	2
Newton's	5.5529289827640511	5	N/A	1.1102230246251565E-016	2
Newton's	9.4998682181811631	7	N/A	0.0000000000000000	2
Newton's	13.039839094508912	10	N/A	4.4408920985006262E-016	2
Newton's	14.885498813555325	14	N/A	0.0000000000000000	2
Secant	4.1975429268019528	0	5	2.2204460492503131E-016	3
Secant	5.5529289827640511	5	7	1.1102230246251565E-016	3
Secant	9.4998682181811631	7	10	0.0000000000000000	3
Secant	13.039839094508912	10	14	4.4408920985006262E-016	3
Secant	14.885498813555325	14	15	0.0000000000000000	3

Extra Credit: Implement Secant method and find the five roots with this program also in double precision. Add these results to the table above and also include the Secant method program on the assignment page.