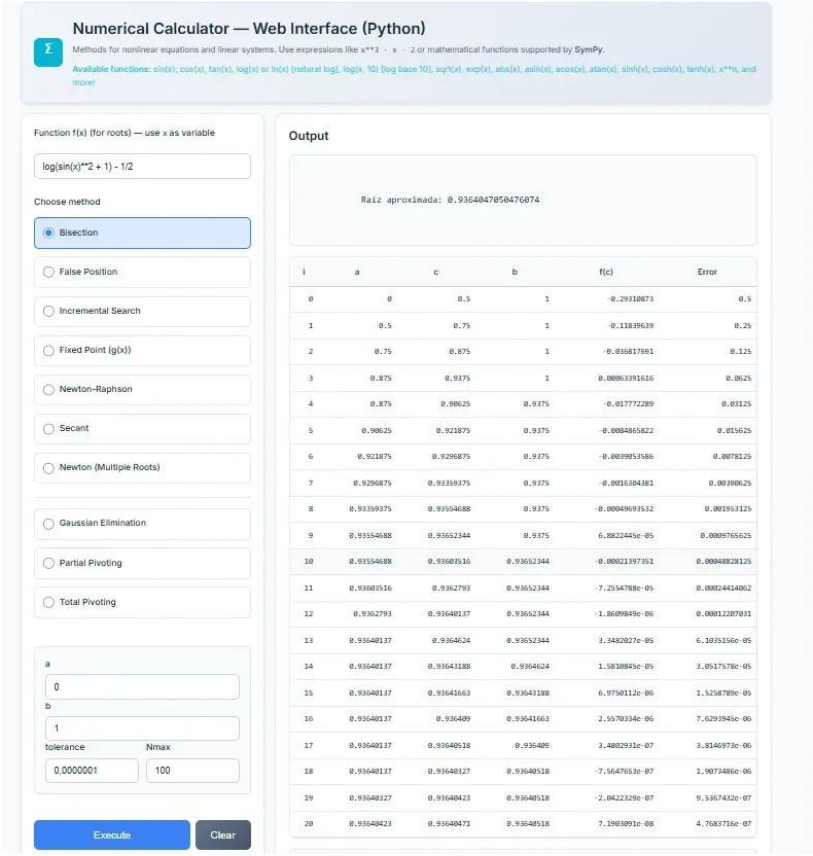
NUMERICAL METHODS RESULTS REPORT

Project: Numerical Analysis Calculator Date: September 24, 2025

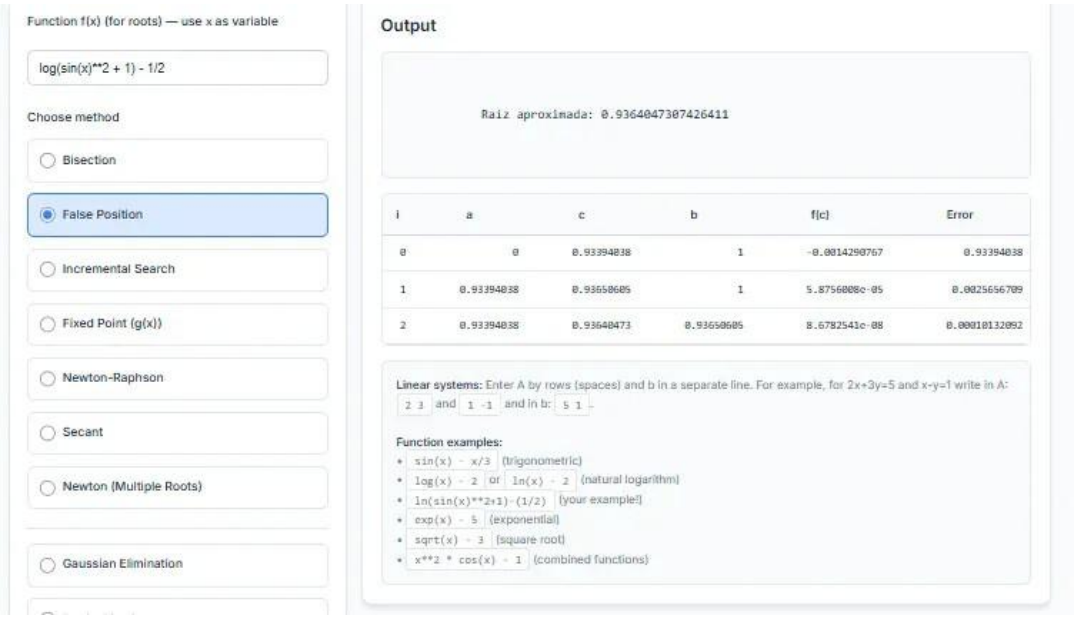
James Andrey Valencia Cano, Jose Luis Restrepo, Samuel Sanchez Gutierrez, samuel cadavid

1. BISECTION Input Parameters: Function: log(sin(x)**2 + 1) - 1/2 a = 0 b = 1 Tolerance = 0.0000001 Nmax = 100



i	a	c	b	f(c)	Error
0	0	0.5	1	-0.29310873	0.5
1	0.5	0.75	1	-0.11839639	0.25
2	0.75	0.875	1	-0.036817691	0.125
3	0.875	0.9375	1	0.00063391616	0.0625
4	0.875	0.90625	0.9375	-0.017772289	0.03125
5	0.90625	0.921875	0.9375	-0.0084865822	0.015625
6	0.921875	0.9296875	0.9375	-0.0039053586	0.0078125
7	0.9296875	0.93359375	0.9375	-0.0016304381	0.0039062
8	0.93359375	0.93554688	0.9375	-0.00049693532	0.001953125
9	0.93554688	0.93652344	0.9375	6.8822445e-05	0.0009765625
10	0.93554688	0.93603516	0.93652344	-0.00021397351	0.00048828125
11	0.93603516	0.9362793	0.93652344	-7.2554788e-05	0.00024414062
12	0.9362793	0.93640137	0.93652344	-1.8609849e-06	0.00012207031
13	0.93640137	0.9364624	0.93652344	3.3482027e-05	6.1035156e-05
14	0.93640137	0.93643188	0.9364624	1.5830845e-05	3.0517578e-05
15	0.93640137	0.93641663	0.93643188	6.9750112e-06	1.5258789e-05
16	0.93640137	0.936409	0.93641663	2.5570334e-06	7.6293945e-06
17	0.93640137	0.93640518	0.936409	3.4802931e-07	3.8146973e-06
18	0.93640137	0.93640327	0.93640518	-7.5647653e-07	1.9073486e-06
19	0.93640327	0.93640423	0.93640518	-2.0422329e-07	9.5367432e-07
20	0.93640423	0.93640471	0.93640518	7.1903091e-08	4.7683716e-07

2. FALSE POSITION Input Parameters: Function: log(sin(x)**2 + 1) - 1/2 a = 0 b = 1 Tolerance = 0.0000001 Nmax = 100



i	a	c	b	f(c)	Error
0	0	0.93394838	1	-0.0014290767	0.93394838
1	0.93394838	0.93650605	1	5.8756008e-05	0.0025656709
2	0.93394838	0.93640473	0.93650605	8.6782541e-08	0.00010132052

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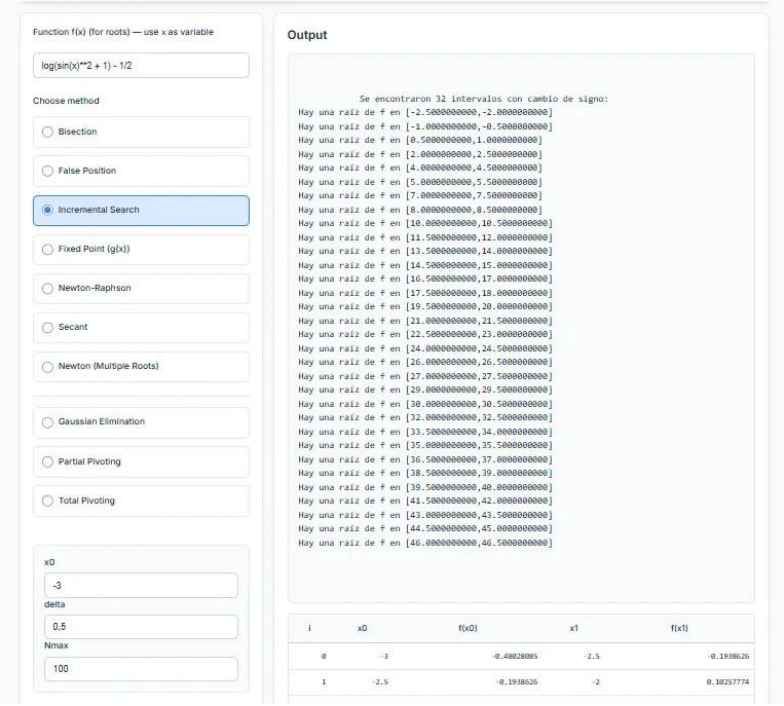
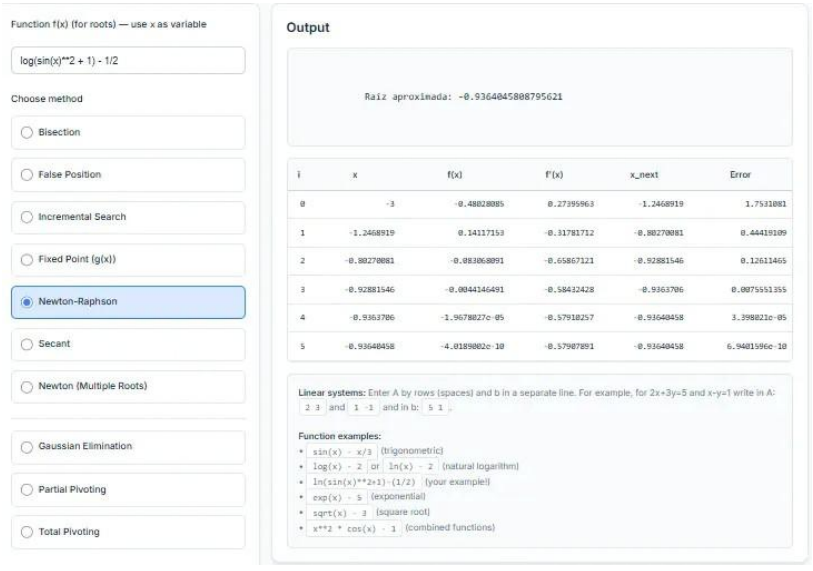
3. INCREMENTAL SEARCH Input Parameters: Function: log(sin(x)**2 + 1) - 1/2 x0 = -3 delta = 0.5 Nmax = 100



4. NEWTON-RAPHSON

Input Parameters: Function: log(sin(x)**2 + 1) - 1/2 x0 = 0.5 Tolerance = 0.0000001

Nmax = 100



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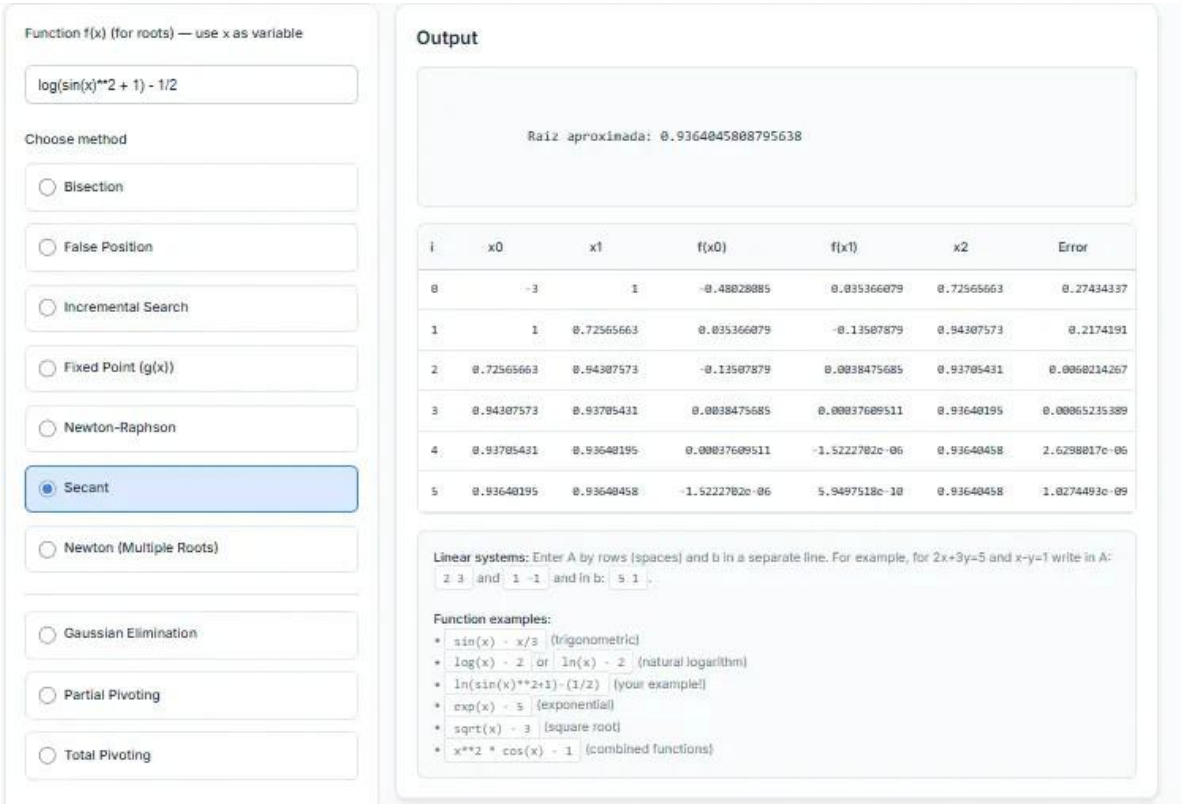
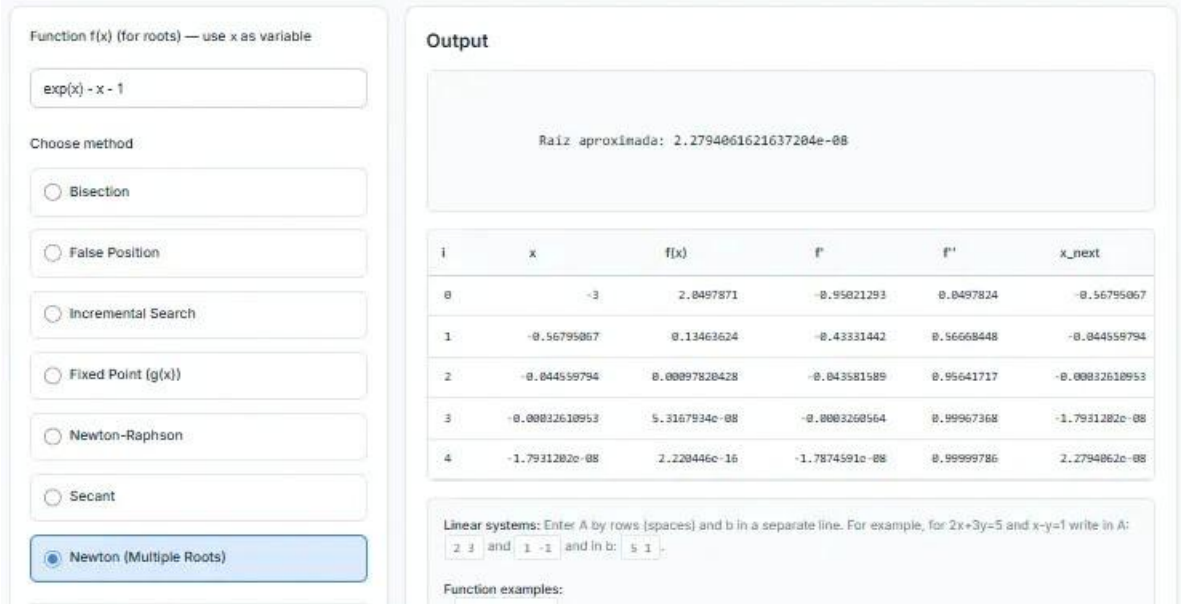
5. SECANT Input Parameters: Function: log(sin(x)**2 + 1) - 1/2 x0 = 0.5 x1 = 1 Tolerance = 0.0000001 Nmax = 100



6. MULTIPLE ROOTS Input Parameters: Function: exp(x) - x - 1 x0 = 1 Tolerance = 0.0000001 Nmax = 100



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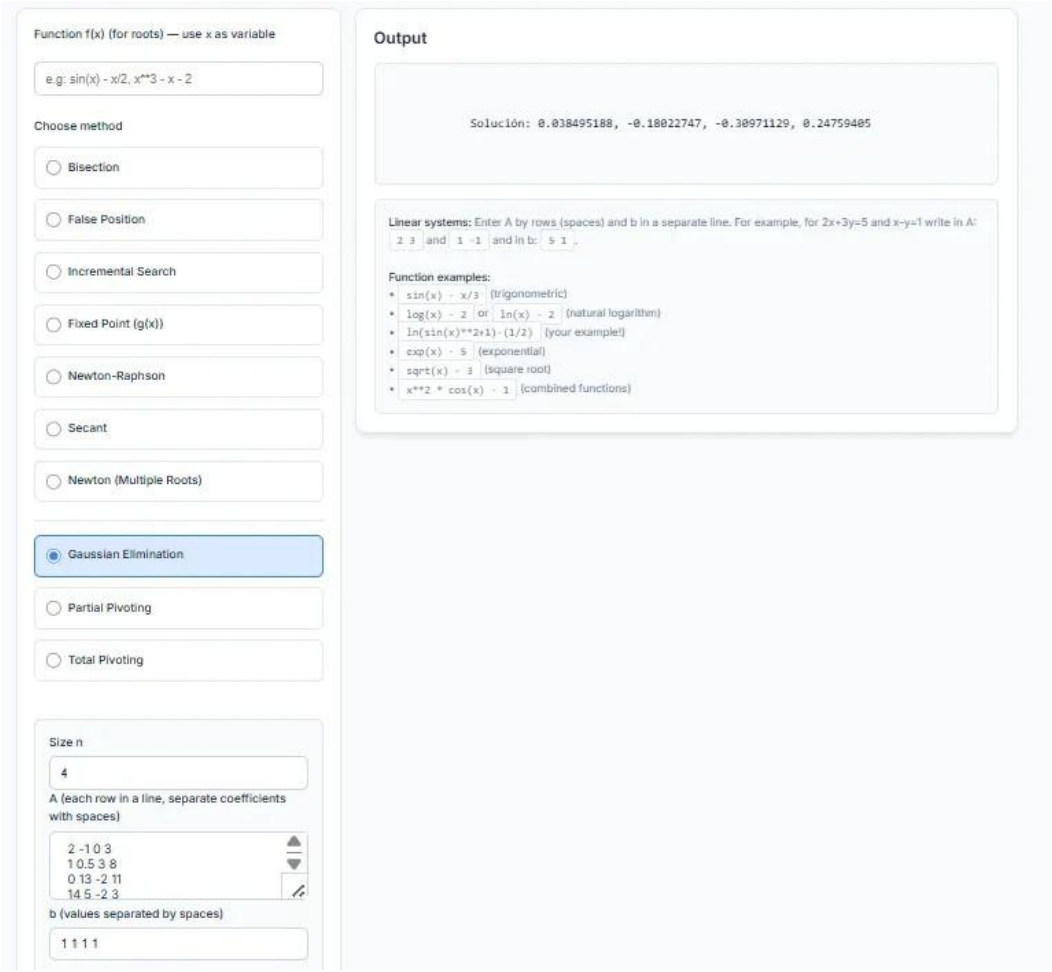
7. GAUSSIAN ELIMINATION Input Parameters: Matrix A: 4x4 (shown above) Vector b: [1, 1, 1, 1] Size n = 4



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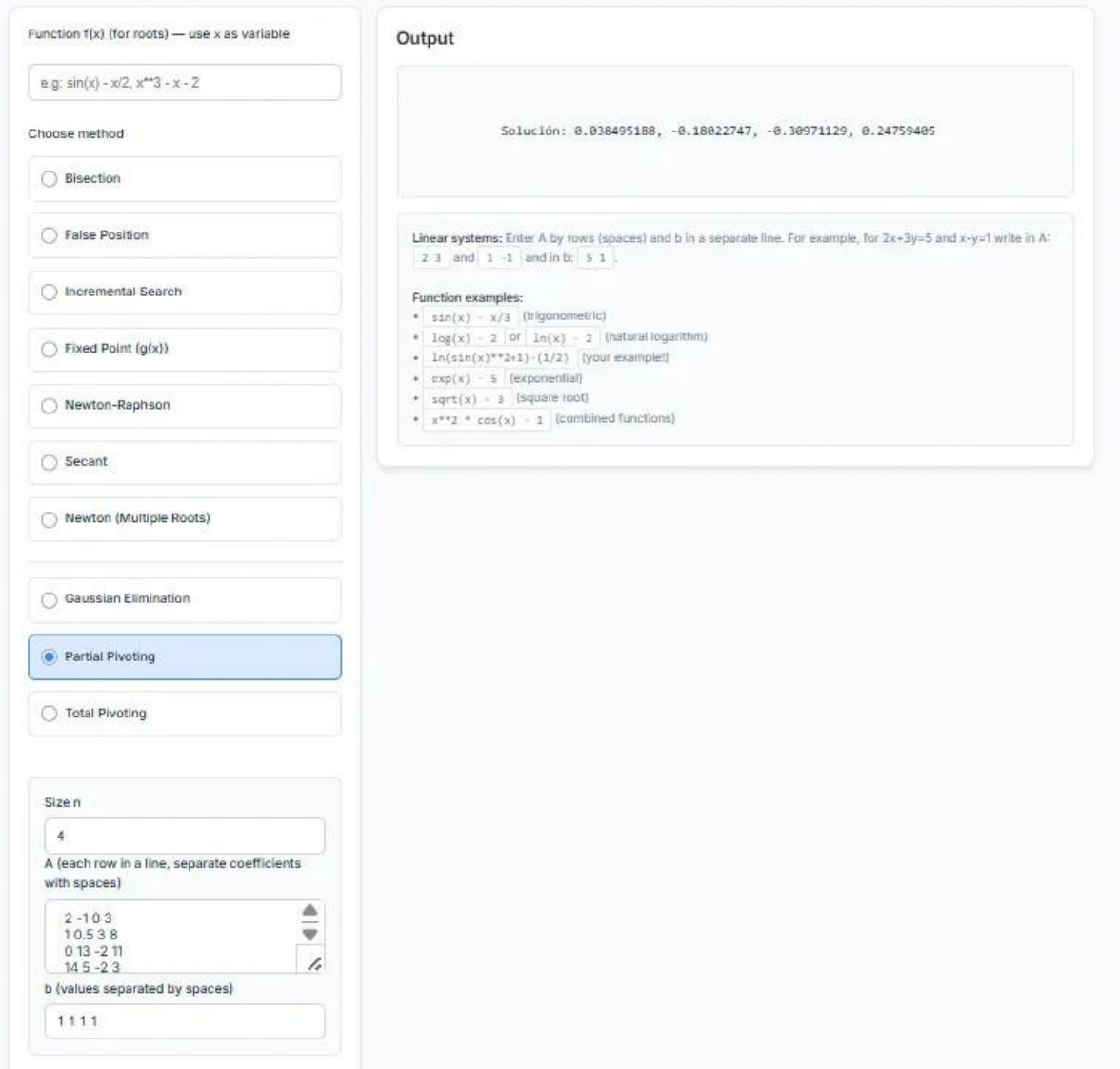
8. PARTIAL PIVOTING Input Parameters: Matrix A: 4x4 (same matrix) Vector b: [1, 1, 1, 1] Size n = 4



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9. TOTAL PIVOTING Input Parameters: Matrix A: 4x4 (same matrix) Vector b: [1, 1, 1, 1] Size n = 4