CS323 Project 1 Test Cases

Horners:

Test Case 1:
Input:
3
2
3
-1
2
3.5

Output:
Result 1: 86.000000
Result 2: 69.500000
Result 3: 40.000000
Result 4: 12.000000

Test Case 2:
Input:
4
4
1
-10
-2
1
2

Output:
Result 1: -34.000000
Result 2: -31.000000
Result 3: 4.000000
Result 4: 36.000000
Result 5: 24.000000

Test Case 3:
Input:
3
4

3
2
1
6.5

Output:
Result 1: 382.625000
Result 2: 155.750000
Result 3: 43.000000
Result 4: 6.000000

Test Case 4:
Input:
4
10
-6
4
9
1
8

Output:
Result 1: 8922.000000
Result 2: 3834.000000
Result 3: 1208.000000
Result 4: 246.000000
Result 5: 24.000000

Test Case 5:
Input:
3
7
2
5
5
3

Output:
Result 1: 193.000000
Result 2: 167.000000

Result 3: 100.000000
Result 4: 30.000000

Newton with Horners:

Test Case 1:
Input:
2
-2
0
1
1
1e-10
100

Output:
Final val: 1.414214

Test Case 2:
Input:
4
4
1
-10
-2
1
2
1e-5
100

Output:
Final val: 0.654024

Test Case 3:
Input:
4
5
4
3
2
1
3
1e-5

100

Output:
Error: no solution found

Test Case 4:
Input:
3
4
7
2
5
2.5
1e-5
100

Output:
Final val: -0.541721

Test Case 5:
Input:
3
1
2
3
4
3.5
1e-5
100

Output:
Final val: -0.605830

Cramer's Rule:

Test Case 1:
Input:
2
2
3
3
5
7
9

Output:
determinant A = 1
determinant A1 = 8
determinant A2 = -3
x1 = 8
x2 = -3

Test Case 2:
Input:
3
1
1
1
2
3
-1
6
-2
-3
6
5
-7

Output:
determinant A = -33
determinant A1 = -33

determinant A2 = -66
determinant A3 = -99
x1 = 1
x2 = 2
x3 = 3

Test Case 3:
Input:
3
5
2
2
-6
-4
-3
1
-2
0
9
-19
-9

Output:
determinant A = -4
determinant A1 = 4
determinant A2 = -16
determinant A3 = -12
x1 = -1
x2 = 4
x3 = 3

Test Case 4:
Input:
3
4
-1
3

1
5
-2
3
2
4
2
3
6

Output:
determinant A = 67
determinant A1 = 0
determinant A2 = 67
determinant A3 = 67
x1 = 0
x2 = 1
x3 = 1

Test Case 5:
Input:
3
1
1
-1
3
-2
1
1
3
-2
6
-5
14

Output:
determinant A = -3

determinant A1 = -3
determinant A2 = -9
determinant A3 = 6
x1 = 1
x2 = 3
x3 = -2

Neville's Method:

Test Case 1:
Input:
3,0,2.8,1,3.5,2,1.6,3,3.0,3.5

Output:
6.7812

Test Case 2:
Input:
3,8.1,16.9446,8.3,17.56492,8.6,18.50515,8.7,18.82091,8.4

Output:
17.8771

Test Case 3:
Input:
4,1.0,0.7651977,1.3,0.6200860,1.6,0.4554022,1.9,0.2818186,2.2,0.1103623,1.5

Output:
0.5118

Test Case 4:
Input:
3,8.1,16.9,8.3,17.5,8.6,18.5,8.7,18.8,8.4

Output:
17.8350

Test Case 5:
Input:
4,2,1,2.6,0.8,3.2,0.7,3.8,0.5,4.4,0,1.5

Output:
1.3873