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Some convergence histories for Problem 4
NOTE: In all tables, the 'SuccessiveRatioSquared' columns are the current error divided↙
by the square of the previous error.

Problem 4 a):
A brief convergence history for the first 10 iterations of 1998
T =
  10×3 table
          Errors             SuccessiveRatios      SuccessiveRatioSquared
    ____________________    ____________________    ______________________
    5.00000000000000e-01                   NaN                       NaN
    3.33333333333333e-01    6.66666666666667e-01     1.33333333333333e+00
    2.50000000000000e-01    7.50000000000000e-01     2.25000000000000e+00
    2.00000000000000e-01    8.00000000000000e-01     3.20000000000000e+00
    1.66666666666667e-01    8.33333333333333e-01     4.16666666666667e+00
    1.42857142857143e-01    8.57142857142857e-01     5.14285714285714e+00
    1.25000000000000e-01    8.75000000000000e-01     6.12500000000000e+00
    1.11111111111111e-01    8.88888888888889e-01     7.11111111111111e+00
    1.00000000000000e-01    9.00000000000000e-01     8.10000000000000e+00
    9.09090909090909e-02    9.09090909090909e-01     9.09090909090909e+00
The succesive ratio of errors is increasing and approaching 1, which suggests convergence↙
is sublinear.
Problem 4 b):
A brief convergence history for the first 10 iterations of 25
T =
  10×3 table
          Errors             SuccessiveRatios      SuccessiveRatioSquared
    ____________________    ____________________    ______________________
    3.33333333333333e-01                   NaN                       NaN
    1.11111111111111e-01    3.33333333333333e-01     1.00000000000000e+00
    3.70370370370370e-02    3.33333333333333e-01     3.00000000000000e+00
    1.23456790123457e-02    3.33333333333333e-01     9.00000000000000e+00
    4.11522633744856e-03    3.33333333333333e-01     2.70000000000000e+01
    1.37174211248285e-03    3.33333333333333e-01     8.10000000000000e+01
    4.57247370827618e-04    3.33333333333333e-01     2.43000000000000e+02
    1.52415790275873e-04    3.33333333333333e-01     7.29000000000000e+02
    5.08052634252909e-05    3.33333333333333e-01     2.18700000000000e+03
    1.69350878084303e-05    3.33333333333333e-01     6.56100000000000e+03
The succesive ratio of errors is constant throughout all iterations, so convergence is↙
linear.
Problem 4 c):
A brief convergence history for the first 4 iterations of 4
T =
  4×3 table
          Errors             SuccessiveRatios      SuccessiveRatioSquared
    ____________________    ____________________    ______________________
    1.00000000000002e-03                   NaN                       NaN
    1.00000000000006e-06    1.00000000000004e-03     1.00000000000002e+00
    1.00000000000026e-09    1.00000000000020e-03     1.00000000000015e+03
    1.00000000000013e-12    9.99999999999864e-04     9.99999999999601e+05
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This one converged right away and the errors are hopping down constantly by a factor of↙
about 10^-3, so convergence is linear.
Problem 4 d):
A brief convergence history for the first 6 iterations of 6
T =
6×3 table

Errors	SuccessiveRatios	SuccessiveRatioSquared
5.00000000000000e-01	NaN	NaN
1.25000000000000e-01	2.50000000000000e-01	5.00000000000000e-01
7.81250000000000e-03	6.25000000000000e-02	5.00000000000000e-01
3.05175781250000e-05	3.90625000000000e-03	5.00000000000000e-01
4.65661287307746e-10	1.52587890625002e-05	5.00000000000007e-01
1.08420217198063e-19	2.32830643545446e-10	4.99999999767155e-01

Thhe ratio the current error the the previous squared error is about constant for each↙
iteration, suggesting convergence here is quadratic.
Problem 4 e):
A brief convergence history for the first 4 iterations of 4
T =
4×3 table

Errors	SuccessiveRatios	SuccessiveRatioSquared
5.00000000000000e-01	NaN	NaN
6.25000000000001e-02	1.25000000000000e-01	2.50000000000000e-01
1.22070312500000e-04	1.95312500000000e-03	3.12499999999999e-02
9.09494701773755e-13	7.45058059693061e-09	6.10351562500555e-05

Apparently convergence again happened really fast, so it's hard to say at what rate it↙
happened. Based on my figures I can only say that the convergence is at least super-↙
linear.
Problem 4 f):
A brief convergence history for the first 10 iterations of 10
T =
10×3 table

Errors	SuccessiveRatios	SuccessiveRatioSquared
5.00000000000000e-01	NaN	NaN
1.76776695296637e-01	3.53553390593274e-01	7.07106781186547e-01
3.71627223438351e-02	2.10224103813429e-01	1.18920711500272e+00
3.58204704376825e-03	9.63881765879962e-02	2.59367910930201e+00
1.07193125022784e-04	2.99251025218304e-02	8.35419025941930e+00
5.54907254589841e-07	5.17670563734283e-03	4.82932616829905e+01
2.06681025741479e-10	3.72460486021663e-04	6.71212140300754e+02
1.48566508397415e-15	7.18820258726825e-06	3.47792089838930e+04
2.86319798953002e-23	1.92721631571967e-08	1.29720778694237e+07
7.66010893713344e-35	2.67536822991092e-12	9.34398612912571e+10

Convergence here is not quadratic, as the ratio of successive squared errors gets large.↙
On the otherhand, the linear ratio appears to be going down by non-constant amounts, so↙
converegence seems at least super-linear.
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