Logistic map exercises

Using a spreadsheet or a mathematics tool, e.g. R, Octave, or programming (in python...)

a) Show graphically the evolution of the logistic map for several values of, e.g.:

r
.9
1.8
2.6
3.2
3.9
3.99

i – plot the value of x against iterations

ii – plot the value of $\Delta x = x_{n+1} - x_n$ against iterations

iii – plot the value of x_{n+1} against x_n

b) For ***r*** in chaotic regime, start two initial points very close, e.g. $\varepsilon = 0.001$, and stop when the trajectories differ by 0.5. Take note of the number of iterations. Now slightly decrease the value of ***r*** (e.g. $\delta = -0.1$) and compare with the previous. Plot results

Submit the report (max 4 pgs. .pdf) and the code used together in a zip file, in moodle.

(groups of 2 students)