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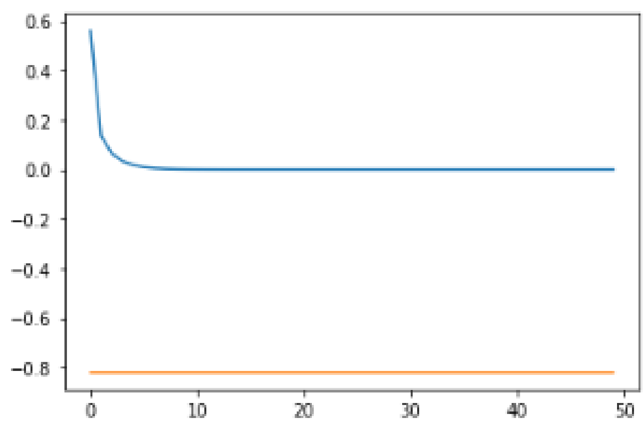
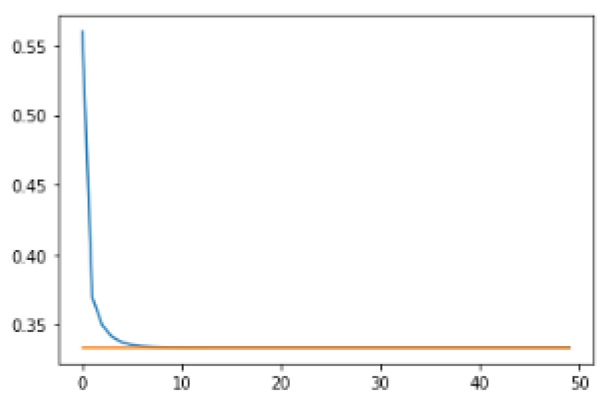
1)Q:**Write a code to generate the logistic map for different A values.**
A:
Part A:
1) For 0<A<1:



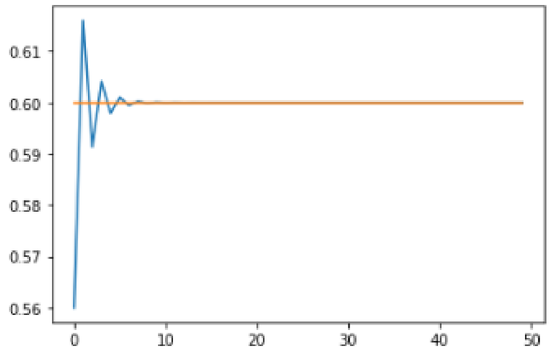
The blue line represents the equation x_n+1 = A*x_n*(1-x_n)
The orange line represents the y=(A-1)/A
We see that for any initial x_n the equation tends to zero.

2)For 1<A<2:



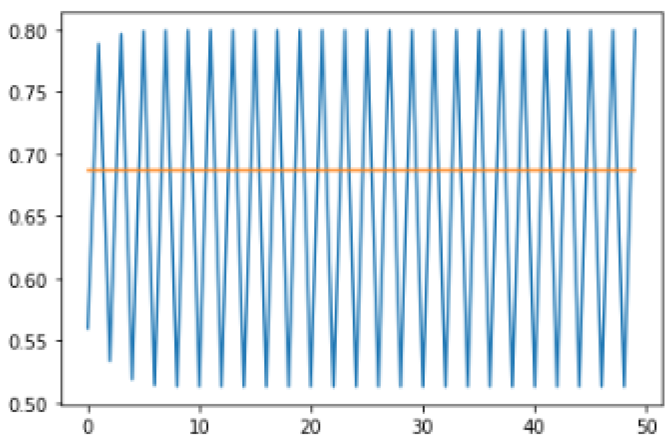
The blue line represents the equation x_n+1 = A*x_n*(1-x_n)
The orange line represents the y=(A-1)/A
We see that for any initial x_n the equation tends to (A-1)/A

3) For $2<A<3$:



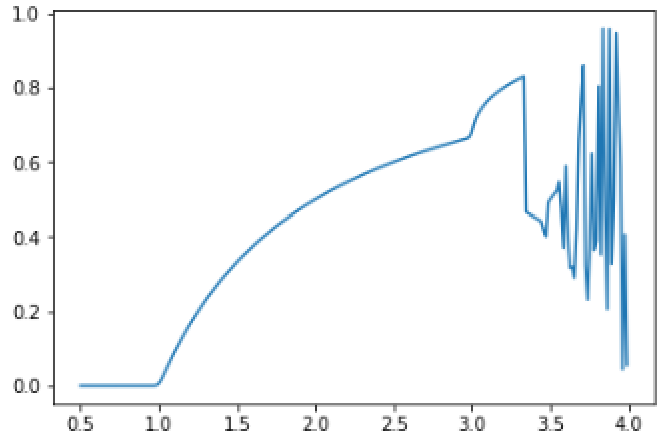
The blue line represents the equation $x_{n+1} = A*x_n*(1-x_n)$
The orange line represents the $y=(A-1)/A$
We see that for any initial x_n the equation tends to $(A-1)/A$ but will fluctuate initially.

4)For $3<x<3.449$:

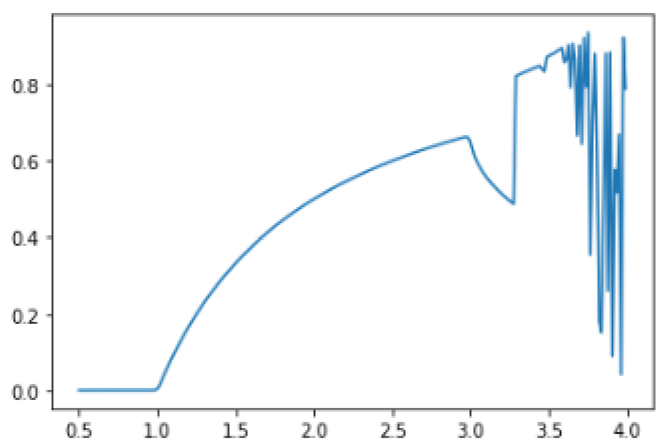


The blue line represents the equation $x_{n+1} = A*x_n*(1-x_n)$
The orange line represents the $y=(A-1)/A$
We see that for any initial x_n will achieve permanent oscillating solutions.

Part b:

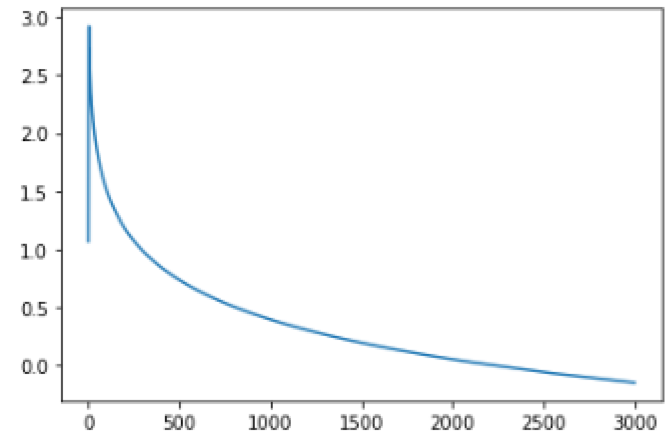


This is the graph A vs Xn . The values on the x-axis are xn obtained from 150 iterations and on the y axis are the variable A values varied from 0.5 to 3.99 in 250 steps.
The initial value used here is x_0 = 0.3



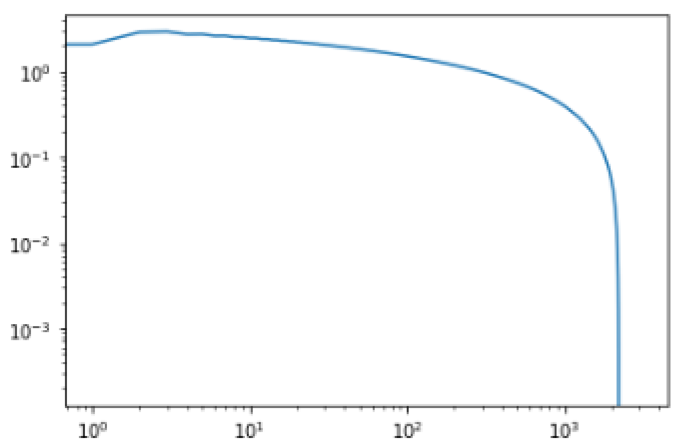
This is the graph A vs Xn . The values on the x-axis are xn obtained from 150 iterations and on the y axis are the variable A values varied from 0.5 to 3.99 in 250 steps.
The initial value used here is x_0 = 0.99

Part C:



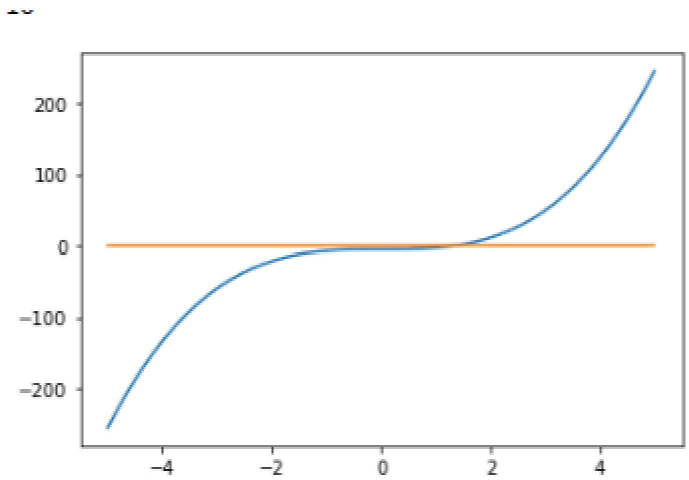
Above is the n vs log((x_n' - x_n)/0.01) graph

We see that for larger values of n , the y axis tends to zero.



Above is the log log graph of n vs log((x_n' - x_n)/0.01)

Q2)Root finding 1:



This is the graph of the function y=2x^3 - 5
We can clearly see from the graph that there exists a solution in interval (0,4)
So we start our interval for bisection method by taking a=0 and b=4.
After applying the bisection method we get the root of the equation as
x= 1.35723876953125 is the root
We find the root of the equation after the 16 iterations.