

Introduction to Complexity (Spring 2013)

2.8 Submit Unit 2 Homework » Unit 2 Homework

Instructions 1

After you fill this in, click on the "Submit" button at the bottom of the homework. See optional homework by downloading "Homework" from the Course Materials page.

Question 2

Download SimpleLogisticMap2.nlogo from the Course Materials page. Set $R = 3.7$, $x_0 = .2000000$ (by right-clicking on the slider, selecting the Value box), and $x_0' = .2000001$. Note that x_0 has 6 zeros following the .2, and x_0' has five zeros and a 1 following the "setup", and then "go". Continue clicking on "go" until the red and blue dot are completely separate (i.e., not overlapping at all). How many ticks does this take? Select the number below that is closest.

- 15
 - 20
 - 35
 - 45
 - 55
-

Question 3

Repeat the steps in Question 2, but with $R = 3.8$. How many ticks does it take until the red and blue dot are completely separate (not overlapping at all)? Select the number below that is the closest.

- 15
 - 26
 - 40
 - 47
 - 55
-

Question 4

Repeat the steps in Question 3, but with $R = 3.9$. How many ticks does it take until the red and blue dot are completely separate (not overlapping at all)? Select the number below that is the closest.

- 15
- 17
- 23
- 41
- 45

Question 5

Finally, repeat the steps in Question 4, but with $R = 4.0$. How many ticks does it take until the red and blue dot are completely separated (no longer overlapping)? Select the number below that is the closest.

- 10
 - 11
 - 18
 - 28
 - 41
-

Question 6

Using the results of the questions above, answer the following: As the growth rate R is increased, the Logistic Map's sensitivity to initial conditions (i.e., the speed at which initial conditions diverge under the map) tends to:

- increase
- decrease
- stay the same