

Chapter 7: Initial Explorations of the Logistic Equation

Worksheet to accompany

David Feldman, *Chaos and Fractals: An Elementary Introduction*,
Oxford University Press, 2012

On the four figures are shown plots of the logistic equation for four different values of the parameter r . For each plot, use graphical iteration to determine the stability of each fixed point. Sketch a representative time series plot.

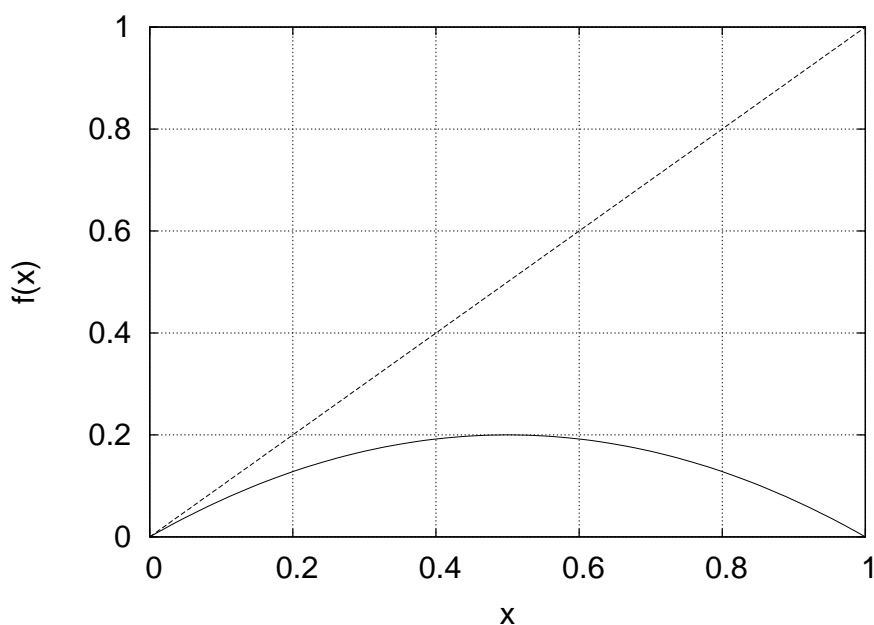


Figure 1: The logistic equation with $r = 0.8$.

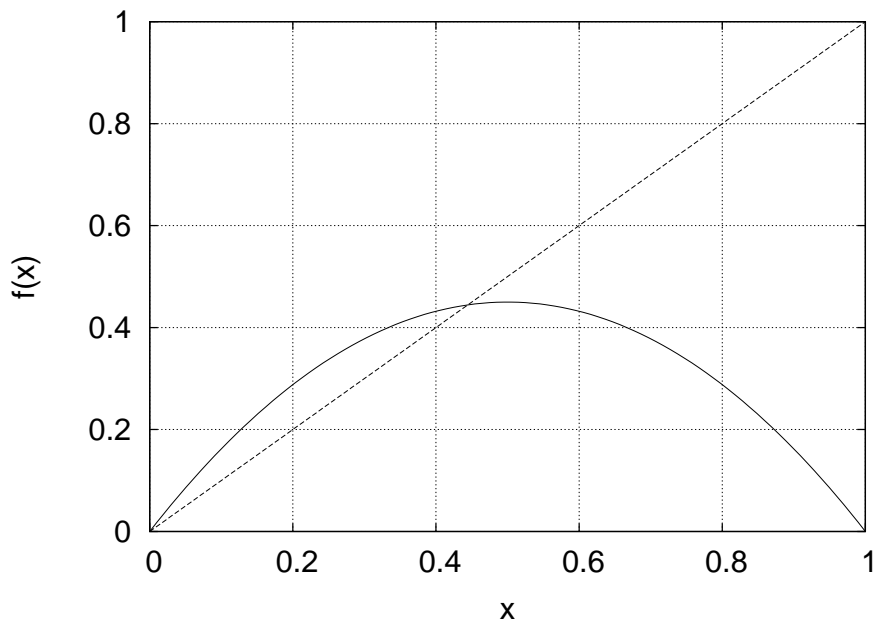


Figure 2: The logistic equation with $r = 1.8$.

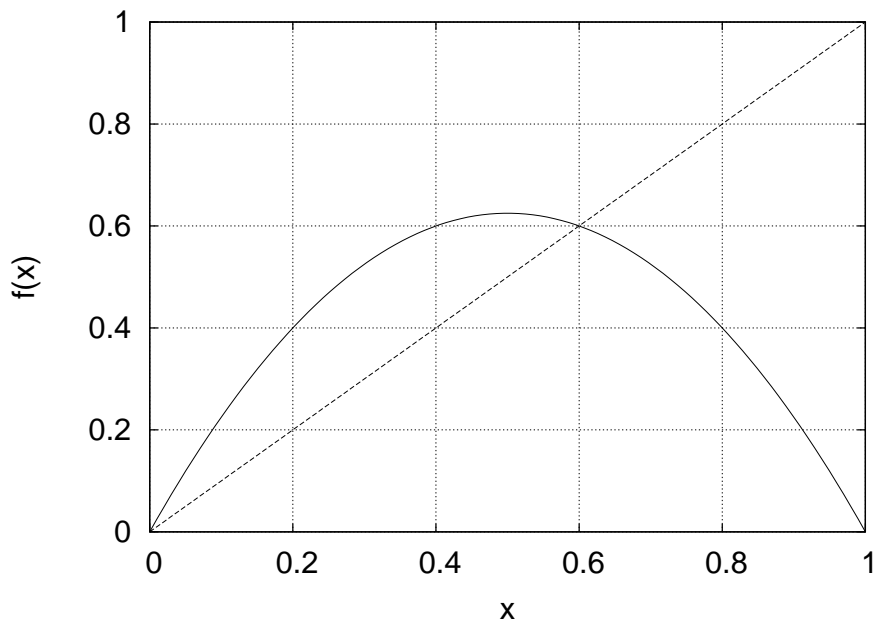


Figure 3: The logistic equation with $r = 2.5$.

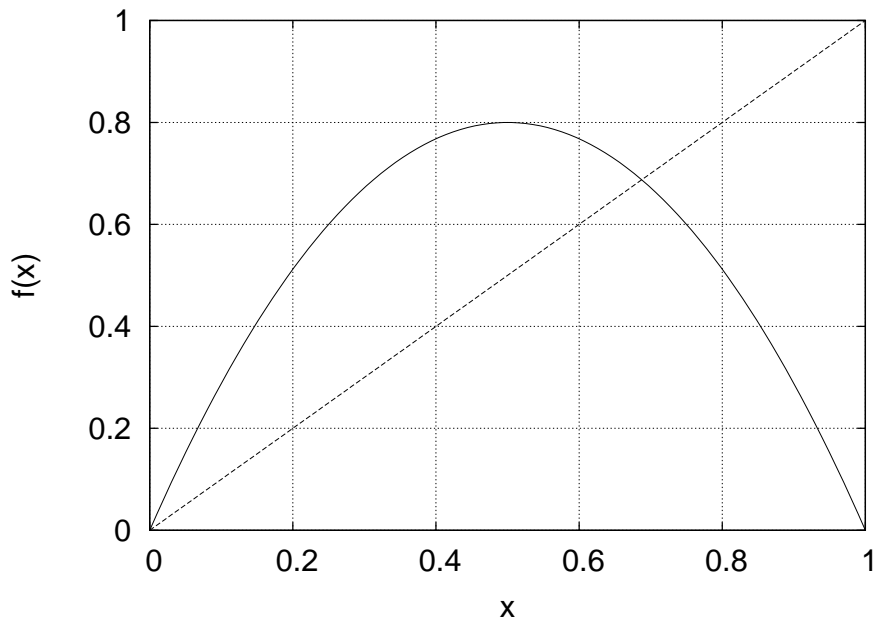


Figure 4: The logistic equation with $r = 3.2$.

Consider the logistic equation with $r = 2.5$. Use a calculator to determine the first three iterates of $x_0 = 0.3$.