Chapter 4: Time Series Plots

Worksheet to accompany

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

1. Find the first three values in the itinerary for the seeds $x_0 = 0.2$ and $x_0 = 0.95$ for the function $f(x)$ shown in Fig. 1. What is the long-term fate of these orbits? Sketch the time series plots for these two orbits.
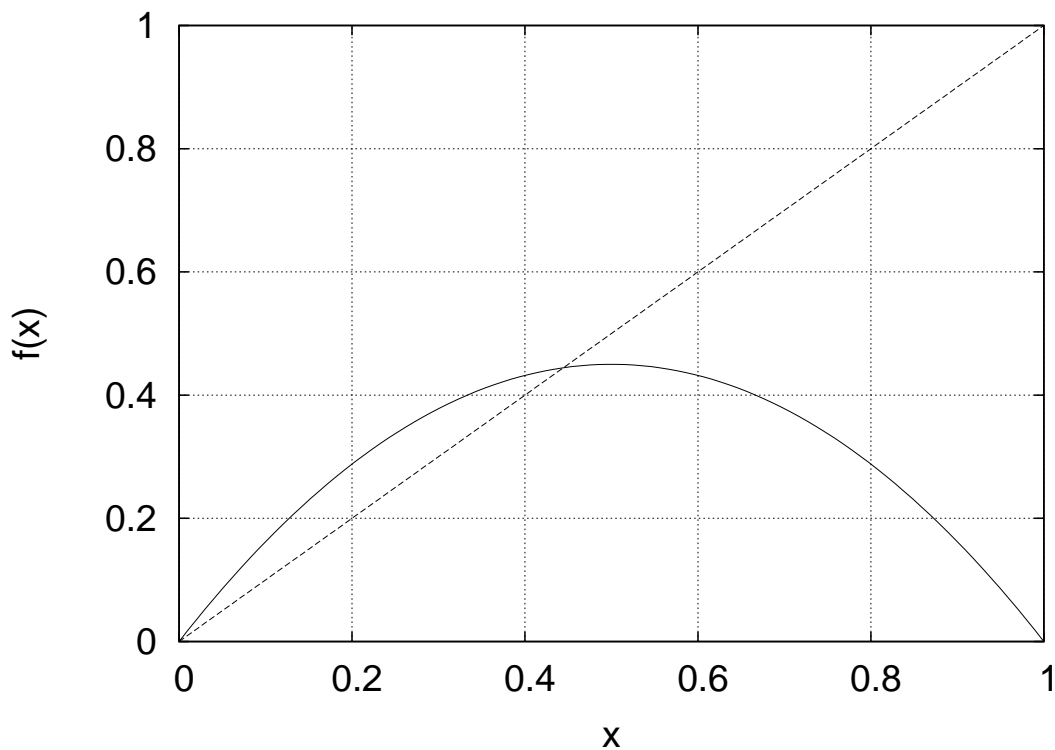

Figure 1: The graph of a function $f(x)$. The dashed line is the $y = x$ line.

2. Let $g(x) = \frac{1}{4}x^2$. Determine the first few iterates for the seeds $x_0 = 1$, $x_0 = 4$, and 8. What is the long-term fate of these orbits? Sketch a time series plot for the three orbits.