

Math 388 Exercises

Instructions: for each function, find all fixed points. For any of the functions, what happens if the initial point is larger than 2 (or smaller than -2)? Pick a small number of initial points between -2 and 2 and try to determine the sink.

1. $f(x) = x^2$

2. $f(x) = x^2 - 0.4$

3. $f(x) = x^2 - 1$

4. $f(x) = x^2 - 1.2$

5. $f(x) = x^2 - 1.3$

From reading the chapter "Life's Ups and Downs" in Gleick, answer the following.

6. Why would ecologists be more amenable to chaos than physicists?
7. What was James Yorke's role in the development of chaos?
8. What was puzzling Robert May about the behavior of iterates of quadratic functions?