

# Math 241, Spring 2026 — Homework 3

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Due February 19 at 5:00 pm

**Instructions.** This problem set covers material from Week 3 of class. The problem numbers refer to our textbook, *A First Course in Chaotic Dynamical Systems*, by Robert L. Devaney.

**Problem 1.** Please do the following exercises from Chapter 5: 1agjk, 2bcdf, 3, 4acdefg, 5, 6, 7, 8

*Remark 1.* Please read through section 5.5 before working on Exercises 2 and 3.

*Remark 2.* You may use Desmos on Exercise 4, but make sure your submission includes pictures (drawn by hand or screenshots from Desmos) to explain your conclusions.

*Remark 3.* In Exercises 5, 6, 7, 8, please make sure to include an example cobweb plot drawn by hand with each answer to these problems. You should also make sure to explain your observations and conclusions in complete sentences. Note that these problems are meant to explain and summarize the behavior you see in Exercise 4. The idea is that when working with a neutral fixed point, concavity and changes in concavity of the graph of the map will govern whether orbits are attracted to or repelled from the fixed point.