

MATH 226

Differential Equations

Assignment 2

Due: Monday, February 17

Read Section 1.2: “Qualitative Methods: Phase Lines and Direction Fields” and Section 1.3: “Definitions, Classification, and Terminology”

Begin working through **MATLAB onramp**:

<https://matlabacademy.mathworks.com/details/matlab-onramp/gettingstarted> .

Part I: Section 1.1 Mathematical Models and Solutions

Practice Problems 1.1: 1, 3, 5, 7, 11, 13

Feedback Problems 1.1: 7, 13

Hint for 13b: Your concentration after the second dose should equal the second dose plus the concentration remaining from the initial dose. Express this mathematically using (a).

Hint for 13c: Can you spot the geometric series? What is the sum of a converging geometric series?

Part II: Section 1.2 Qualitative Methods

All direction fields and phase lines should be drawn by hand for this section.

Practice Problems 1.2: 1, 3, 5, 13, 14, 15, 24 – 29 (Note that the directions for Problems 24 – 29 appear just after Problem 23.)

Feedback Problems 1.2: 1, 5, 14

Part III: Problem on Fitzhugh-Naguma Model

See Reverse Side