

AA 218 - Homework 3

Spring 2020

Date due: Tuesday April 28

Read Chapter 3 Sections 3.7 to 3.10, and Chapters 5 and 6. We will return to chapter 4 when we discuss variational symmetries in chapter 15. At that point we will use some of the results in sections 3.7 and 3.8.1.

Complete Exercises 3.17, 5.1, 5.3 and 5.6.

In problem 5.6 you will use the Lie series expansion of the dependent variables to construct a numerical scheme for integrating the equations. I strongly suggest that, before doing the numerical integration, you identify and characterize all critical points of the vector field defined by the equations. This will help you to decide how to initiate the integration to get the best accuracy.