Practice Problems
Due never

These are practice problems for you to try out. You do not need to turn these in. You also do not need to do every single problem listed here. This list is not meant to be 100% comprehensive, but it will cover most of the content relative to the course.

Sections on the Final Exam: 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.5, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.7, 4.1, 4.2, 4.3, 7.4, 7.5, 7.6, 7.8. Selected parts of the following chapters: 7.1,7.2,7.3 (just the content discussed in class).

Note: All problems are from the 11th edition of the book.

First order equations

Direction Fields

- Chapter 1.1, 11-16
- Chapter 1.1, 1-4

Separable DE's

- Chapter 2.2, # 1,2,3,6,7,8

Integrating Factors for first order linear equations

- Chapter 2.1, # 1, 2, 3, 4, 5, 6

Modeling with 1st order equations

- Chapter 2.3, # 1, 2, 3
- Chapter 2.5, # 1,2,3,4, 15
- Review population modeling examples

Euler's Method

- Chapter 2.7, # 1, 2, 3, 4

Second Order Equations

Homogeneous equations

- Chapter 3.1, # 1-6, 7-12
- Chapter 3.2, # 1-5
- Chapter 3.3, # 1-16
- Chapter 3.4, # 1-11

Non-homogeneous equations

- Chapter 3.5, # 1-15

Springs

- Chapter 3.7, # 1,2,3, 20

Higher Order Equations

Homogeneous

- Chapter 4.3, 8-19 (use wolframalpha to get the roots.)

Non-homogeneous

- Chapter 4.3, 1-6

Systems of First-Order equations

Real Eigenvalues

- Chapter 7.5, # 1-6

Complex Eigenvalues

- Chapter 7.6 # 1-4, 7,8

Repeated Eigenvalues

- Chapter 7.8, # 1,2,3, 6,8