Math 352 Homework and Quiz Schedule

Dave Rosoff

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1 Math 352 Differential Equations Homework, reading, and quizzes

1.1 Daily homework and reading

Looking for the weekly problem sets (section 1.2) or the quizzes (section 1.3)? Or the Sage tutorial[1]? You can also download an experimental PDF[2] of this homework page.

Daily Problems, Week 6: March 18–March 22

- Assigned Wednesday, March 20. Read section 3.4 carefully, paying special attention to page 168 and to the last subsection *Reduction of Order*.
  - Section 3.4: Exercises 1–15, odd.
- Assigned Monday, March 18. Skim section 3.4. Quiz Wednesday, March 20 over 3.2., 3.3. You can also view the (short, mostly recap) presentation[3].
  - Section 3.3: Exercises 8–22, even.

Daily Problems, Week 5: March 11–March 15

- Assigned Friday, March 15. Read section 3.3.
  - Section 3.2: Exercises 24–27.
  - Do all of the Exercises in the Introduction to Complex Numbers[4] group assignment. You may find the presentation from today's class[5] helpful as well.
- Assigned Wednesday, March 13. Here is Wednesday's presentation about Wronskians and general solutions to second-order linear homogeneous equations[6].

[1] sage.html
[2] HW.pdf
[3] OscillatorySolutions.pdf
[4] GWComplexIntro_M352_S13.pdf
[5] IntroductionComplexNumbers.pdf
[6] WronskiansGeneralSolutions_M352_S13.pdf

  - Section 3.2: Exercises 1–6, 13, 14.

- Assigned Monday, March 11. Quiz Friday, March 15 over 2.7 and 3.1. Here is the group worksheet[7] we did about exponential solutions to a second-order linear homogeneous differential equation with constant coefficients and the superposition principle (Theorem 3.2.2 in the text.).

  - Section 3.1: Exercises 1–15 odd.

Daily Problems, Week 4: March 4–March 8

- Assigned Friday, March 8. You can download the Sage worksheet[8] showing how to implement Euler's Method as a loop. You'll need to upload the .sws file to the Sage server to open it in your account.

  - Section 2.5: Exercises 3–5, 7, 10.
  - Section 2.6: Exercises 1–3, 7.
  - Section 2.7: Exercises 1a, 3a.

- March 6: Section 2.6. No problems today.

- March 4: Exam 1.

Daily Problems, Week 3: February 25–March 1

- No daily problems for March 1. Exam 1 is coming up! It covers sections 2.1 through 2.4.

- Assigned Wednesday, February 27. Read section 2.5.

  - Complete the activity problems from in-class[9] to be handed in Friday in lieu of Quiz 4. No new daily problems from the text.

- Assigned Monday, February 25. Read section 2.4 and skim 2.5.

  - Section 2.4: Exercises 1–6, 7, 8. No quiz Wednesday.

Daily Problems, Week 2: February 18–22

- Assigned Friday, February 22. Read section 2.3 and skim section 2.4. Work exercises 2.3.1–2.3.10.

- Assigned Wednesday, February 20. Exercises from class: 2.2.12, 22, 24, 28. Daily homework is to use Sage or another computer algebra system to plot the solutions to the IVPs. Use the plots to answer the questions about max/min and domains of solutions.

[7] GWLinearSecondOrder_M352_S13.pdf
[8] EulersMethod.sws
[9] GWModeling_M352_S13.pdf

- Assigned Monday, February 18. Read section 2.2 and skim section 2.3. You can download[10] Monday's in-class Sage worksheet; ignore everything after the command consisting only of a zero. You'll need to save the .sws file to disk. Then, you can upload into your own Sage notebook. See the Getting Started worksheet[11] for more.

  - Section 2.2: Exercises 1–8 (all exercises) and 9–15 odd.

Daily Problems, Week 1: February 11–15

- Assigned Friday, February 15. Read section 2.1 and skim section 2.2.

  - Section 2.1: Exercises 1–5 and 16. To produce the plots, I suggest you make use of Sage[12]. In solving the differential equations themselves, you'll need to make heavy use of integration by parts.

- Assigned Wednesday, February 13. Read section 2.1.

  - Section 1.3: Exercises 7–9, 11, 12, 14. Work done in Sage[13] is fine (except 14), but if you feel you are a little rusty with integrals, you could probably use the practice of doing these by hand. If some of the functions involved look unfamiliar, Google them.

- Assigned Monday, February 11. Read Chapter 1. You're invited to download this Sage worksheet[14] and open it at the public Sage notebook server[15] (registration required) to experiment with slope fields. See: Getting Started with Sage[16].

  - Section 1.1: Exercises 15–20, 21, 22.
  - Section 1.2: Exercises 5–8, 12–14.

1.2 Weekly homework

Looking for the daily homework (section 1.1)?

Weekly 5: March 11–March 15

Due ~~Monday, March 18~~Wednesday, March 20.

- Section 2.7: 15, 19 (use of Sage is encouraged).
- Section 3.1: 20, 24.

[10] SeparationOfVariables.sws
[11] sage.html
[12] sage.html
[13] sage.html
[14] SlopeFields.sws
[15] http://www.sagenb.org/
[16] sage.html

Weekly 4: March 4–March 8

Due Wednesday, March 13.

- Section 2.5: 15. I encourage you to make use of Sage, although this problem should not be as challenging as some of the 2.3 problems to do by hand. It will help a lot if you think about part (a) in verbal context. What is the meaning of K? What is the meaning of τ? How do α, β, etc., correspond to numbers in part (a)? Put some effort into understanding the problem before you begin to solve it.
- Section 2.6: 12, 16.

Weekly 3: February 25–March 1

Due Monday, March 4.

- Section 2.4: exercises 22, 23, 25, 26.

Weekly 2: February 18–February 22

Due Monday, February 25.

- Section 2.2: exercises 10–16 (even; use Sage or equivalent for plots)
- Section 2.3: exercises 13, 18, 19.

Weekly 1: February 11–February 15

Due Monday, February 18.

- Section 2.1: exercises 13, 15, 17, 19.

1.3 Quiz dates

- Quiz 7: Wednesday, March 20 (sections 3.2, 3.3).
- Quiz 6: Friday, March 15 (sections 2.7, 3.1).
- Quiz 5: Wednesday, March 13 (sections 2.5, 6).
- Quiz 4: Monday, February 25 (section 2.3).
- Quiz 3: Wednesday, February 20 (section 2.2). This and all subsequent quizzes will be open-note, but no books or calculators.
- Quiz 2: Friday, February 15.
- Quiz 1: Wednesday, February 13.