

Preparation sheet for Test 1

Problems on this Test will be based on the homework problems listed below.

Note 1: The notation, e.g., 2.1.3, means ‘Problem 3 of Sec. 2.1’.

Note 2: You should check the original homework assignment for hints, notes, or answers for any of the problems listed with an asterisk (e.g., 2.1.3*). Note that a problem may have more than one hint or note. If an even-numbered problem does not have an answer listed on the homework webpage, consult the Note typeset in red font for HW 2.

Note 3: A problem on the Test may combine concepts of more than one problem listed on this sheet, or it may use only part of the solution of a given homework problem.

Note 4: Problems within one HW assignment, but pertaining to different topics, are separated by a semi-colon and a larger space.

When preparing for the Test, it will be beneficial for your performance if you **redo** the problems listed below, and also review the related examples in the notes and in the book. Please **note**: It will **not be helpful** if you simply browse those problems **without actually doing them**.

If you can do a problem but are not confident that you can do it fast (as will be expected on the Test), you should redo it multiple times (taking breaks in between) until you *can* do it fast and with confidence. This is the same concept as that of doing multiple repetitions of a physical exercise to make your muscles master and remember it.

On this Test, use of a calculator will be allowed (although you will *not* really need one).

You may also prepare and use *one double-sided sheet with formulae*. There, you may write *anything* that you think may be useful to you on the Test: formulae, solutions of examples, pictures, etc.. However, make sure that those things are related to this Preparation sheet. That is, do *not* put there formulas “just in case”: if they were not needed when you worked on this Preparation sheet, then they will not be needed on the Test.

You will need to *turn in* your formula sheet along with your Test.

1. **HW 2:** ## 2.2.28*; 2.3.{19*, 21*}.
2. **HW 4:** ## 2.3.{16*, 17*}, 2.4.14*; make sure to review topic 5 of Lecture 2 (found on page 2-11). Also, review the Background Info Sheet for properties of the Exponential function.
3. **HW 5:** ## 2.5.{11, 12*}; 2.6.{23(b)*, 9*}; 2.6.7, Word Problem (a).
4. **HW 7:** ## 2.6.{38*, 33*}, Word Problem*; 2.7.{5*, 9*}.
Also do ## 2.5.{13(a)*, 14(a)*}, but treat them as *separable* DEs, *not* as Bernoulli DEs.
5. **HW 10:** # 3.1.11*.

Note for all problems in HW 5 and 7 involving integration by partial fraction expansion:

On the test, you will have to show your work for the following steps:

- Finding the coefficients of the partial fraction expansion;
- Integrating the resulting simple fractions by a (simple) *u*-substitution.

Finding those integrals with a calculator or from a table/formula sheet will not be given credit.