

### Preparation sheet for Test 3

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 or Notes for any of the problems listed below with an asterisk (e.g., 3.2.1\*). Some problems have more than one Hint or Note, so make sure to *find and use all of them*.

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

*Note 4:* Groups of problems from the same section that may pertain to different test problems are separated by a 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 help you much** if you simply browse those problems **without actually doing them**.

On this Test, use of calculators will be allowed.

Recall that while you can use a calculator for arithmetic, you **must** put **all logical steps** of your work on paper to earn credit.

You may prepare and use one double-sided sheet with formulae.

1. **HW 20:** ## 9.1.{51, 52\*, 53\*}.
  2. **HW 21:** ## 9.1.{47, 49, 65(B,C), 63(B,C), 64(B,C)\*.} In part (C) of ## 63 & 64 (but **not** in that of # 65), disregard the “Discuss” question.  
You **must** do all these problems using the method illustrated in Examples 6(b) and 7(b) (but **not** in 6(a) and 7(a)!) of Lecture 10. You can check correctness of your qualitative sketches by plotting the given solutions with indicated initial conditions.
  3. **HW 22:** ## 9.2.{10\*; 18\*, 19\*, 20\*, 25, 26\*, 27, 37\*}.  
In some of these problems, you will need to “remove” the absolute value symbol. For that, you will need to investigate the sign of the expression inside the absolute value. Do so using the method illustrated in topic 2 (pp. 11-2,3) and in Example 3 of Lecture 11. You will be tested on this step.
  4. **HW 23:** ## 9.2.{11, 15; 71\*, 72\*, 73\*, 74\*, 68\*, 82\*}.
  5. **HW 24:** ## 9.3.{23, 25, 26\*, 27, 29}.
- When you practice doing these problems, review Rule 1 in Theorem 1 in Appendix A.5.