# Review for Test 1

In general, if you are feeling a bit unsure of yourself on the material in one of the sections mentioned below, it's a good idea to practice by trying a few of the homework problems that were not assigned, but look similar to the ones that were assigned. This is a particularly good thing to do for section 5.5, because doing integrals by substitution is a skill that definitely improves with practice.

**5.1 Areas and distances** We covered most of the material in this section (except for the part in the subsection titled "The Distance Problem", so you should be able to understand it upon re-reading. I did a problem in class similar to Example 2, but I will not ask a problem like this on the test. I did not assign problems from this section, because the same material is covered in the problems from section 5.2.

**5.2 The definite integral** You should re-read and be able to understand all the material in this section. I will not ask problems on the test like Examples 2 and 3, however. I might ask you to give the definition of the definite integral (see the red box on page 326). You do not have to repeat it word for word, but your definition should explain the meanings of all the symbols used. See the definition I gave in class for a somewhat shorter version. Review the problems I assigned from this section.

**5.3 The fundamental theorem of calculus** Know the statements of the Fundamental Theorem of Calculus, parts 1 (p. 342) and 2 (p. 344) and be able to use them to do problems as in examples 2, 4, 5, 6, and 7 in this section. Also review the homework problems assigned from this section.

**5.4 Indefinite integrals and the net change theorem** Re-read pages 351-353, and make sure you know all the formulas in the red box at the bottom of page 351. Review all the homework problems assigned from this section. I did not cover the "net change theorem" (pp. 354–356), so you need not read that material.

**5.5 The substitution rule** This is one of the most important sections in the book, in the sense that you will need to use the substitution rule over and over again in this and future math and engineering courses. Read the entire section carefully, go over all the assigned homework problems, and also do as many of the unassigned problems in this section as you have time for!

**6.1 Areas between curves.** This is a fairly easy section. Re-read the entire section, except you don't need to look at Example 4. Review the assigned homework problems.