01325 Mathematics 4, Spring 2013

Week no. 2

Theory: In the week February 11-15 the lectures cover

Theorem 1.7.3, Sections 1.9, 2.4, 3.1–3.2 (except Ex. 3.2.2)

Remark: The concepts of open and closed sets in Section 2.2 were just treated in a very introductory way in Week 1. We return to these concepts later.

Question Session: We have arranged a weekly Question Session ("spørgetime")

Mondays 12:00-12:50 in Room 026, Building 303 S.

The instructors will take care of the question session. They will answer all questions related to the course, except the home work. If you happens to have a question concerning the home work, they will help you by pointing to a similar question from the set of regular exercises.

Exercises for the week February 11-15: 1.24, 2.10 (the norm is the usual norm on $\mathbb{R}^2$, see page 2 in the book), 2.14(i), 3.1, 3.3, 3.14, 2.12

(I am confident that this program is enough, but if you want an extra challenge you can look at Exercise 2.13)

Hints to selected exercises:

Exercise 3.14 (i): show first that $ST = I$ implies that S and T are invertible, using the determinant.

Homework 2, to be turned in no later than February 20: Problem 216 (from the file with extra exercises), 3.9

Hints to exercise 3.9: in (iv), show that $||T\mathbf{x}|| \leq \frac{1}{2}||\mathbf{x}||$ for all $\mathbf{x} \in \ell^1_w(\mathbb{N})$. This result is also used in (v). For the rest of (v), let $\mathbf{x} = (0, 1, 0, 0, ...)$ and calculate $||\mathbf{x}||$ and $||T\mathbf{x}||$.

Regards,
Ole