

**MA 717**  
**M. Kon**

**PROBLEM SET 3**  
**Due Thurs. 2/8/18**

**Lectures 4, 5**

Note: Starred problems are optional.

**1\***. Problem 22, Chapter I.

**2.** Problem 23, Chapter I.

**3.** Problem 27, Chapter I.

**4.** Find the operator norm of the matrix  $\begin{bmatrix} 3 & -1 \\ 1 & 1 \end{bmatrix}$  as a mapping from  $\mathbb{R}^2 \rightarrow \mathbb{R}^2$  in the Euclidean norm  $\sqrt{a_1^2 + a_2^2}$ .

**5.** Write out the proof of Theorem II.1 on p. 37 in some more detail.