MAD 6406: HOMEWORK 2

Due: Friday, 09/18

Your solutions should be uploaded to Canvas as a **single** pdf document.

If you wrote your solutions useing LaTeX, you may email me the .tex file (and any dependencies), and I may use it when compiling the solutions.

Numbered problems are from Trefethen and Bau, Numerical Linear Algebra

(1) Show for $x \in \mathbb{C}^n$ that

$$f(x) = \left(\sum_{j=1}^{n} |x_j|^p \right)^{1/p},$$

does not define a norm on $\mathbb{C}^n$ for $0 < p < 1$.

(2) 3.1

(3) 3.2

(4) 3.3

(5) Show the matrix norm equality:

$$\|A\|_1 = \max_{1 \le j \le n} \sum_{i=1}^{m} |a_{ij}|$$

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