MATH 631
HW1

Instructions

- This homework is due electronically on Canvas before 11:59pm on September 13th, 2019 (no late assignments will be accepted).
- The submission must be one continuous PDF containing the solutions **in the order they are listed below**.
- Collaboration is allowed but students must write their own solutions.
- Students are encouraged to typeset their homework in LaTeX.
- Note that if you are asked to prove something, you can only use results which appear before the exercise in the text.

Lax's "Linear Algebra and Its Applications (2nd Ed.)"

Each exercise is worth 5 points.

- Read chapters 1 and 2. (Nothing to submit)
- For ch. 1, do exercises 2, 3, 6, 8, 9, 11, 19, and 20.
- For ch. 2, do exercises 3, 5, and 7.

Previous qualifying exams

- August 2018 2(a):

  (a) Let $\boldsymbol{x} = c_1\boldsymbol{u}_1 + \cdots + c_n\boldsymbol{u}_n$ where the $\boldsymbol{u}_i$ form a basis for the vector space in which $\boldsymbol{x}$ lies. Prove that $c_1, \ldots, c_n$ are unique. [5 pts]