Linear Algebra
Assignment 2

Due Sunday at 11:59 PM

1 Directions

Complete the following 4 problems showing all your work. You may use a calculator to check your work, but should write out (or TeX up) all the steps of your solution. Unless otherwise specified, you may skip some steps of row reduction with a calculator, but state that you did so. Please upload your work as a single .pdf file in the course.

2 Problems

In the problems below let $A = \begin{bmatrix} 1 & 1 & 0 \\ 1 & 2 & 1 \\ 0 & 1 & 1 \end{bmatrix}$

1. Calculate rref(A) by hand showing all the steps of your row reduction.
2. Using your answer to 1, determine the general solution of $Ax = 0$.
3. Solve the matrix equation $Ax = \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}$, or show that no solution exists.
4. Use 3D graphing software (e.g. Geogebra or Desmos) to give a geometric description of your answers to problems 2 and 3. (*Note*: even if a systems is inconsistent, you can still graph to show no common intersection occurring.)