Linear Algebra

Assignment 8 MATH 2318 (Fall 2022)

Deadline: Saturday November 5th, 11:59pm.

Policy to turn in assignment:

- Assignment should be submitted via BlackBoard.
- Student needs to turn in their assignment as a single PDF file.
- No email or late submission will be accepted.

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5 points 1. Use the adjugate to compute the inverse of A.

$$A = \begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 4 \end{bmatrix}$$

3 points 2. Show that $H = \left\{ \begin{bmatrix} a & 2a \\ 0 & b \end{bmatrix} : a, b \in \mathbb{R} \right\}$ is a subspace of $M_{2\times 2}(\mathbb{R})$.

3 points 3. For each of the following, determine if the statement is true or false. Provide a short reasoning (one or two sentences).

a) The set of invertible 2×2 matrices is a subspace of $M_{2\times 2}(\mathbb{R})$.

b) $\mathbb{R}^2$ is a subspace of $\mathbb{R}^3$.

c) A set containing a finite number of vectors in $\mathbb{R}^n$ cannot be a subspace of $\mathbb{R}^n$.