

Linear Algebra
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Exam 2
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1. Is the set of vectors linearly independent?

- a) $\{(1,0,-1,2), (2,2,-2,1), (1,3,-1,0)\}$
- b) $\{(1,0,-1), (5,1,-3), (1,1,1)\}$
- c) $\{(1,0,-1), (5,2,0), (1,1,1), (3,-1,2)\}$

2. Find a basis for the row space and column space of the matrix A.

$$\begin{pmatrix} 1 & 5 & -2 & 2 \\ 0 & 1 & 1 & -1 \\ 0 & 9 & 7 & 1 \end{pmatrix}$$

3. Let $S = \{(1,0,0), (1,-1,1), (6,2,-3)\}$.

- a) Prove that S is a basis for \mathbb{R}^3
- b) Use the Gram-Schmidt process to find an orthonormal basis from S.