

Linear Algebra

Instructions Please write your name in the upper right-hand corner of the page. Use complete sentences, along with any necessary supporting calculations, to answer the following questions.

1. Find the orthogonal complement of the subspace of R^3 spanned by the two vectors $\begin{pmatrix} 1 \\ 2 \\ 1 \end{pmatrix}$ and $\begin{pmatrix} 1 \\ -1 \\ 2 \end{pmatrix}$.

[This is exercise 3(b) on page 233 of the textbook.]

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2. Find a least-squares solution to the inconsistent linear system

$$x_1 + x_2 = 3$$

$$x_1 - x_2 = 0$$

$$x_1 + 0x_2 = 4.$$