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Quiz 4(G-9)
Linear Algebra for Informatics
Fall semester 2024
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Problem

$$W = \left\{ \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix} \in \mathbb{R}^3 : x_1 - 4x_2 + 5x_3 = 2 \right\}$$

Is W a subspace of $\mathbb{R}^3$? Explain your answer

Problem

Find the kernel of the linear transformation $T : \mathbb{R}^2 \to \mathbb{R}^2$ Given by

$$T\begin{pmatrix} x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} 7 & 1 \\ 0 & -3 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix}$$

Problem

Show that vectors:

$$\begin{pmatrix} 0 \\ -1 \\ 3 \end{pmatrix}, \begin{pmatrix} -2 \\ 3 \\ 0 \end{pmatrix}, \begin{pmatrix} -6 \\ 7 \\ 6 \end{pmatrix}$$

are linearly dependent