

Let $u_1 = \begin{bmatrix} -2 \\ -1 \\ 3 \end{bmatrix}$ and $u_2 = \begin{bmatrix} 2 \\ -13 \\ -3 \end{bmatrix}$. If $W = \text{Span}\{u_1, u_2\}$, determine whether each of the following vectors is in W^\perp .

1. $v = \begin{bmatrix} -2 \\ 1 \\ -2 \end{bmatrix}$

2. $v = \begin{bmatrix} -4 \\ 1 \\ -9 \end{bmatrix}$

3. $v = \begin{bmatrix} 3 \\ 0 \\ 2 \end{bmatrix}$

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