Let

$$\vec{x} = \begin{bmatrix} 3 \\ 1 \\ 4 \\ 0 \end{bmatrix}, \quad \vec{y} = \begin{bmatrix} -2 \\ -2 \\ -11 \\ -4 \end{bmatrix}.$$

Use the Gram-Schmidt process to determine an orthonormal basis for the subspace of $\mathbb{R}^4$ spanned by $\vec{x}$ and $\vec{y}$.

$$\left\{ \begin{bmatrix} \square \\ \square \\ \square \\ \square \end{bmatrix}, \begin{bmatrix} \square \\ \square \\ \square \\ \square \end{bmatrix} \right\}.$$

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$$\vec{x} = \begin{bmatrix} 3 \\ 1 \\ 4 \\ 0 \end{bmatrix}, \quad \vec{y} = \begin{bmatrix} -2 \\ -2 \\ -11 \\ -4 \end{bmatrix}.$$

Use the Gram-Schmidt process to determine an orthonormal basis for the subspace of $\mathbb{R}^4$ spanned by $\vec{x}$ and $\vec{y}$.

$$\left\{ \begin{bmatrix} 3/\sqrt{26} \\ 1/\sqrt{26} \\ 4/\sqrt{26} \\ 0 \end{bmatrix}, \begin{bmatrix} 4/\sqrt{41} \\ 0 \\ -3/\sqrt{41} \\ -4/\sqrt{41} \end{bmatrix} \right\}.$$