

Find the orthogonal projection of

$$\vec{v} = \begin{bmatrix} 0 \\ -8 \\ 0 \\ 0 \end{bmatrix}$$

onto the subspace  $W$  of  $\mathbb{R}^4$  spanned by

$$\begin{bmatrix} -1 \\ -1 \\ 1 \\ -1 \end{bmatrix}, \quad \begin{bmatrix} -1 \\ 1 \\ -1 \\ -1 \end{bmatrix}, \quad \begin{bmatrix} -1 \\ -1 \\ -1 \\ 1 \end{bmatrix}.$$

$$\text{proj}_W(\vec{v}) = \begin{bmatrix} \boxed{\phantom{0}} \\ \boxed{\phantom{0}} \\ \boxed{\phantom{0}} \\ \boxed{\phantom{0}} \end{bmatrix}$$

Find the orthogonal projection of

$$\vec{v} = \begin{bmatrix} 0 \\ -8 \\ 0 \\ 0 \end{bmatrix}$$

onto the subspace  $W$  of  $\mathbb{R}^4$  spanned by

$$\begin{bmatrix} -1 \\ -1 \\ 1 \\ -1 \end{bmatrix}, \quad \begin{bmatrix} -1 \\ 1 \\ -1 \\ -1 \end{bmatrix}, \quad \begin{bmatrix} -1 \\ -1 \\ -1 \\ 1 \end{bmatrix}.$$

$$\text{proj}_W(\vec{v}) = \begin{bmatrix} -2 \\ -6 \\ 2 \\ 2 \end{bmatrix}$$