# Quiz 10

For the problems below, use

$$W = \text{span}\left\{ \begin{bmatrix} 0 \\ 2 \\ 4 \end{bmatrix}, \begin{bmatrix} 4 \\ 8 \\ -4 \end{bmatrix} \right\}$$

**1.** Find an orthogonal basis for $W$.

**2.** Find the projection of $x = \begin{bmatrix} 2 \\ -2 \\ 1 \end{bmatrix}$ onto $W$.

**3.** Find a vector $w \in W$ and a vector $v \in W^{\perp}$ such that $x = w + v$.