Let W be the set of all vectors $\begin{bmatrix} x \\ y \\ x+y \end{bmatrix}$ with x and y real. Determine whether each of the following vectors is in $W^{\perp}$.

| ? | 1. $v = \begin{bmatrix} -4 \\ -4 \\ 4 \end{bmatrix}$ |

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

| ? | 3. $v = \begin{bmatrix} 7 \\ -6 \\ 3 \end{bmatrix}$ |

Let W be the set of all vectors $\begin{bmatrix} x \\ y \\ x+y \end{bmatrix}$ with x and y real. Determine whether each of the following vectors is in $W^{\perp}$.

| yes | 1. $v = \begin{bmatrix} -4 \\ -4 \\ 4 \end{bmatrix}$ |

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

| no | 3. $v = \begin{bmatrix} 7 \\ -6 \\ 3 \end{bmatrix}$ |