1. Find the value of k for which the matrix $\begin{bmatrix} 1 & 0 & k \\ 2 & 1 & -1 \\ 0 & 1 & 1 \end{bmatrix}$ is not invertible.

2. Let W be the set of all vectors (a, b, c, d) such that $abcd = 0$. Is W a subspace of $\mathbb{R}^4$? Justify your answer.