1. Show that \( V = \{(x, y, z) \in \mathbb{R}^3 \mid 3x + 4y = 5z\} \) is a subspace of \( \mathbb{R}^3 \).

2. Find the dimension of the solution space of the system

\[
\begin{align*}
    x - 3y + 2z &= 0 \\
    y + 4z &= 0 \\
    2x - 9y - 8z &= 0
\end{align*}
\]