Challenge question: Draw nice accurate digital image of these planes intersecting

\[
\begin{align*}
\begin{cases}
    x + 2y + 3z &= 1 \\
    x + 3y + 4z &= 3 \\
    x + 4y + 5z &= 4 \\
\end{cases}
\end{align*}
\]

The plot of the 3 planes intersecting is shown in the following figure. As seen from the plot, lines of intersection occurs between 2 planes at most. Since there are 3 unknowns, there is no solution that exists where 3 equations are satisfied simultaneously (intersection of 3 planes). Hence this system of equations has no solution.
b) \[
\begin{align*}
&x + 2y + 3z = 1 \\
&3x + 2y + z = 1 \\
&7x + 2y - 3z = 1
\end{align*}
\]

The plot for the above system of equations is given below, with 1 line of intersection between 3 planes. Hence, this system is consistent and has infinite number of solutions lying along \( L_{123} \) with equation \( \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 0 \\ 0.5 \\ 0 \end{pmatrix} + t \begin{pmatrix} 1 \\ -2 \\ 1 \end{pmatrix} \).