Exercise 1
Write the general solution of the system as a sum of its partial solution and a linear combination of basis vectors of the associated homogenous system:
\[
\begin{align*}
\begin{cases}
x + y - t &= 1 \\
z + 2t &= -1
\end{cases}
\end{align*}
\]

Exercise 2
Find bases and dimensions for the row, column and null spaces of the matrix:
(i) \[
\begin{pmatrix}
1 & 2 & 1 \\
-1 & -1 & 0
\end{pmatrix}
\]
(ii) \[
\begin{pmatrix}
-3 & -6 \\
1 & 2 \\
4 & 8
\end{pmatrix}
\]

Exercise 3
Find a subset of the vectors that forms a basis of their span:
(i) \(v_1 = (1, -1, 2), v_2 = (-2, 2, -4)\);
(ii) \(v_1 = (2, -1), v_2 = (1, 2), v_3 = (1, 1), v_4 = (-1, 2)\).