

$$\begin{array}{rcl}
-2x_1 - 3x_2 - 9x_3 + 2x_4 & -16x_6 & = 0 \\
-x_1 + 2x_2 + 6x_3 - 2x_4 + x_5 + 15x_6 & = & 6 \\
-x_1 - 3x_2 - 9x_3 - 3x_4 + x_5 & -x_6 & = 21 \\
2x_1 & -x_4 & = 1
\end{array}$$

RREF and system corresponding to RREF:

$$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & -2 & -2 \\ 0 & 1 & 3 & 0 & 0 & 4 & -2 \\ 0 & 0 & 0 & 1 & 0 & -4 & -5 \\ 0 & 0 & 0 & 0 & 1 & -3 & -2 \end{bmatrix} \implies \begin{array}{rcl} x_1 & -2x_6 & = -2 \\ x_2 + 3x_3 & -4x_6 & = -2 \\ & x_4 & -4x_6 = -5 \\ & & x_5 - 3x_6 = -2 \end{array}$$

Parameter definitions for free variables and solution of the system in parametric form:

$$\begin{array}{rcl} x_3 = \lambda_1 \\ x_6 = \lambda_2 \end{array} \implies \begin{array}{rcl} x_1 & = & -2 + 2\lambda_2 \\ x_2 & = & -2 - 3\lambda_1 + 4\lambda_2 \\ x_3 & = & \lambda_1 \\ x_4 & = & -5 + 4\lambda_2 \\ x_5 & = & -2 + 3\lambda_2 \\ x_6 & = & \lambda_2 \end{array}$$

Solution set for system:

$$\left\{ \begin{bmatrix} -2 \\ -2 \\ 0 \\ -5 \\ -2 \\ 0 \end{bmatrix} + \lambda_1 \begin{bmatrix} 0 \\ -3 \\ 1 \\ 0 \\ 0 \\ 0 \end{bmatrix} + \lambda_2 \begin{bmatrix} 2 \\ 4 \\ 0 \\ 4 \\ 3 \\ 1 \end{bmatrix} : \lambda_1, \lambda_2 \in \mathbb{R} \right\}$$

This set is a plane in  $\mathbb{R}^6$ .