5. a)
$$\left[\begin{array}{ccccc|c} 1 & -1 & 0 & 2 & 1 & 2 \\ -2 & 2 & 1 & -4 & 0 & -7 \\ 1 & -1 & 1 & 3 & 1 & -1 \end{array}\right]$$

$R_2 \to R_2 + 2R_1$, $R_3 \to R_3 - R_1$
$$\left[\begin{array}{ccccc|c} 1 & -1 & 0 & 2 & 1 & 2 \\ 0 & 0 & 1 & 0 & 2 & -3 \\ 0 & 0 & 1 & 1 & 0 & -3 \end{array}\right]$$

$R_3 \to R_3 - R_2$
$$\left[\begin{array}{ccccc|c} 1 & -1 & 0 & 2 & 1 & 2 \\ 0 & 0 & 1 & 0 & 2 & -3 \\ 0 & 0 & 0 & 1 & -2 & 0 \end{array}\right]$$

Let $x_2 = t$, $x_5 = s$

$x_4 = 2x_5 = 2s$

$x_3 = -3 - 2x_5 = -3 - 2s$

$x_1 = 2 - x_5 - 2x_4 + x_2 = 2 - s - 2(2s) + t = 2 - 5s + t$

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \\ x_5 \end{bmatrix} = \begin{bmatrix} 2-5s+t \\ t \\ -3-2s \\ 2s \\ s \end{bmatrix} = \begin{bmatrix} 2 \\ 0 \\ -3 \\ 0 \\ 0 \end{bmatrix} + s\begin{bmatrix} -5 \\ 0 \\ -2 \\ 2 \\ 1 \end{bmatrix} + t\begin{bmatrix} 1 \\ 1 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$