

$$R \quad R_1 - R_3$$

$$\left[ \begin{array}{ccc|c} 1 & 0 & -1 & 0 \\ 0 & 3 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{array} \right]$$

$$\frac{1}{3} R_2$$

$$R \quad \left[ \begin{array}{ccc|c} 1 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{array} \right]$$

$$R_3 - R_2$$

$$R \quad \left[ \begin{array}{ccc|c} 1 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{array} \right]$$

$$x_1 - x_3 = 0$$

$$x_2 = 0$$

$$x_1 = t$$

$$\boxed{x_3 = t}$$

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} t \\ 0 \\ t \end{bmatrix}$$