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$$\begin{bmatrix} 1 & 0 & -3 & | & 5 \\ 0 & 1 & 2 & | & -7 \\ 0 & 0 & 0 & | & 0 \end{bmatrix}$$

System of 3 unknowns
so   let $x_3 = t$

$x_1 - 3t = 5$

$$\begin{bmatrix} x_1 = 5 + 3t \\ x_2 = -7 - 2t \\ x_3 = t \end{bmatrix}$$

$x_2 + 2t = -7$

$x_2 = -7 - 2t$

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$$\begin{bmatrix} 2 & 4 & -10 & | & -2 \\ 3 & 9 & -21 & | & 0 \\ 1 & 5 & -12 & | & 1 \end{bmatrix}$$

$\frac{1}{2}R1$
$\frac{1}{3}R2$
$R3$

$$\begin{bmatrix} 1 & 2 & -5 & | & -1 \\ 1 & 3 & -7 & | & 0 \\ 1 & 5 & -12 & | & 1 \end{bmatrix}$$

R1
R2-R1
R3-R1

$$\begin{bmatrix} 1 & 2 & -5 & | & -1 \\ 0 & 1 & -2 & | & 1 \\ 0 & 3 & -7 & | & 2 \end{bmatrix}$$

R1-2R2
R2
R3-3R1

$$\begin{bmatrix} 1 & 0 & -1 & | & -3 \\ 0 & 1 & -2 & | & 1 \\ 0 & 0 & -1 & | & -1 \end{bmatrix}$$

R1-R3
R2-2R3
-R3

$$\begin{bmatrix} 1 & 0 & 0 & | & -2 \\ 0 & 1 & 0 & | & 3 \\ 0 & 0 & 1 & | & 1 \end{bmatrix}$$

$$\begin{bmatrix} x_1 = -2 \\ x_2 = 3 \\ x_3 = 1 \end{bmatrix}$$

51 $\begin{bmatrix} 2 & -1 & -3 & | & 8 \\ 1 & -2 & 0 & | & 7 \end{bmatrix}$ $\leftarrow$ $\begin{bmatrix} 1 & -2 & 0 & | & 7 \\ 2 & -1 & -3 & | & 8 \end{bmatrix}$

R1 $\begin{bmatrix} 1 & -2 & 0 & | & 7 \\ 0 & 3 & -3 & | & -6 \end{bmatrix}$ R1 $\begin{bmatrix} 1 & -2 & 0 & | & 7 \\ 0 & 1 & -1 & | & -2 \end{bmatrix}$
R2-2R1 $\frac{1}{3}$R2

R1+2R2 $\begin{bmatrix} 1 & 0 & -2 & | & 3 \\ 0 & 1 & -1 & | & -2 \end{bmatrix}$ Let $x_3 = t$
R2

$x_1 - 2t = 3$ $\qquad x_2 - t = -2$

$\begin{bmatrix} x_1 = 3 + 2t \\ x_2 = -2 + t \\ x_3 = t \end{bmatrix}$