

*Example 1* Find the general solution to the system of equations whose augmented matrix has been reduced to the matrix shown below.

$$\begin{bmatrix} 1 & 6 & 2 & -5 & -2 & -4 \\ 0 & 0 & 2 & -8 & -1 & 3 \\ 0 & 0 & 0 & 0 & 1 & 7 \end{bmatrix}$$

First, perform row operations to write the matrix in reduced echelon form.

Write the associated linear system. Identify the pivot columns.

Identify the free variables and solve for the basic variables.

*Example 2* Find the general solution of the linear system whose augmented matrix is given below.

$$\begin{bmatrix} 1 & -7 & 0 & 6 & 5 \\ 0 & 0 & 1 & -2 & -3 \\ -1 & 7 & -4 & 2 & 7 \end{bmatrix}$$