$$\begin{pmatrix} 1 & 2 & 1 \\ -2 & -3 & 1 \\ 3 & 5 & 0 \end{pmatrix} \quad \begin{matrix} R_2 + 2R_1 \\ R_3 - 3R_1 \end{matrix}$$

$$\begin{matrix} 1 & 2 & 1 \\ 0 & 1 & 3 \\ 0 & -1 & -3 \end{matrix} \quad R_2 + R_3.$$

$$\begin{matrix} 1 & 2 & 1 \\ 0 & 1 & 3 \\ 0 & 0 & 0 \end{matrix}$$

Clearly the third column is dependent on the 1st two, i.e.,

$$-5 \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix} + 3 \begin{pmatrix} 2 \\ 1 \\ 0 \end{pmatrix} = \begin{pmatrix} 1 \\ 3 \\ 0 \end{pmatrix}$$

Indeed,

$$-5 \begin{pmatrix} 1 \\ -2 \\ 3 \end{pmatrix} + 3 \begin{pmatrix} 2 \\ -3 \\ 5 \end{pmatrix} = \begin{pmatrix} 1 \\ 1 \\ 0 \end{pmatrix}$$