Solve the system $\begin{cases} 3x + y + 2z = 31 \\ x + y + 2z = 19 \\ x + 3y + 2z = 25 \end{cases}$

$$\left[\begin{array}{ccc|c} \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \end{array}\right] \underline{\hspace{2cm}} \left[\begin{array}{ccc|c} \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \end{array}\right]$$

$$\underline{\hspace{2cm}} \left[\begin{array}{ccc|c} \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \end{array}\right] \underline{\hspace{2cm}} \left[\begin{array}{ccc|c} \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \end{array}\right]$$

$$\underline{\hspace{2cm}} \left[\begin{array}{ccc|c} \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \end{array}\right] \underline{\hspace{2cm}} \left[\begin{array}{ccc|c} \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \end{array}\right]$$

$$\underline{\hspace{2cm}} \left[\begin{array}{ccc|c} \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \end{array}\right] \underline{\hspace{2cm}} \left[\begin{array}{ccc|c} \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \end{array}\right]$$

$$\underline{\hspace{2cm}} \left[\begin{array}{ccc|c} \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \end{array}\right] \underline{\hspace{2cm}} \left[\begin{array}{ccc|c} \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \\ \_ & \_ & \_ & \_ \end{array}\right]$$