FELIPE ANCHIETA DA CUNHA MENDES

(4)

$$\begin{cases} x - 2y - 3z = 0 \\ 4x - 3y = -18 \\ 2y + 5z = -8 \end{cases}$$

$$\left(\begin{array}{ccc|c} 1 & -2 & -3 & 0 \\ 4 & -3 & 0 & -18 \\ 0 & 2 & 5 & -8 \end{array}\right) \quad l_2 \leftarrow l_2 - 4l_1$$

$$\sim$$

$$\left(\begin{array}{ccc|c} 1 & -2 & -3 & 0 \\ 0 & 5 & 12 & -18 \\ 0 & 2 & 5 & -8 \end{array}\right) \quad l_3 \leftarrow l_3 - \tfrac{2}{5} l_2$$

$$\sim$$

$$\left(\begin{array}{ccc|c} 1 & -2 & -3 & 0 \\ 0 & 5 & 12 & -18 \\ 0 & 0 & 1/5 & -4/5 \end{array}\right) \rightarrow \begin{cases} x - 2y - 3z = 0 \\ 5y + 12z = -18 \\ 1/5 z = -4/5 \end{cases}$$

$\star$ $\frac{1}{5} z = -\frac{4}{5}$ $\therefore$ $\boxed{z = -4}$

$\star$ $5y = -18 - 12z = -18 - 12(-4) = 30$ $\therefore$ $\boxed{y = 6}$

$\star$ $x = 2y + 3z = 2 \cdot 6 + 3(-4) = 0$ $\boxed{x = 0}$

$S = \{0, 6, -4\}$