

$$\left[\begin{array}{ccc|c} 1 & 2 & -1 & 1 \\ 3 & -1 & -2 & 9 \\ 3 & 4 & 7 & -5 \\ 2 & -2 & -1 & 7 \end{array} \right] \xrightarrow{\begin{matrix} R_2 \leftarrow R_2 - 3R_1 \\ R_3 \leftarrow R_3 - 3R_1 \\ R_4 \leftarrow R_4 - 2R_1 \end{matrix}} \left[\begin{array}{ccc|c} 1 & 2 & -1 & 1 \\ 0 & -7 & 1 & 6 \\ 0 & -2 & 10 & -8 \\ 0 & -6 & 1 & 5 \end{array} \right]$$

$$(-2) + (-7)x = 0 \\ -7x = 2 \\ x = -\frac{2}{7}$$

$$\left[\begin{array}{ccc|c} 1 & 2 & -1 & 1 \\ 0 & 1 & -\frac{1}{7} & -\frac{6}{7} \\ 0 & 0 & \frac{68}{7} & -\frac{68}{7} \\ 0 & 0 & \frac{1}{7} & -\frac{1}{7} \end{array} \right] \xrightarrow{\cdot \frac{7}{68}} \left[\begin{array}{ccc|c} 1 & 2 & -1 & 1 \\ 0 & 1 & -\frac{1}{7} & -\frac{6}{7} \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & -1 \end{array} \right] \xrightarrow{-7}$$

$$(-6) + (-7)x = 0$$

$$-7x = 6 \\ x = -\frac{6}{7}$$

$$10 + 1 \cdot \frac{-2}{7} = 10 - \frac{2}{7} = \frac{70}{7} - \frac{2}{7} = \frac{68}{7}$$

$$\left[\begin{array}{ccc|c} 1 & 2 & -1 & 1 \\ 0 & 1 & -\frac{1}{7} & -\frac{6}{7} \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & -1 \end{array} \right] \xrightarrow{\begin{matrix} R_1 \leftarrow R_1 - R_2 \\ R_4 \leftarrow R_4 - R_3 \end{matrix}} \left[\begin{array}{ccc|c} 1 & 2 & -1 & 1 \\ 0 & 1 & 0 & -1 \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & -1 \end{array} \right] \xrightarrow{-2} \left[\begin{array}{ccc|c} 1 & 2 & 0 & 0 \\ 0 & 1 & 0 & -1 \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & -1 \end{array} \right]$$

$$1 + 1 \left(-\frac{6}{7} \right) = 1 - \frac{6}{7} = \frac{1}{7}$$

$$-8 + 6 \left(-\frac{2}{7} \right) = -8 - \frac{12}{7} = -\frac{56}{7} - \frac{12}{7} = -\frac{68}{7}$$

$$5 + 6 \left(-\frac{6}{7} \right) = 5 - \frac{36}{7} = \frac{35}{7} - \frac{36}{7} = -\frac{1}{7}$$

$$-\frac{1}{7} + 1 \cdot x = 0 \\ x = \frac{1}{7}$$

$$-\frac{6}{7} + (-1) \left(\frac{1}{7} \right) = -\frac{6}{7} - \frac{1}{7} = -1$$

$$\left[\begin{array}{ccc|c} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & -1 \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & -1 \end{array} \right]$$

\Rightarrow entydlig lösning:

$$\begin{cases} x = 2 \\ y = -1 \\ z = -1 \end{cases}$$