Question:

Solve the matrix of the following using the Gaussian Method

3x-5y= -2
2x+4y= 7

Solution.

1. $\begin{cases} 3x - 5y = -2 \\ 2x + 4y = 7 \end{cases}$

We write the extended system matrix

$$\left[\begin{array}{cc|c} 3 & -5 & -2 \\ 2 & 4 & 7 \end{array}\right] \sim \left[\begin{array}{cc|c} 6 & -10 & -4 \\ -6 & -12 & -21 \end{array}\right] \sim \left[\begin{array}{cc|c} 0 & -22 & -25 \\ 2 & 4 & 7 \end{array}\right]$$

From first row we get $y = \frac{25}{22}$ and from second row we get $2x + 4 * \frac{25}{22} = 7$ hence $2x = \frac{77}{11} - \frac{50}{11} = \frac{27}{11}$. Thus, $x = \frac{27}{22}$

Answer. $x = \frac{27}{22}, y = \frac{25}{22}$.