Pair of Linear Equations in Two Variables

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This is Problem-1.1 from Exercise 3.2

1. 3x+2y=5 and 2x-3y=7

   Solution:

   $$3x + 2y = 5 \tag{1}$$
   $$2x - 3y = 7 \tag{2}$$
   $$\tag{3}$$

   it can be written as

   $$\begin{pmatrix} 3 & 2 & 5 \\ 2 & -3 & 7 \end{pmatrix}$$

   $R_1 \to R_1 - 3R_2$
   $$\begin{pmatrix} 0 & 13 & -11 \\ 2 & -3 & 7 \end{pmatrix}$$

   $R_1 \to_1 /13$
   $$\begin{pmatrix} 0 & 1 & -11/13 \\ 2 & -3 & 7 \end{pmatrix}$$

   $R_2 \to_2 +3R_1$
   $$\begin{pmatrix} 0 & 1 & -11/13 \\ 2 & 0 & 58/13 \end{pmatrix}$$

   $R_2 \to_2 /2$
   $$\begin{pmatrix} 0 & 1 & -11/13 \\ 1 & 0 & 29/13 \end{pmatrix}$$

   therefore x=-11/13 and y=29/8