

Answer on Question #40993 – Math – Linear Algebra

Question:

Solve the linear equation : $2x+3y=3$, $x-2y=5$ and $3x+2y=7$

Solution:

Solve the system:

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

Divide the 1-th equation by 2 and express x by other variables

$$\begin{cases} x = -1.5y + 1.5 \\ 1x - 2y = 5 \\ 3x + 2y = 7 \end{cases}$$

In 2, 3 equation we substitute x

$$\begin{cases} x = -1.5y + 1.5 \\ 1(-1.5y + 1.5) - 2y = 5 \\ 3(-1.5y + 1.5) + 2y = 7 \end{cases}$$

after simplification we get:

$$\begin{cases} x = -1.5y + 1.5 \\ -3.5y = 3.5 \\ -2.5y = 2.5 \end{cases}$$

Divide the 2-th equation by -3.5 and express y by other variables

$$\begin{cases} x = -1.5y + 1.5 \\ y = -1 \\ -2.5y = 2.5 \end{cases}$$

In 3 equation we substitute y

$$\begin{cases} x = -1.5y + 1.5 \\ y = -1 \\ -2.5(-1) = 2.5 \end{cases}$$

after simplification we get:

$$\begin{cases} x = -1.5y + 1.5 \\ y = -1 \\ 0 = 0 \end{cases}$$

Answer:

$$\begin{cases} x = 3 \\ y = -1 \end{cases}$$