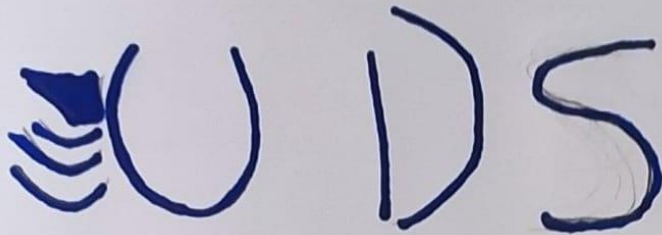


José Carlos Toledo Pérez



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Materia: Álgebra Lineal

Grupo: A. Sabados

Licenciatura: Ingeniería en Sistemas  
Computacionales

Cuatrimestre: 2

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$$\begin{aligned} 4x + y + 2z &= 9 \\ 3x + 2y + 3z &= 11 \\ x + 4y + z &= 7 \end{aligned}$$

$$\left[ \begin{array}{ccc|c} 4 & 1 & 2 & 9 \\ 3 & 2 & 3 & 11 \\ 1 & 4 & 1 & 7 \end{array} \right] \frac{1}{4} R_1$$

$$\left[ \begin{array}{ccc|c} 1 & 1/4 & 1/2 & 9/4 \\ 0 & 5/4 & 3/2 & 17/4 \\ 0 & 15/4 & 1/2 & 19/4 \end{array} \right] \begin{array}{l} -3R_1 + R_2 \\ -1R_1 + R_3 \end{array}$$

$$\begin{array}{cccc} -3 & -3/4 & 3/2 & 27/4 \\ 3 & 2 & 3 & 11 \\ \hline & 5/4 & 3/2 & 17/4 \end{array}$$

$$\begin{array}{cccc} -1 & -1/4 & -1/2 & -9/4 \\ 1 & 4 & 1 & 7 \\ \hline & 15/4 & 1/2 & 19/4 \end{array}$$

$$\left[ \begin{array}{ccc|c} 1 & 0 & 1/5 & 7/5 \\ 0 & 1 & 6/5 & 17/5 \\ 0 & 0 & -7 & -8 \end{array} \right] \begin{array}{l} -1/4 R_2 + R_1 \\ 4/5 R_2 \\ -15/4 R_2 + R_3 \end{array}$$

$$\begin{array}{cccc} 0 & -1/4 & -3/10 & 17/20 \\ 1 & 1/4 & 1/2 & 9/4 \\ \hline 1 & / & 1/5 & 7/5 \end{array}$$

$$\left[ \begin{array}{ccc|c} 1 & 0 & 0 & 6/5 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 2 \end{array} \right] \begin{array}{l} -1/5 R_3 + R_1 \\ -6/5 R_3 + R_2 \\ -1/4 R_3 \end{array}$$

$$\begin{array}{cccc} 0 & 0 & -6/5 & -12/5 \\ 0 & 1 & 6/5 & 17/5 \\ 0 & 1 & / & 1 \end{array}$$

$$\begin{array}{cccc} 0 & 0 & -1/5 & -1/5 \\ 1 & 0 & 1/5 & 7/5 \\ \hline 1 & 0 & / & 6/5 \end{array}$$

$$x = 6/5$$

$$y = 1$$

$$z = 2$$

$$\begin{array}{cccc} 0 & -15/4 & -9/2 & -51/4 \\ 0 & 15/4 & 1/2 & 19/4 \\ \hline 0 & / & -4 & -8 \end{array}$$

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$$\begin{aligned} 6x + 2y + 5z &= 21 \\ 4x + 5y + 2z &= 20 \\ x + 4y + 3z &= 16 \end{aligned}$$

$$\left[ \begin{array}{ccc|c} 6 & 2 & 5 & 21 \\ 4 & 5 & 2 & 20 \\ 1 & 4 & 3 & 16 \end{array} \right] \frac{1}{6} R_1$$

$$\left[ \begin{array}{ccc|c} 1 & 1/3 & 5/6 & 7/2 \\ 0 & 11/3 & -4/3 & 6 \\ 0 & 11/3 & 13/6 & 25/2 \end{array} \right] \begin{array}{l} -4R_1 + R_2 \\ -1R_1 + R_3 \end{array}$$

$$\begin{array}{ccc|c} -4 & -4/3 & -10/3 & -4 \\ 4 & 5 & 2 & 20 \\ \hline & 11/3 & -4/3 & 6 \end{array}$$

$$\begin{array}{ccc|c} -1 & -1/3 & -5/6 & -7/2 \\ 1 & 4 & 3 & 16 \\ \hline & 11/3 & 13/6 & 25/2 \end{array}$$

$$\left[ \begin{array}{ccc|c} 1 & 0 & 21/22 & 65/22 \\ 0 & 1 & -4/11 & 18/11 \\ 0 & 0 & 1/2 & 13/2 \end{array} \right] \begin{array}{l} -1/3 R_2 + R_1 \\ 3/11 R_2 \\ -11/3 R_2 + R_3 \end{array}$$

$$\begin{array}{ccc|c} 0 & -1/3 & 4/33 & -6/11 \\ 1 & 1/3 & 5/6 & 7/2 \\ \hline 1 & / & 21/22 & 65/22 \end{array}$$

$$\left[ \begin{array}{ccc|c} 1 & 0 & 0 & 13/11 \\ 0 & 1 & 0 & -74/77 \\ 0 & 0 & 1 & 13/7 \end{array} \right] \begin{array}{l} z = 13/7 \\ 4/11 R_3 + R_1 \\ z = 7 R_3 \end{array}$$

$$\begin{array}{ccc|c} 0 & 0 & 4/11 & 52/77 \\ 0 & 1 & -4/11 & -18/11 \\ \hline 0 & 1 & / & -74/77 \end{array}$$

$$\begin{array}{ccc|c} 0 & 0 & -21/22 & 39/22 \\ 1 & 0 & 21/22 & 65/22 \\ \hline 1 & 0 & / & 13/11 \end{array}$$

$$\begin{aligned} x &= 13/11 \\ y &= 74/77 \\ z &= 13/7 \end{aligned}$$

$$\begin{array}{ccc|c} 0 & -1/3 & 4/33 & -6/11 \\ 0 & 11/3 & 13/6 & 25/2 \\ \hline 0 & / & 7/2 & 13/2 \end{array}$$