2ª cálculo Numérico

Obs: $\sqrt{2} = 2^{\frac{1}{2}}$

$\sqrt{4} = 4^{\frac{1}{2}} = 2$

$$\begin{cases} 3x + 2y + z = 5 \\ x + y + 2z = 4 \\ 2x + 3z = 7 \end{cases} = \begin{bmatrix} 3 & 2 & 1 \\ 1 & 1 & 2 \\ 2 & 0 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{matrix} 5 \\ 4 \\ 7 \end{matrix}$$

$$\begin{cases} 3x + 2y + z = 5 \\ x + y + 2z = 4 \\ 2x + 0y + 3z = 7 \end{cases}$$

Sist Impo.

$$\begin{cases} 3x + 2y = 4 \\ 3x + 2y = -4 \end{cases}$$

Sist. Possível e Indet

$$\begin{cases} 2x + y + z = 0 \\ x + 2y - z = 0 \\ 4x - 3y - 8z = 0 \end{cases}$$

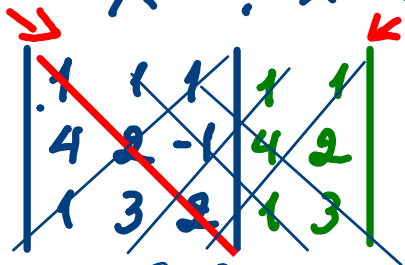
$x = 0$
$y = 0$
$z = 0$

$$\begin{bmatrix} 1 & 1 & 1 \\ 4 & 2 & -1 \\ 1 & 3 & 2 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 6 \\ 5 \\ 13 \end{bmatrix}$$

$Ax = B$

$$x = \frac{\det A_x}{\det A}$$

$A \cdot x = B$



$-2 + 3 - 8 + 4 - 1 + 12 = 8$

$\det A = 8$

$\det A_x$

$$\begin{vmatrix} 6 & 1 & 1 & 6 & 1 \\ 5 & 2 & -1 & 5 & 2 \\ 13 & 3 & 2 & 13 & 3 \end{vmatrix}$$

$-26 + 18 - 10 + 24 - 13 + 15 = 8$

Sarrus

$$x = \frac{\det A_x}{\det A} = \frac{8}{8} = 1$$

Atividade Lúdica

$$\begin{cases} x + y + z = 6 \\ 2x - y - 3z = -9 \\ x + 2y + z = 8 \end{cases}$$

$$\begin{vmatrix} 1 & 1 & 1 \\ 2 & -1 & -3 \\ 1 & 2 & 1 \end{vmatrix} \begin{matrix} 1 & 1 \\ 2 & -1 \\ 1 & 2 \end{matrix}$$

$1 + 6 - 2 - 1 - 3 + 4 =$

$\det A = 5$

$$x = \frac{\det A_x}{\det A} = \frac{5}{5} = 1$$

$$y = \frac{\det A_y}{\det A} = \frac{10}{5} = 2$$

$$\begin{vmatrix} 6 & 1 & 1 \\ -9 & -1 & -3 \\ 8 & 2 & 1 \end{vmatrix} \begin{matrix} 6 & 1 \\ -9 & -1 \\ 8 & 2 \end{matrix} \quad \det A_x$$

$8 + 36 + 9 - 6 - 24 - 18 = 5$

$$\begin{vmatrix} 1 & 6 & 1 \\ 2 & -9 & -3 \\ 1 & 8 & 1 \end{vmatrix} \begin{matrix} 1 & 6 \\ 2 & -9 \\ 1 & 8 \end{matrix} \quad \det A_y =$$

$9 + 24 - 12 - 9 - 18 + 16 = 10$

$$\begin{vmatrix} 1 & 1 & 6 \\ 2 & -1 & -9 \\ 1 & 2 & 8 \end{vmatrix} \begin{matrix} 1 & 1 \\ 2 & -1 \\ 1 & 2 \end{matrix} = 15$$

$$z = \frac{\det A_z}{\det A} = \frac{15}{5} = 3$$