1. $\begin{bmatrix} -6,4 & 0,4 & 5 \\ -6,7 & 7,4 & 1,4 \\ -9,5 & 6 & 5,3 \end{bmatrix} = \begin{bmatrix} 6,4 & 0,4 & 5 \\ 0 & -7,81 & -2,8 \\ -9,5 & 6 & 5,3 \end{bmatrix} =$

$\begin{bmatrix} -6,4 & 0,4 & 5 \\ 0 & -7,8 & -2,8 \\ 0 & 5,4 & -12,7 \end{bmatrix} = \begin{bmatrix} -6,4 & 0,4 & 5 \\ 0 & -7,8 & -2,8 \\ 0 & 0 & -14,68 \end{bmatrix} = U$

$\begin{bmatrix} 1 & 0 & 0 \\ 1,04 & 1 & 0 \\ 1,48 & -0,69 & 1 \end{bmatrix} = L$

DOM SEG TER QUA QUI SEX SÁB

2)

$$\left(\begin{array}{ccc|c} 6,8 & 9,2 & 7,6 & 96 \\ -4,7 & -3,2 & 6,7 & 69,1 \\ -4,2 & 5,3 & -9,9 & 99,3 \end{array}\right) \quad \left(\begin{array}{ccc|c} 6,8 & 9,2 & 7,6 & 96 \\ 0 & 3,15 & 11,95 & 135,45 \\ -4,2 & 5,3 & -9,9 & 99,3 \end{array}\right)$$

$$\left(\begin{array}{ccc|c} 6,8 & 9,2 & 7,6 & 96 \\ 0 & 3,15 & 11,95 & 135,45 \\ 0 & 10,98 & -0,20 & 103,59 \end{array}\right) \quad \left(\begin{array}{ccc|c} 6,8 & 9,2 & 7,6 & 96 \\ 0 & 3,15 & 11,95 & 135,45 \\ 0 & 0 & -41,76 & -367,33 \end{array}\right)$$

$-41,76 \cdot x_3 = -367,33 \rightarrow x_3 = 8,79\ldots$

$3,15\,x_2 = 135,45 - 11,95 x_3 \rightarrow x_2 = 9,5976\ldots$

$6,8 x_1 + 9,2 x_2 + 7,6 x_3 = 96 \rightarrow x_1 = -8,698030$

3) $9,2x - 4,4y + 4,93 = -116,4$

$5,7x + 7,8y + 0,43 = -19,4$

$0,2x + 5,4y - 5,8z = 66,3$

$$x_{k+1} = \frac{1}{9,2}(-116,4 + 4,4 y_k - 4,4 z_k)$$

$$y_{k+1} = \frac{1}{7,8}(-19,4 - 5,7 x_{k+1} - 0,4 z_k)$$

$$z_{k+1} = \frac{1}{-5,8}(66,3 + 0,2 x_{k+1} - 5,4 y_{k+1})$$

1º $x_1 = \frac{1}{9,2}(-116,4 + 4,4(3,2) - 4,4(8,2)) = \frac{1}{9,2}(-66,24) = -7,2$

$y_1 = \frac{1}{7,8}(-19,4 - 5,7(-7,2) - 0,4(-8,2)) = \frac{1}{7,8}(24,92) = 3,1949$

$z_1 = \frac{1}{-5,8}(66,3 + 0,2(-7,2) - 5,4(3,1949)) = \frac{1}{-5,8}(47,60) = -8,20$

/ /

DOM SEG TER QUA QUI SEX SÁB

(2°) $x_2 = \frac{1}{9,2}(-116,4 + 4,4(3,1942) - 4,4(-8,2089)) = \frac{1}{9,2}(-66,2264)$

$= -7,1985$

$y_2 = \frac{1}{7,8}(-19,4 - 5,7(-7,1985) - 0,4(-8,2089)) = \frac{1}{7,8}(24,9149)$

$= 3,1942$

$z_2 = \frac{1}{-58}(66,3 + 0,2(-7,1985) - 5,4(3,1942)) = \frac{1}{-58}(47,6116)$

$= -8,2089$

(3) $x_3 = \frac{1}{9,2}(-116,4 + 4,4(3,1942) - 4,4(-8,2089)) = \frac{1}{9,2}(-66,2264) =$

$= -7,1985$

$y_3 = \frac{1}{7,8}(-19,4 - 5,2(-7,1985) - 0,4(-8,2089)) = \frac{1}{7,8}(24,9151)$

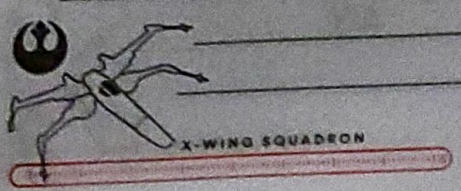
$= 3,1942$

$z_3 = \frac{1}{-58}(66,3 + 0,2(-7,1986) - 5,4(3,1942)) = \frac{1}{-58}(47,6114) =$

$= -8,2089$

$S = \{-7,1985 ; 3,1942 ; -8,2089\}$

$|x_3 - x_2| < 0,001 \quad |y_3 - y_2| < 0,001 \quad |z_3 - z_2| < 0,001$




STAR WARS

5) Já ajustando a dominância

$$-14,5x - 8,1y - 5,3z = 152,8$$
$$-3,9x + 15,1y + 9,5z = -33$$
$$2x - 2,7y + 6,9z = 51,8$$

$$x_{k+1} = \frac{1}{-14,5}(152,8 + 8,1y_k + 5,3z_k)$$

$$y_{k+1} = \frac{1}{15,1}(-33 + 3,9x_k - 9,5z_k$$

$$z_{k+1} = \frac{1}{6,9}(51,8 - 2x_k + 2,7y_k)$$

(1) $x_1 = \frac{1}{-14,5}(152,8 + 8,1(-7,5) + 5,3(7,8) = \frac{1}{-14,5}(133,39) = -9,1993$

$y_1 = \frac{1}{15,1}(-33 + 3,9(-9,2) - 9,5(7,8) = \frac{1}{15,1}(-113,28) = -7,502$

$z_1 = \frac{1}{6,9}(51,8 - 2.(-9,2) - 2,7(-7,5) = \frac{1}{6,9}(99,95) = 7,8097$

(2) $x_2 = \frac{1}{-14,5}(152,8 + 8,1(-7,502) + 5,3(7,8097) = \frac{1}{-14,5}(133,3988) = -9,1999$

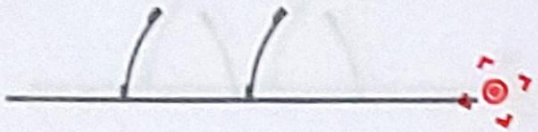
$y_2 = \frac{1}{15,1}(-33 + 3,9(-9,1993) - 9,5(7,8097)) = -7,5093$

$z_2 = \frac{1}{6,9}(51,8 - 2.(-9,1993) - 2,7(-7,502) = 7,8036$

(3) $x_3 = \frac{1}{-14,5}(133,3707) = -9,198$

$y_3 = \frac{1}{15,1}(-113,3142) = -7,5093$

$z_3 = \frac{1}{6,9}(99,937) = 7,8027$



DOM SEG TER QUA QUI SEX SÁB

④ $x_4 = \frac{1}{-14,5}(133,3696) = -9,1979$

$y_4 = \frac{1}{15,1}(-113,2973) = -7,5031$

$z_4 = \frac{1}{6,4}(49,9345) = 7,8023$

⑤ $x = \frac{1}{-14,5}(133,3766) = -9,1984$

$y = \frac{1}{15,1}(-113,2933 = -7,5029$

$z_5 = \frac{1}{6,4}(49,9373) = 7,8027$