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## Tarefa Básica.

Discussão sobre sistemas lineares.

1)

a-

$$\xrightarrow{-2} \left( \begin{array}{cc|c} a & 4 & 1 \\ 1 & 2 & 0,5 \end{array} \right) \sim \left( \begin{array}{cc|c} a-2 & 0 & 0 \\ 1 & 2 & 0,5 \end{array} \right) \quad (a-2)x = 0$$

$$x = \frac{0}{a-2} \quad \text{Falso}$$

$$b - x = \frac{0}{a-2} = \frac{0}{2-2} = \frac{0}{0} \quad \begin{matrix} \text{verdadeiro} \\ \text{indeterminado} \end{matrix}$$

c- Se o  $a \neq 2$ , sera uma solução única,  
 entao, apresenta mais de um valor.

Falso

d- Se o  $a=2$ , vai apresentar diversas soluções:

$$x = \frac{0}{2-2} = \frac{0}{0} \quad \text{Falso}$$

e- Caso  $a=2$ , ele é indeterminado.

Falso

2-

I)

$$\xrightarrow{-k} \left( \begin{array}{ccc|cc} 1 & k & 1 & 1 \\ k & 1 & 1-k & 1-k \end{array} \right) \sim \left( \begin{array}{ccc|cc} 1 & k & 1 & 1 \\ 0 & 1-2k & 1-k^2 & 1-k^2 \end{array} \right) \quad y = \frac{1-k^2}{1-2k}$$

Não pode ser indeterminado

II)

$$k=0,5$$

$$y = \frac{1-0,5^2}{1-2 \cdot 0,5}$$

$$y = \frac{0,75}{0} \quad \text{impossível}$$

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III)

$k \neq 0,5 \rightarrow$  S.P. Determinado (mais de um S.P. determinado valor para  $k$ )

D

3-

A)

$$3c + 2 + 0 = 3c + 2$$

$$\begin{array}{r|rr|rr} & 1 & 2 & c & 1 & 2 \\ \hline & 0 & 1 & 1 & 0 & 1 \\ & 3 & 2 & 2 & 3 & 2 \\ \hline & 2 & 6 & 0 & 8 & \end{array} \quad 8 - (3c + 2) = \underline{\underline{6-3c}}$$

$$\underline{\underline{6-3c}}$$

B)

$$\xrightarrow{-2} \left( \begin{array}{ccc|cc} 1 & 2 & c & 1 \\ 0 & 1 & 1 & 2 \end{array} \right) \sim \left( \begin{array}{ccc|cc} 1 & 0 & c-2 & -3 \\ 0 & 1 & 1 & 2 \end{array} \right) \sim \left( \begin{array}{ccc|cc} 1 & 0 & c-2 & -3 \\ 0 & 1 & 1 & 2 \end{array} \right)$$

S.P. det  
 $D \neq 0$

$$z = \frac{4}{-3c-6}$$

c tem que ser  $\neq 2$   
PARA Haver 1 solução  
CER - {2}

$$\Rightarrow c=2 \rightarrow -3 \cdot 2 - 6 = 0$$

$$4) \left| \begin{array}{ccc|c} 1 & -1 & 0 & : k \\ 12 & -k & 1 & : -1 \\ 36 & 0 & k & : 2 \end{array} \right| N \left| \begin{array}{ccc|c} 0 & -k+12 & 1 & : 1-12k \\ 0 & 36 & k & : 2-36k \end{array} \right|$$

$$N \left( \begin{array}{cc|c} 0 & k^2-12k+36 & 0 & : 2+k^2-12k-36 \end{array} \right)$$

$$y = \frac{12k^2 - 37k + 2}{k^2 - 12k + 36}$$

$$\begin{matrix} 6 & + & 6 & = 12 \\ 6 & - & 6 & = 36 \end{matrix}$$

$$\underline{k=6}$$

(E)

5-

$$\left| \begin{array}{ccc|c} 1 & -1 & 1 & : 6 \\ 2 & 1 & -1 & : -3 \\ 1 & 2 & -1 & : -5 \end{array} \right| N \left| \begin{array}{ccc|c} 0 & 3 & -3 & : -15 \\ 0 & 3 & -2 & : -11 \end{array} \right| N \left( \begin{array}{ccc|c} 0 & 0 & -1 & : -4 \end{array} \right)$$

$$-2 = -4 \cdot (-1)$$

$$z = 4$$

$$3y - 3 \cdot 4 = -15$$

$$3y = -3$$

$$y = -1$$

$$x - 4 + 2 = 6$$

$$x + 1 + 4 = 6$$

$$x = 1$$

S.P. Determinado

$$x \cdot y \cdot z =$$

$$1 \cdot (-1) \cdot 4 = -4$$

S.P. Determinado

(B)

6-

$$\begin{array}{|ccc|c|} \hline & 1 & 1 & 1 & k \\ -k & k & 1 & 1 & 1 \\ 1 & 1 & 1 & -1 & k \\ \hline \end{array} \sim \begin{array}{|ccc|c|} \hline 0 & 1-k & 1-k & 1-k^2 \\ 0 & 0 & -2 & 0 \\ \hline \end{array} \quad \begin{array}{l} -2z=0 \\ z=0 \\ -2 \end{array}$$

$$(1-k)y + (1-k)0 = 1-k^2$$

$$\text{Se } k=1$$

$$y = \frac{1-k^2}{1-k} \rightarrow 1-k^2=0$$

$1=k^2$   
 $1=k$

$\hookrightarrow 1-k=0$   
 $1=k$

↳ S.P indeterminado

(D)

7)

$$\begin{array}{|cccc|c|} \hline & 1 & 1 & 1 & 1 \\ +2 & m & -2 & 4 & 5 \\ -4 & m^2 & 4 & 16 & 25 \\ \hline \end{array} \sim \begin{array}{|ccc|c|} \hline m+2 & 0 & 6 & 7 \\ -2(m^2-4) & 0 & 12 & 21 \\ \hline \end{array} \sim \begin{array}{|cc|c|} \hline m^2-2m-8 & 0 & 0 \\ 0 & 0 & 7 \\ \hline \end{array}$$

$$x = \frac{7}{m^2-2m-8} = 0$$

$$x' + x''$$

$$-2 + 4 = 2$$

$$-2 + 4 = 8$$

$$-2 + 4 = 2$$

(B)