1- $\begin{cases} ax + 4y = 1 \\ x + 2y = b \end{cases}$ $\Rightarrow \begin{pmatrix} a & 4 & | & 1 \\ 1 & 2 & | & b \end{pmatrix}$

$\Downarrow$

$\begin{pmatrix} 0 & 4-2a & | & 1-a \cdot b \end{pmatrix}$

Se $a = 2$, $SPI \to N = 0$

$D = 0$

$(4-2a)y = 1-a \cdot b$

$\begin{cases} 2x + 4y = 1 \Rightarrow \\ x + 2y = b \end{cases}$ Proporcionais

$y = \dfrac{1-a \cdot b}{4-2a}$

LETRA (B)

2- $\begin{cases} x + Ky = 1 \\ Kx + y = 1-K \end{cases}$

$\begin{matrix} -K \\ b \end{matrix} \begin{pmatrix} 1 & K & | & 1 \\ K & 1 & | & 1-k \end{pmatrix} \Rightarrow \begin{pmatrix} 0 & 1-K^2 & | & 1-2k \end{pmatrix}$

$y = \dfrac{1-2K}{1-K^2}$

I - S.P.I $\to D = 0$ e $N = 0$

$\dfrac{N = 0}{D = 0}$ $\qquad \begin{matrix} 1-2K = 0 \\ 1-K^2 = 0 \end{matrix}$ $\begin{matrix} K = \frac{1}{2} \quad (falso) \\ k = \sqrt{1} \end{matrix}$

II -	III -	
Como visto antes	$D \neq 0$	LETRA (D)
K possue resultados	$1-K^2 \neq 0$ (falso)	
(falso	$K \neq \sqrt{1}$	

FORONI

3 -

a)
$$\begin{cases} x + 2y + cz = 1 \\ y + z = 2 \\ 3x + 2y + 2z = -1 \end{cases}$$

$\det A = \begin{vmatrix} 1 & 2 & c \\ 0 & 1 & 1 \\ 3 & 2 & 2 \end{vmatrix}$

$(2 + 6) - (3c + 2)$

$6 - 3c \; //$

b)

$-3 \begin{bmatrix} 1 & 2 & c & \vdots & 1 \\ 0 & 1 & 1 & \vdots & 2 \\ 3 & 2 & 2 & \vdots & -1 \end{bmatrix}$

$(6 - 3c) z = 4$

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

$\begin{array}{c} 4 \\ L_b \end{array} \begin{pmatrix} 0 & 1 & 1 & \vdots & 2 \\ 0 & -4 & 2 - 3c & \vdots & -4 \end{pmatrix}$

$D \neq 0$

$6 - 3c \neq 0$

$c \neq 2 \; //$

$\begin{pmatrix} 0 & 0 & 6 - 3c & \vdots & 4 \end{pmatrix}$

$\{ c \in \mathbb{R} \;/\; c \neq 2 \} \; //$

4 -
$$\begin{cases} x - y = K \\ 12x - Ky + z = 1 \\ 36x + Kz = 2 \end{cases}$$

$$\begin{array}{c} {}_{-12}\\ {}_{-36} \end{array} \begin{pmatrix} 1 & -1 & 0 & : & K \\ 12 & -K & 1 & : & 1 \\ 36 & 0 & K & : & 2 \end{pmatrix} \rightarrow \begin{pmatrix} 0 & 12-K & 1 & : & 1-12K \\ 0 & 36 & K & : & 2-36K \end{pmatrix} \begin{array}{c} \cdot(-K) \\ + \end{array}$$

$$\Downarrow$$

$$\begin{pmatrix} 0 & -12K+K^2+36 & 0 & : & (-K)(1-12K)+2-36K \end{pmatrix}$$

$D \neq 0$

$K^2 - 12K + 36 \neq 0$ $(-12K+K^2+36)y = -K+12K^2+2-36K$

$K_1 \neq 6$ e $K_{11} \neq 6$ $y = \dfrac{12K^2 - 37K + 2}{K^2 - 12K + 36}$

LETRA (E)

5 - $\begin{cases} x - y + z = 6 \\ 2x + y - z = -3 \\ x + 2y - z = -5 \end{cases}$ $D = \begin{vmatrix} 1 & -1 & 1 \\ 2 & 1 & -1 \\ 1 & 2 & -1 \end{vmatrix}$ $Dx \begin{vmatrix} 6 & -1 & 1 \\ -3 & 1 & -1 \\ -5 & 2 & -1 \end{vmatrix}$

$4 - 1 = 3$ $-7 + 20 = ?$

$Dy \begin{vmatrix} 1 & 6 & 1 \\ 2 & -3 & -1 \\ 1 & -5 & -1 \end{vmatrix}$ $Dz \begin{vmatrix} 1 & -1 & 6 \\ 2 & 1 & -3 \\ 1 & 2 & -5 \end{vmatrix}$ $\begin{array}{l} x \cdot y \cdot z \\ 1 \cdot -1 \cdot 4 = 4 \\ \text{LETRA (B)} \end{array}$

$-13 + 10 = -3$ $22 - 10 = 12$

$6- \begin{cases} x+y+z=K \\ Kx+y+z=1 \\ x+y-z=K \end{cases}$

$\begin{bmatrix} 1 & 1 & 1 & | & K \\ K & 1 & 1 & | & 1 \\ 1 & 1 & -1 & | & K \end{bmatrix} \Rightarrow \begin{pmatrix} 0 & 1-K & 1-K & | & 1-K^2 \\ 0 & 0 & -2 & | & 0 \end{pmatrix}$

$-2z=0$

$z=0$

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

$y=\dfrac{1-K^2}{1-K}$

a) S.I $\Rightarrow N \neq 0$

$1-K^2 \neq 0$

(falso) $\quad K \neq \sqrt{1}$

b) S.P.D $\Rightarrow D \neq 0$

$1-K \neq 0$

(falso) $\quad K \neq 1$

c) (falso) não há combinações

com $(K,0,0)$

d) S.P.I $\Rightarrow D=0, N=0$

$1-K^2 =0 \Rightarrow K=\sqrt{1}$ (verdadeiro)

$1-K=0 \Rightarrow K=1$

LETRA (D)

7 - $\begin{cases} x + y + z = 1 \\ mx - 2y + 4z = 5 \\ m^2 x + 4y + 16z = 25 \end{cases}$ proporcionais, $D = 0$ $\quad -1$

$D = \begin{vmatrix} 1 & 1 & 1 \\ m & -2 & 5 \\ m^2 & 4 & 25 \end{vmatrix}$

$(-50 + 5m^2 + 4m) - (-2m^2 + 20 + 25m)$

$7m^2 - 21m - 70$

$m^2 - 3m - 10 = 0 \quad \div 7$

$\Delta = 49$

$m_1 = 5 \qquad$ Soma $= 5 \cdot 2 = 3$

$m_{11} = -2 \qquad$ LETRA (C)

1-
$$\begin{bmatrix} 1 & 7 \\ 7 & 1 \end{bmatrix} \cdot \begin{bmatrix} x \\ y \end{bmatrix} = K \cdot \begin{bmatrix} x \\ y \end{bmatrix}$$

$$\begin{bmatrix} x + 7y \\ 7x + y \end{bmatrix} = \begin{matrix} K \cdot \\ K \cdot \end{matrix} \begin{bmatrix} x \\ y \end{bmatrix}$$

$$\begin{cases} x + 7y = Kx \\ 7x + y = Ky \end{cases} \Rightarrow \begin{matrix} x - Kx + 7y = 0 \\ 7x + y - Ky = 0 \end{matrix}$$

$$\begin{cases} x \cdot (1 - K) + 7y = 0 \\ 7x + y(1 - K) = 0 \end{cases}$$

$$D = \begin{vmatrix} 1 - K & 7 \\ 7 & 1 - K \end{vmatrix} \Rightarrow (1-K)^2 - 49 = 0$$
$$(1-K)^2 = \sqrt{49}$$
$$1 - K = 7$$
LETRA (E),, $K = 8$ //

2-
$$\begin{cases} 3x - 4y - 2 = 0 \\ 2x - y - 3z = 0 \\ x + y = 0 \end{cases} \quad D = \begin{vmatrix} 3 & 4 & -1 \\ 2 & -1 & 3 \\ 1 & 1 & 0 \end{vmatrix}$$

$\dfrac{0}{0} = S.P.I$ $\quad$ $10 - 10 = 0$

LETRA (D)

3 - $\begin{cases} x + y + z = 0 \\ Kx + 3y + 4z = 0 \\ x + Ky + 3z = 0 \end{cases}$ $D = \begin{vmatrix} 1 & 1 & 1 \\ K & 3 & 4 \\ 1 & K & 3 \end{vmatrix}$

$13 + K^2 = 3 + 7K$

$K^2 - 7K + 10 = 0$

Soma de $K = 5 + 2 = 7$ //

LETRA (D) //

$\Delta = 9$

$K_1 = 5$

$K_{II} = 2$

4 - $\begin{cases} x + Kz = 0 \\ Kx + y = 0 \\ x + Ky = 0 \end{cases}$ $D = \begin{vmatrix} 1 & 0 & K \\ K & 1 & 0 \\ 1 & K & 0 \end{vmatrix}$

$K^3 - K$

$K^3 \neq K$

LETRA (A) $\{ K \in R \mid K \neq 0, K \neq 1, K \neq -1 \}$

5 - $\begin{cases} -x + 2y - 3 = 0 \\ 3x - y + 3 = 0 \\ 2x - 4y + 6 = 0 \end{cases}$ → $x = 2y - 3$

→ $3(2y - 3) + 3 = 0$

$y = 6y - 6$

$-5y = -6$

$y = \dfrac{-6}{-5}$ //

→ $x = 2 \cdot \dfrac{6}{5} - 3$

$x = -\dfrac{3}{5}$ //

É determinado

LETRA (B)