Calculo Geral de Determinantes.

I- $A = \begin{vmatrix} 1 & a & 0 \\ 0 & 1 & 1 \\ 0 & -1 & 1 \end{vmatrix}$ (1 a ; 2 a ; 3 a)

1ª (1.1.1) = 1
2ª (a.1.0) = 0 } 1
3ª (0.1.1) = 0

1ª (0.1.0) = 0
2ª ((-1).1.1) = -1 } a = 1
3ª (1.1.a) = 1a

DETERMINANTE = 2

$B = \begin{vmatrix} 1 & 0 & 0 & 3 \\ a & 1 & -1 & 4 \\ 0 & 0 & 0 & 3 \\ 0 & 1 & 1 & 4 \end{vmatrix}$ $COF = (-1)^{i+j} \cdot D_{ij}$

0 1 0 1

I- $\begin{vmatrix} 1 & 0 & 3 \\ 0 & 0 & 3 \\ 0 & 1 & 4 \end{vmatrix}$ II- $\begin{vmatrix} 1 & 0 & 3 \\ a & -1 & 4 \\ 0 & 0 & 3 \end{vmatrix}$

I- $\begin{vmatrix} 1 & 0 & 3 \\ 0 & 0 & 3 \\ 0 & 1 & 4 \end{vmatrix}$ (1 a ; 2 a ; 3 a / 1 a ; 2 a ; 3 a)

1ª (1.0.4) = 0
2ª (0.3.0) = 0 } 0
3ª (3.0.1) = 0

1ª (0.0.3) = 0
2ª (1.3.1) = 3 } 3
3ª (4.0.0) = 0

3 (D1)

DetB = -3 - (+3) = -3.3 = **-6**

II- $\begin{vmatrix} 1 & 0 & 3 \\ a & -1 & 4 \\ 0 & 0 & 3 \end{vmatrix}$ (1 a ; 2 a ; 3 a / 1 a ; 2 a ; 3 a)

1ª (1.(-1).3) = -3
2ª (0.4.0) = 0 } -3
3ª (3.a.0) = 0

1ª (0.(-1).3) = 0
2ª (0.4.1) = 0 } 0
3ª (3.a.0) = 0

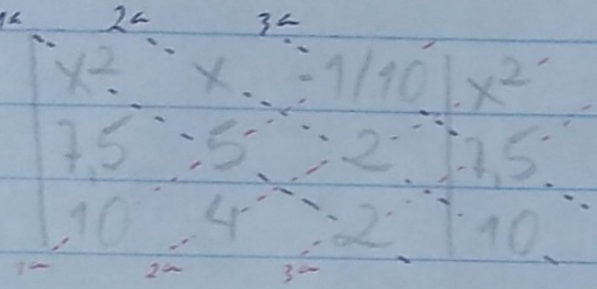
-3 + 0 = -3 (D2)

11-

x^2	0	x	-1/10	
7,5	0	5	2	= 0
10	0	4	2	
1	1	1	1	

0 0 0 1

	x^2	x	-1/10
1-	7,5	5	2
	10	4	2



x^2 x

7,5 5

10 4

$1^a (x^2 . 5 . 2) = 10x^2$

$2^a (x . 2 . 10) = 10x$

$3^a (-1/10 . 7,5 . 4) = 3$

$1^a (10 . 5 . -1/10) = -5$

$2^a (4 . 2 . x^2) = 8x^2$

$3^a (2 . 7,5 . x) = 15x$

$\frac{-1}{10} \cdot \frac{7,5}{1} = \frac{-7,5}{10} \cdot \frac{4}{1} = \frac{30}{10} = 3$

$\frac{50}{1} \cdot \frac{-1}{10} = \frac{-50}{10} = -5$

$(10x^2 + 10x + 3) \cdot (8x^2 + 15x - 5)$

$2x^2 - 5x - 2 = 0$

$\Delta = -(-5)^2 - 4 . 2 . (-2)$

$\Delta = 25 + 16$

$\Delta = 9$

$x = \frac{-5 \pm \sqrt{9}}{2 . 2}$

$\frac{-5-3}{4} = \frac{-8}{4} = \frac{-4}{2} = \frac{-2}{1} = \boxed{-2}$

$\frac{-5+3}{4} = \frac{-2}{4} = \boxed{\frac{-1}{2}}$

$$III\text{-}\begin{vmatrix} x & 0 & 0 & 3 \\ -1 & x & 0 & 0 \\ 0 & -1 & x & 1 \\ 0 & 0 & -1 & -2 \end{vmatrix}$$

3 → $\begin{vmatrix} -1 & x & 0 \\ 0 & -1 & x \\ 0 & 0 & -1 \end{vmatrix}$

0

1 → $II\text{-}\begin{vmatrix} x & 0 & 0 \\ -1 & x & 0 \\ 0 & 0 & -1 \end{vmatrix}$

-2 → $III\text{-}\begin{vmatrix} x & 0 & 0 \\ -1 & x & 0 \\ 0 & -1 & x \end{vmatrix}$

$I\text{-}\begin{vmatrix} -1 & x & 0 \\ 0 & -1 & x \\ 0 & 0 & -1 \end{vmatrix}$

1ª 2ª 3ª

$1ª((-1).(-1).(-1)) = -1$
$2ª(x.x.0) = 0$
$3ª(0.0.0) = 0$
$1ª(0.(-1).0) = 0$
$2ª(0.x.(-1)) = 0$
$3ª((-1).0.x) = 0$

$-1 \cdot 3$

$+3$ ÍMPAR

1ª 2ª 3ª

$II\text{-}\begin{vmatrix} x & 0 & 0 \\ -1 & x & 0 \\ 0 & 0 & -1 \end{vmatrix}$

$1ª(x.x.(-1)) = -1x^2$
$2ª(0.0.0) = 0$
$3ª(0.(-1).0) = 0$
$1ª(0.x.0) = 0$
$2ª(0.0.x) = 0$
$3ª(-1).(-1).0) = 0$

$-1x^2 \cdot 1$

$+1x^2$ ÍMPAR

1ª 2ª 3ª

$III\text{-}\begin{vmatrix} x & 0 & 0 \\ -1 & x & 0 \\ 0 & -1 & x \end{vmatrix}$

$1ª(x.x.x) = x^3$
$2ª(0.0.0) = 0$
$3ª(0.(-1).(-1) = 0$
$1ª(0.x.0) = 0$
$2ª((-1).0.x) = 0$
$3ª(x.(-1).0) = 0$

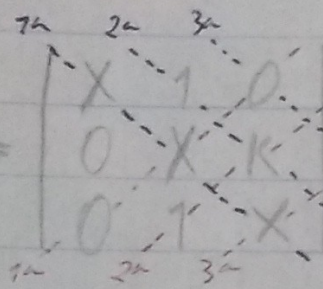
$x^3 \cdot -2$

$-2x^3$

REPRESENTANTE = $-2x^3+x^2+3$ (LETRA "A")

IV-

$$A = \begin{vmatrix} x & 1 & 0 & 0 & 0 \\ 0 & x & 1 & 0 & 0 \\ 0 & 0 & x & 1 & 0 \\ 0 & 0 & 0 & x & k \\ 0 & 0 & 0 & 1 & x \end{vmatrix} \Rightarrow M2 = \begin{vmatrix} x & 1 & 0 & 0 \\ 0 & x & 1 & 0 \\ 0 & 0 & x & k \\ 0 & 0 & 1 & x \end{vmatrix}$$



1ª (X.X.X) = x^3
2ª (1.K.0) = 0
3ª (0.0.1) = 0
} x^3

1ª (0.X.0) = 0
2ª (1.K.X) = 1KX
3ª (X.0.1) = 0
} 1KX

$x^3 - xk$ → DETERM3

X_{11} (M2)

$X \cdot (x^3 - xk)$

$x^4 - x^2k$ → DETERM2

X_{11} (A)

$X(x^4 - x^2k)$

$x^5 - x^3k$ → DETERM1

$F(-2) = -2^5 - 2^3k = 8$

$F(-2) = 32 + 8k = 8$

$F(-2) = 40k = 8$

$F(-2) = k = \frac{40}{8}$ **K=5** → (LETRA "D")