Tarefa Básica

① $A = \begin{vmatrix} 1 & a & 0 \\ 0 & 1 & 1 \\ 0 & -1 & 1 \end{vmatrix}$

$1\,cof(a_{11}) \Rightarrow 1+1=2 \Rightarrow P$

$Det = 2$

1. $\begin{vmatrix} 1 & 1 \\ -1 & 1 \end{vmatrix}$ $\quad 1-(-1)=2$

$B = \begin{vmatrix} 1 & 0 & 0 & 3 \\ a & 1 & -1 & 4 \\ 0 & 0 & 0 & 3 \\ 0 & 1 & 1 & 4 \end{vmatrix}$

$3\,cof(a_{34}) \Rightarrow 3+4=7 \Rightarrow I$

$3 \cdot 2 = 6 \Rightarrow -6$

$Det = -6$

$0-1+0=-1$

3. $\begin{vmatrix} 1 & 0 & 0 & 1 & 0 \\ a & 1 & -1 & a & 1 \\ 0 & 1 & 1 & 0 & 1 \end{vmatrix}$ $\quad 1-(-1)=2$

$1+0+0=1$

② $\begin{vmatrix} x^2 & 0 & x & -1/10 \\ 7,5 & 0 & 5 & 2 \\ 10 & 0 & 4 & 2 \\ 1 & 1 & 1 & 1 \end{vmatrix} = 0$

$1\,cof(a_{42}) \Rightarrow 4+2=6 \Rightarrow P$

$-5+8x^2+15x$

1.

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

$10x^2+20x-3$

$10x^2+20x-3-(-5+8x^2+15x)=0$

$10x^2+20x-3+5-8x^2-15x=0$

$2x^2+5x+2=0$

$\Delta = 25-4.2.2$

$\Delta = 9$

$x = \frac{-5 \pm 3}{4}$ → $x' = -1/2$, $x'' = -2$

③

x	0	0	3
-1	x	0	0
0	-1	x	1
0	0	-1	-2

$-1.cof(a_{43}) \Rightarrow 4+3=7 \Rightarrow I$

$-1.(x^2+3) = -x^2-3 \Rightarrow \underline{x^2+3}$

$-2.cof(a_{44}) \Rightarrow 4+4=8 \Rightarrow P$

$-2.x^3 = \underline{-2x^3}$

$0+0+0$

-1.

x	0	3	x	0	
-1	x	0	-1	x	
0	-1	1	0	-1	

x^2+0+3

$(x^2+0+3)-0 = x^2+3$

-2.

x	0	0
-1	x	0
0	-1	x

x^3

$Det = -2x^3+x^2+3$ Alternativa (A)

④ $A = \begin{bmatrix} x & 1 & 0 & 0 & 0 \\ 0 & x & 1 & 0 & 0 \\ 0 & 0 & x & 1 & 0 \\ 0 & 0 & 0 & x & k \\ 0 & 0 & 0 & 1 & x \end{bmatrix}$

$f(x) = \det A$

$f(-2) = 8$

B

$$\begin{vmatrix} -2 & 1 & 0 & 0 & 0 \\ 0 & -2 & 1 & 0 & 0 \\ 0 & 0 & -2 & 1 & 0 \\ 0 & 0 & 0 & -2 & k \\ 0 & 0 & 0 & 1 & -2 \end{vmatrix} = 8$$

$-2\,cof(b_{11}) = 1+1 = 2 \Rightarrow P$

$-2.(16-4k)$

$-32+8k = 8$

C

$$\begin{vmatrix} -2 & 1 & 0 & 0 \\ 0 & -2 & 1 & 0 \\ 0 & 0 & -2 & k \\ 0 & 0 & 1 & -2 \end{vmatrix}$$

$-2.cof(c_{11}) \Rightarrow 1+1 = 2 \Rightarrow P$

$-2.(-8+2k)$

$16-4k$

$0 \quad -2k+0$

$$\begin{vmatrix} -2 & 1 & 0 & -2 & 1 \\ 0 & -2 & k & 0 & -2 \\ 0 & 1 & -2 & 0 & 1 \end{vmatrix}$$

$-8+0+0 = -8$

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

$-32+8k = 8$

$8k = 40$

$k = 5$

Alternativa (D)