

(02)

(01)

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

1(a11)

$$\begin{pmatrix} 1 & 1 \\ -1 & 1 \end{pmatrix} \quad D = (1 \cdot 1) - (-1 \cdot 1) \\ D = 2$$

1(a31)

$$\begin{pmatrix} a & 0 \\ 1 & 1 \end{pmatrix} \quad D = (a \cdot 1) - (0 \cdot 1) \\ D = a$$

$$D_A = 2 + a$$

$$D_A = 2$$

$$B = \begin{pmatrix} 1 & 0 & 0 & 3 \\ a & 1 & -1 & 4 \\ 0 & 0 & 0 & 1 \\ 0 & 1 & 1 & 2 \end{pmatrix}$$

1(a22)

$$\begin{pmatrix} 1 & 0 & 3 \\ 0 & 0 & 3 \\ 0 & 1 & 4 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ 0 & 0 \\ 0 & 1 \end{pmatrix} = \begin{pmatrix} 0 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 0 \end{pmatrix} = -3$$

1(a42)

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

$$D_B = -3 + (-3)$$

$$D_B = -6$$

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

1(42)

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

$$10x^2 - 8x^2 = 2x^2$$

$$20x - 15x = 5x = 0$$

$$-3 + 5 = 2$$

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

$$2x^2 + 4x + x + 2 = 0$$

$$2x \cdot (x+2) \cdot (2x+1) = 0$$

$$(x+2) \cdot (2x+1) = 0$$

$$\rightarrow x+2=0 \quad \rightarrow 2x+1=0$$

$$x = -2$$

$$2x = -1$$

$$x = -\frac{1}{2}$$

$$x = -2 \text{ ou } -\frac{1}{2}$$

(03)

$$\begin{pmatrix} x & 0 & 0 & 3 \\ -1 & x & 0 & 0 \\ 0 & -1 & x & 1 \\ 0 & 0 & -1 & -2 \end{pmatrix}$$

$x(a_{11})$

$$\begin{pmatrix} x & 0 & 0 \\ -1 & x & 1 \\ 0 & -1 & -2 \end{pmatrix} \begin{matrix} x & 0 \\ -1 & x \\ 0 & -1 \end{matrix}$$

$$\begin{pmatrix} -2x^3 & 0 & 0 \\ 0 & x & 0 \end{pmatrix}$$

$1(a_{21})$ — impar

$$\begin{pmatrix} 0 & 0 & 3 \\ -1 & x & 1 \\ 0 & -1 & -2 \end{pmatrix} \begin{matrix} 0 & 0 \\ -1 & x \\ 0 & -1 \end{matrix}$$

$$\begin{pmatrix} 0 & 0 & 3 \\ 0 & 0 & 0 \end{pmatrix} \begin{matrix} +3 \\ \end{matrix}$$

$$x \cdot (-2x^2 + x)$$

$$(A) -2x^3 + x^2 + 3$$

(04)

$$\begin{pmatrix} x & 1 & 0 & 0 & 0 \\ 0 & x & 1 & 0 & 0 \\ 0 & 0 & x & 1 & 0 \\ 0 & 0 & 0 & x & k \\ 0 & 0 & 0 & 1 & x \end{pmatrix}$$

$$x \cdot x \cdot x \cdot x \cdot x \cdot (x^2 - k)$$

$$\text{Det}_A = x^3 \cdot x^2 - k$$

$$8 = (-2^3) \cdot (-2^2 - k)$$

$$8 = -8(4 - k)$$

$$-1 = 4 - k$$

$$k = 5$$