

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

$$P_A(\lambda) = \begin{vmatrix} 4-\lambda & -4 & 4 \\ 3 & -3-\lambda & 4 \\ 3 & -3 & 4-\lambda \end{vmatrix} \quad L_1 \leftarrow L_1 - L_2$$

$$= \begin{vmatrix} 1-\lambda & -1+\lambda & 0 \\ 3 & -3-\lambda & 4 \\ 3 & -3 & 4-\lambda \end{vmatrix}$$

$$= (-1)^{1+1} (1-\lambda) \times ((-3-\lambda)(4-\lambda) + 4 \times 3) \\ + (-1)^{1+2} (-1+\lambda) \times (3 \times (4-\lambda) - 4 \times 3)$$

$$= (1-\lambda) \times ((\lambda-4)(\lambda+3) + 12 + 3(4-\lambda) - 12)$$

$$= (1-\lambda)(4-\lambda)(-\lambda-3+3)$$

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

$$\text{Spec}(A) = \{0, 1, 4\}$$

A est diagonalisable

$$\text{dr } D = \begin{pmatrix} 0 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 4 \end{pmatrix}$$