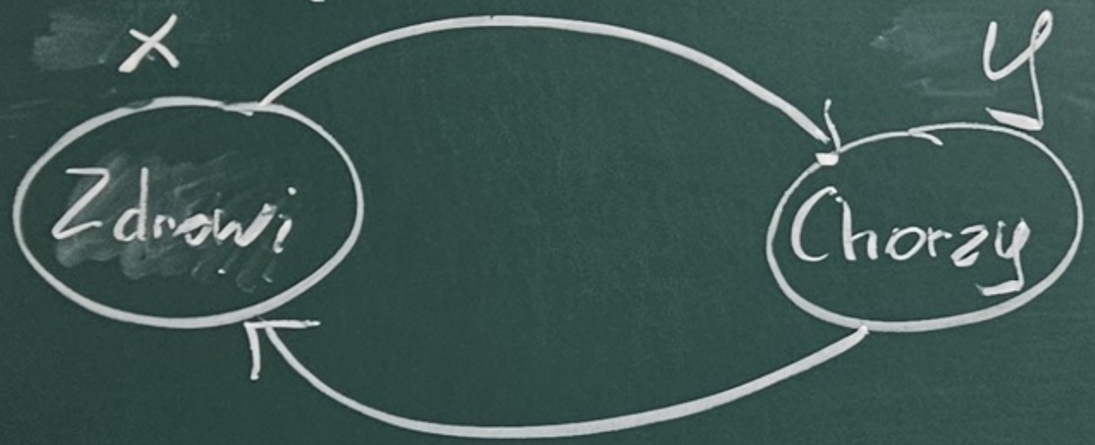
$$a\left[x^{(1)}\right]^2 + b\,x^{(1)}x^{(2)} + c\left[x^{(2)}\right]^2$$

$$x^T A\, x \qquad A = \begin{bmatrix} a & \frac{b}{2} \\ \frac{b}{2} & c \end{bmatrix}$$

$$x_{i+1} = A\, x_i$$

$p = 0.2$



$q = 0.1$

$x + y = \text{const}$

$$\begin{bmatrix} x_{i+1} \\ y_{i+1} \end{bmatrix} = \begin{bmatrix} 1-p & \\ & \end{bmatrix} \begin{bmatrix} x_i \\ y_i \end{bmatrix}$$

$$x_{i+1} = 0.8\,x_i + 0.1\,y_i$$

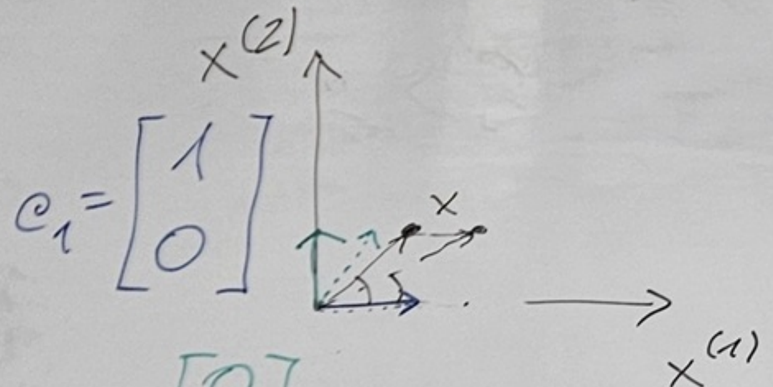
$$y_{i+1} = x_i + y_i$$

$x_0 \quad Ax_0 \quad A^2 x_0$

$$x_i = \begin{bmatrix} x_i \\ y_i \end{bmatrix}$$

$$x_{i+1} = A\,x_i$$

$$\bar{x} = A\,\bar{x}$$

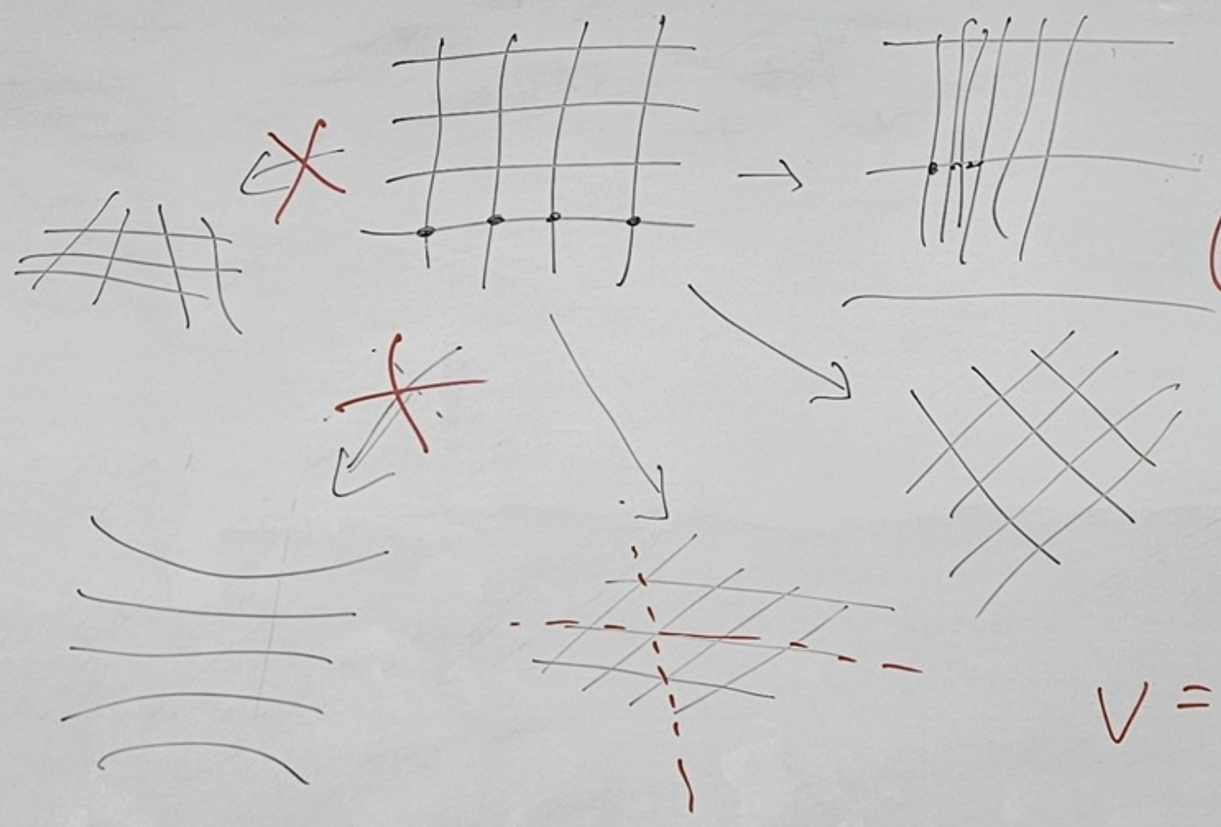


$e_1 = \begin{bmatrix} 1 \\ 0 \end{bmatrix}$

$e_2 = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$

$\begin{bmatrix} 1 \\ 0 \end{bmatrix} \rightsquigarrow \begin{bmatrix} 1 \\ 0 \end{bmatrix}$

$\begin{bmatrix} 0 \\ 1 \end{bmatrix} \rightsquigarrow \begin{bmatrix} 1/2 \\ 1 \end{bmatrix}$



$V^T V = I$

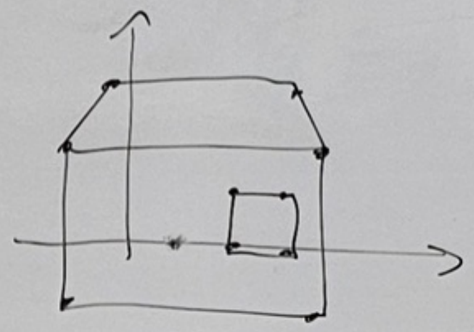
(λ_1, v_1)

(λ_2, v_2)

$V = \begin{bmatrix} -1 \\ 2 \end{bmatrix} = \begin{bmatrix} -3 \\ 6 \end{bmatrix}$

numpy.linalg.eig

$A = \begin{bmatrix} 1 & 1/2 \\ 0 & 1 \end{bmatrix}$



$y = Ax$

$A = V \Lambda V^T$

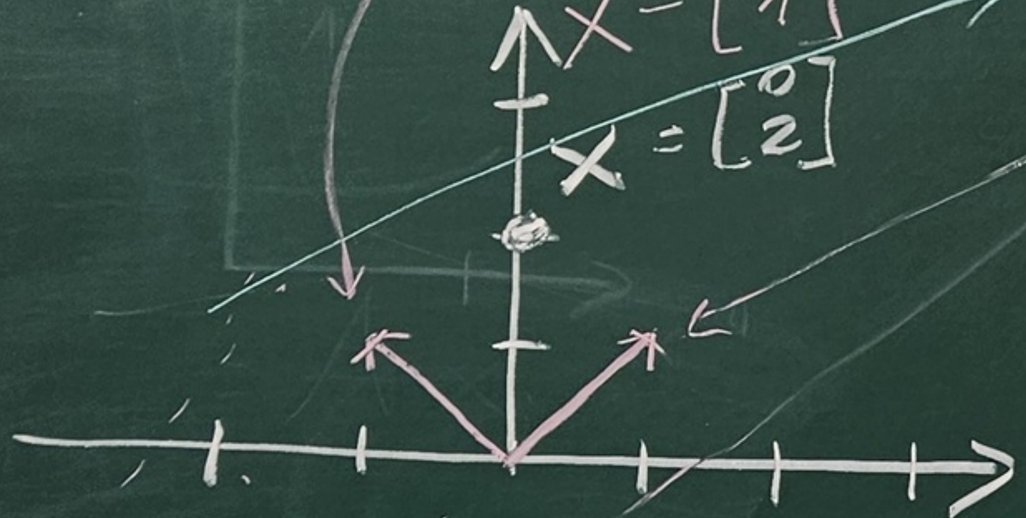
$\lambda x = Ax$

$\lambda V = AV$

$\begin{bmatrix} \lambda_1 & 0 \\ 0 & \lambda_2 \end{bmatrix}$

$X = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$

$X = \begin{bmatrix} 0 \\ 2 \end{bmatrix}$



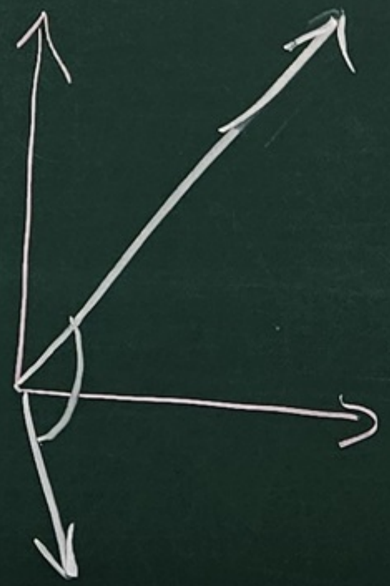
$A = \begin{bmatrix} 1 & -1 \\ 1 & 1 \end{bmatrix}$

$\begin{bmatrix} 0 \\ 2 \end{bmatrix} \cdot AX$

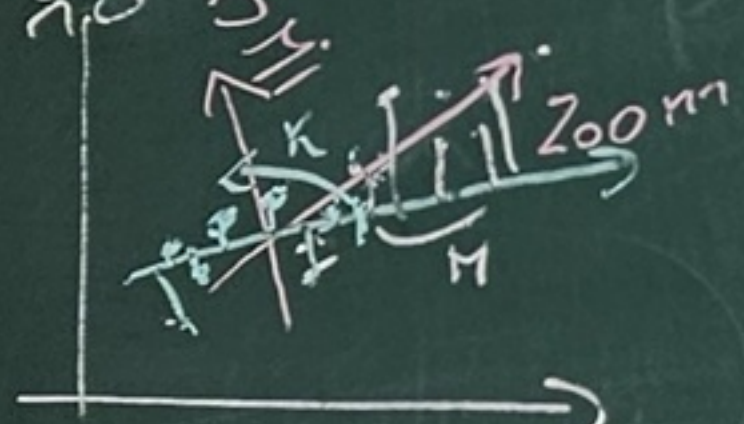
$X = AX \quad / A^{-1}$

$A^{-1}X = \underbrace{A^{-1}A}_{I} X$

$X = A^{-1}X$



waga

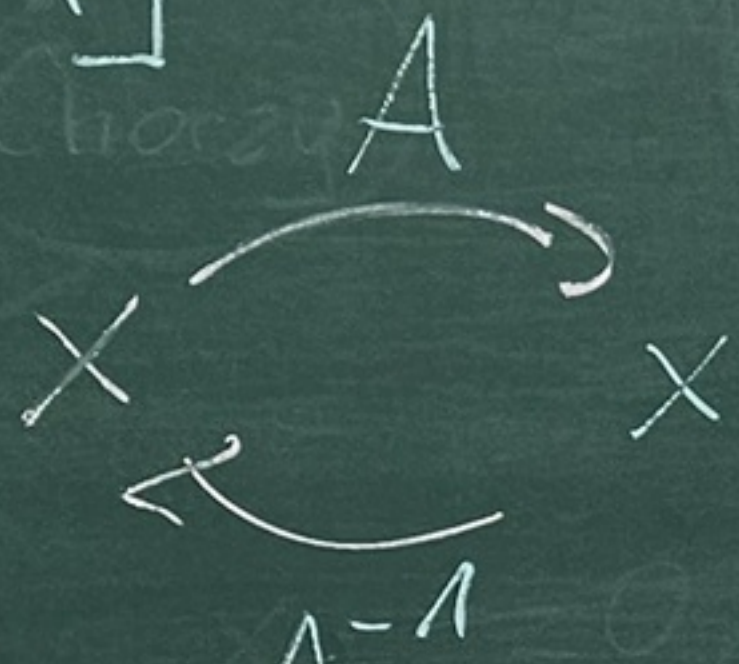


wzr.

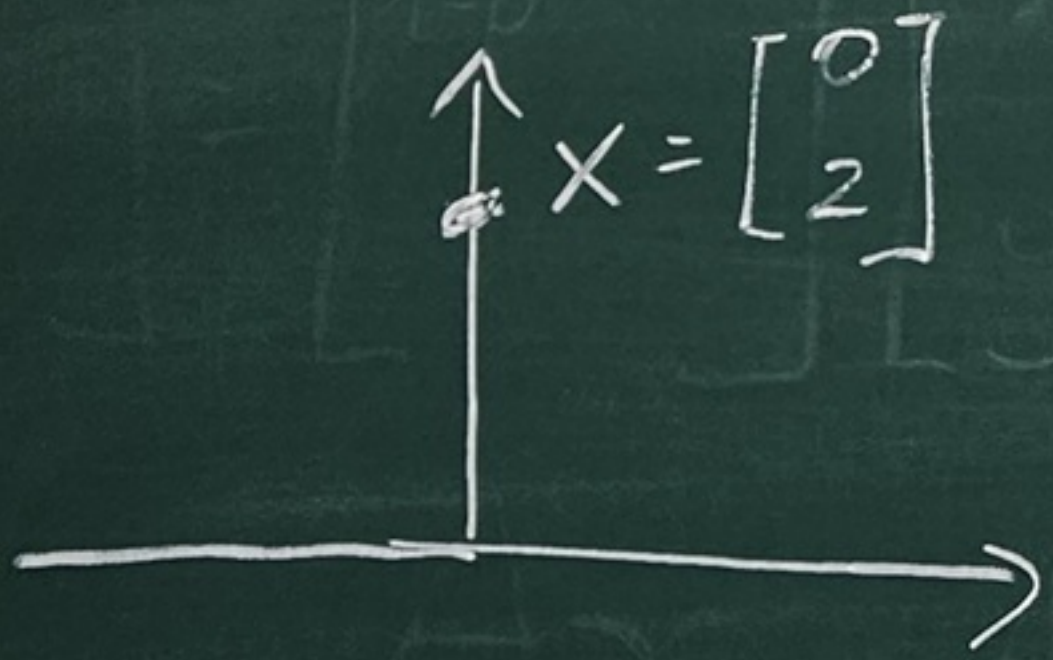
$$= [4 \quad 1]$$

$$\begin{bmatrix} x^{(1)} \\ x^{(2)} \end{bmatrix}$$

A A



A^{-1}



$$X = \begin{bmatrix} 0 \\ 2 \end{bmatrix}$$