EIGEN VALUE EIGEN VECTOR

Tovor a non-zerovecter vev, f a scalar NEF 1.

ergen value of T and v is eigenvector of touresponding to e. value
$$\lambda$$
.

$$T(0) = \lambda 0$$

$$A - \lambda 1 = 0$$

$$\lambda 2 = 0$$

$$\lambda 2 = 0$$

$$\lambda 3 = 0$$

$$\lambda - \lambda 1 = 0$$

$$\lambda - \lambda 1 = 0$$

$$\lambda - \lambda 1 = 0$$

$$T: \mathbb{R}^{2} \rightarrow \mathbb{R}^{2} \times + T(x_{1}y) = (x_{1}0)$$

$$T(y) = \lambda y \qquad y \neq 0 \qquad \lambda \in \mathbb{R}$$

$$T(x_{1}y) = \lambda \qquad (x_{1}y)$$

$$(x_{1}0) = (x_{1}x_{1})$$

$$(x_{1}0) =$$

$$\begin{bmatrix} T \end{bmatrix}_{B} = A = \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}$$

$$\left(\begin{array}{c} \chi = 1 \\ \chi = 1$$

$$(A - \lambda 1) \sqrt{s} = 0$$

$$\begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix} \begin{pmatrix} \chi \\ \gamma \end{pmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

$$\begin{aligned}
&\text{T}(x,y) = (x+y, x+y) \\
&\text{A} = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix} \\
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$$\lambda = 0, \qquad \times = \begin{bmatrix} -1 \\ 1 \end{bmatrix}$$

$$\gamma - 2$$
. $\left(A - 2I\right) \times = 0$.

$$\begin{bmatrix} -1 & 1 \\ 1 & -1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

$$- x_1 + x_2 = 0$$

$$x_2 = 1$$

$$x_1 = 1$$

det (A-)I) = Characteristie polynomial det (A-77) =0 - choc.. eg udron 7 - leigen value Deigen voots/ letent Chara roots

$$A_{2\times2}$$

$$\lambda^2 - (\text{trace}A)\lambda + \text{det}A = 0$$

A 3×3

$$73 - (tace A) 7^2 + (sum of cofactors of diagonal elements) $x - det A = 0$$$

$$T(xy) = (x+y)x+y$$

$$T(xy) = x(xy)$$

$$(x+y)x+y = (xx)xy$$

$$x+y=xx \quad and \quad x+y=xy$$

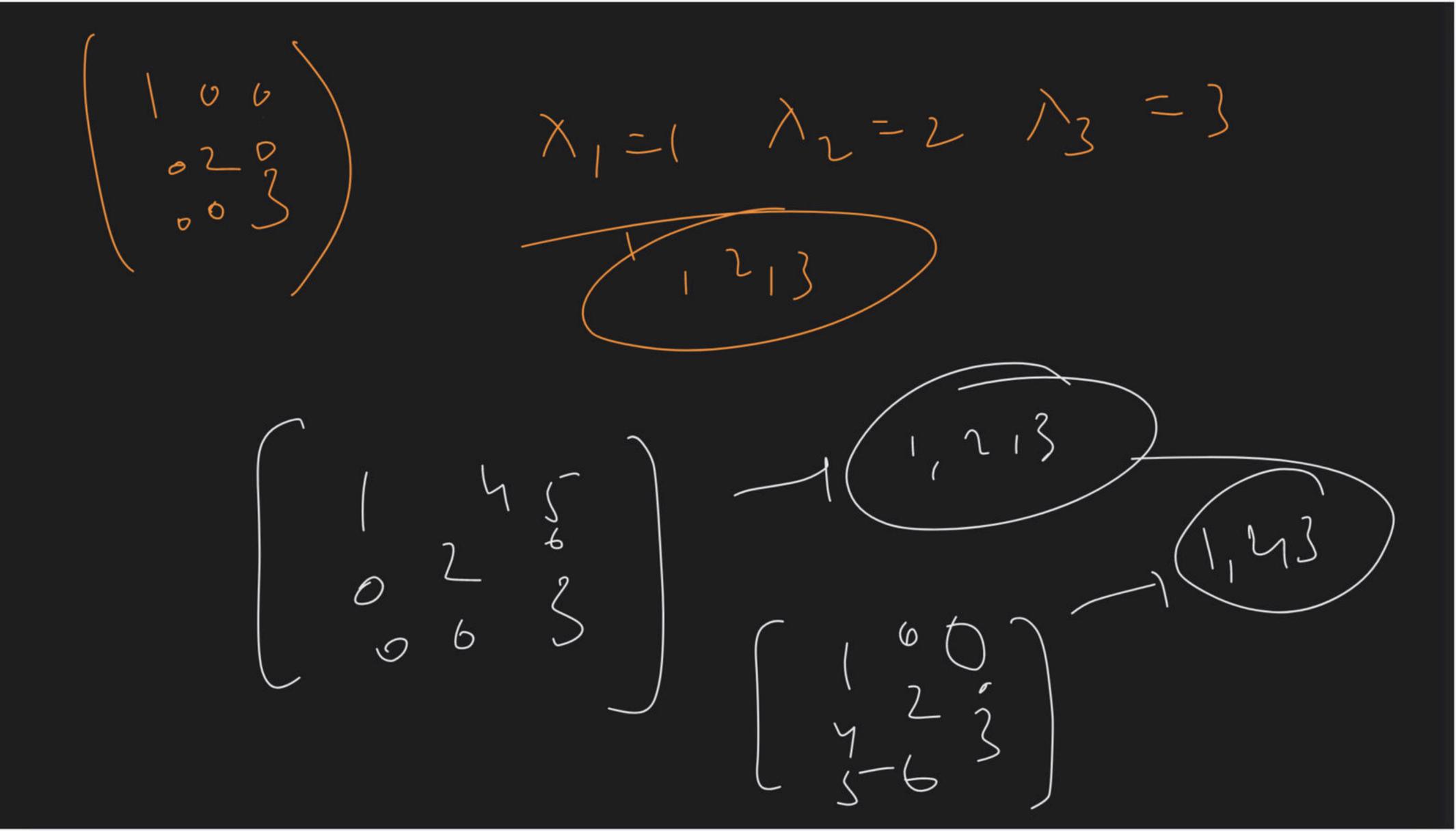
$$(1-x)x+y=0 \text{ and } x+(1-x)y=0$$

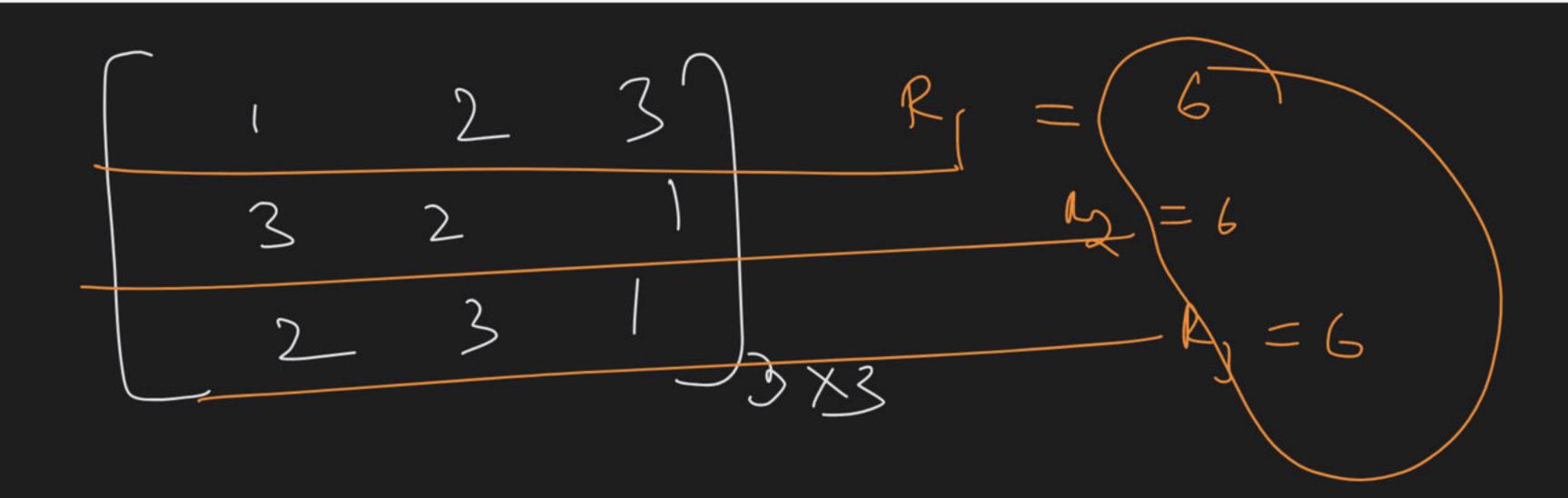
T: 1R2-1R2 T(6)=719 V40)+V T(xy) = (-y,x).He values.

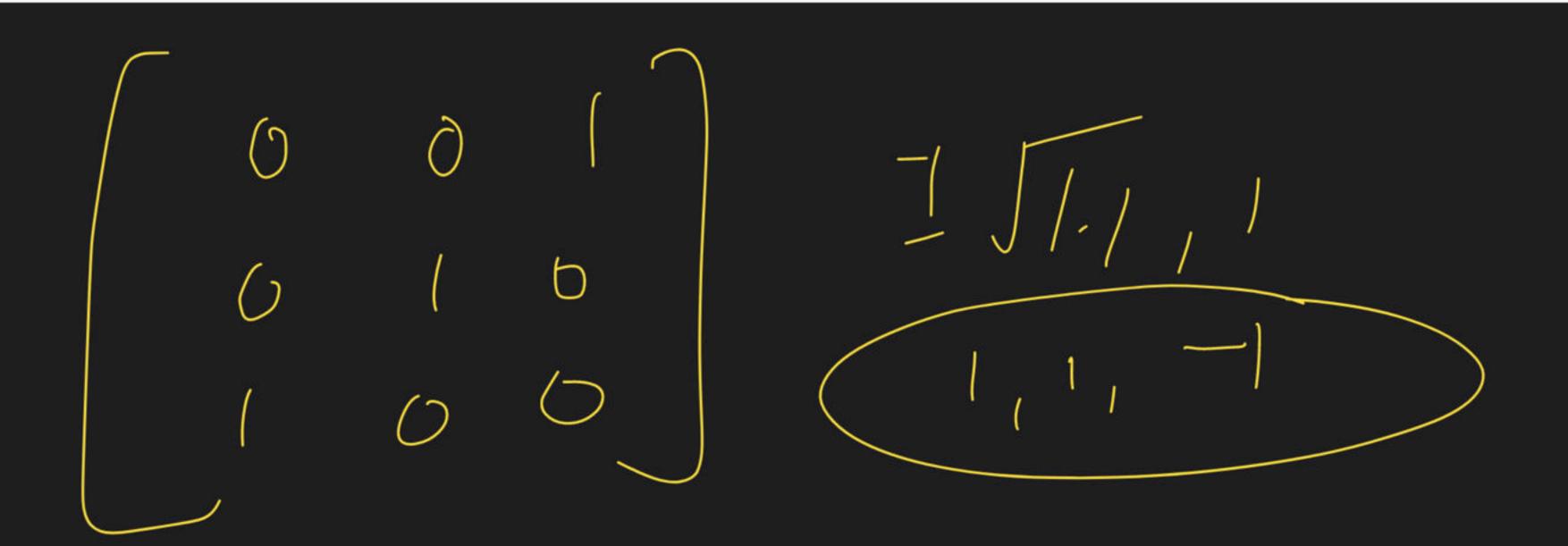
(x,y) = (-y,x) $\gamma \in (F)$ +2(R)£2 ((1) () P-VA-DWE F-18 -

Eigen values Matrix diligonal matrix diagonal enteries C C O] / Scalar matrix upper A. maturx diag: entorès ower 1 mateix Anxo ; sum of all elements in n is an evalue of A each Drow is x Arxn; sum of all elements in each colis x if det A = 0 0 is an e.m.

$$Anxn$$
 $/$ $2.../xn$







$$T: |R^2 - |R^2$$

$$T(x,y) = (x,x+y)$$

$$A = [10]$$

$$e \cdot value = -1$$

$$A - x - 1 \times 0$$

$$[0]$$

$$[0]$$

$$[0]$$

$$[0]$$

$$[0]$$

$$[0]$$

$$[0]$$

$$[0]$$

$$T: IR^{3} \rightarrow IR^{3}$$

$$T(x_{1}y_{1}^{2}) = (x_{1}+y_{1}^{2} - x_{1} + 2y_{1} + y_{1}^{2} - 32 + x_{1})$$

$$\begin{bmatrix} 1 & 1 & -1 \\ 1 & 2 & 0 \\ 1 & 1 & -3 \end{bmatrix} \qquad \text{trane } A = 0$$

$$\begin{bmatrix} 1 & 1 & -3 \\ 1 & 2 & 0 \\ 1 & 1 & -3 \end{bmatrix} \qquad \text{det } A = -2$$

$$(0) \chi^{2} + (-6 - 2 + 1) \chi - (-2) = 0$$

$$\lambda^{3} - (0)\lambda^{2} + (-6 - 2 + 1)\lambda - (-2) = 0$$

$$\lambda^{3} - 7\lambda + 2 = 0$$

$$\chi^{3} - 7\lambda + 2 = 0$$

$$\begin{bmatrix} 1-\lambda & 1 & -1 \\ 2-\lambda & 0 \\ 1 & -3-\lambda \end{bmatrix}$$

$$\begin{bmatrix} 1-\lambda & 1 & -1 \\ 1 & 2-\lambda & \delta \\ \lambda-2 & -1-\lambda \end{bmatrix}$$

R3-12-

1- x 76

Rm - Rm + C-Rn (m+n

