$$\begin{vmatrix}
-4 & 8 & -1 & -2 \\
-2 & -9 & -2 & -4
\end{vmatrix}$$

$$\begin{vmatrix}
-0 & 10 & 5 & -10 \\
-1 & -13 & -14 & -13
\end{vmatrix}$$

$$\frac{dot(A-XI)=0}{I=(1000)}$$

$$\frac{1}{0000}$$

$$\frac{1}{0000}$$

$$\frac{1}{0000}$$

$$\frac{1}{0000}$$

$$\frac{1}{0000}$$

$$-1$$
 -13 -14 $-13-\lambda$

Memo No.

$$M_{i,i} = \begin{bmatrix} -9 - 7 & -2 & -4 \\ 10 & 5 - 7 & -10 \\ -13 & -(4 & -13 - 7) \end{bmatrix}$$

$$\begin{bmatrix} (-9 - 7) \left((5 - 7) \right) \left(-13 - 7 \right) - \left(-10 \right) \left(-14 \right) \right] - \left[(-2) \left(10 \right) \left(13 - 7 \right) \right]$$

$$= \left((-9 - 7) \left(-65 - 57 + 137 + 187^2 - 140 \right) - \left((-2) \left(107 - 240 \right) \right)$$

$$= \left((-9 - 7) \left(7^2 + 87 - 205 \right) \right] - \left[207 + 520 \right] + \left[300 + 527 \right]$$

$$\left[-7^3 - 177^2 + 1657 + 1625 \right]_2$$

$$M_{12} = \begin{bmatrix}
-2 & -2 & -4 \\
0 & 5-7 & -10
\end{bmatrix}$$

$$\begin{bmatrix}
(-2) \left[(5-7)(-13-7) - \left[-10 \right] (-14) \right] - \left(\left[(2) \right] \left[(0) \left(-13-7 \right) - \left((-1) \left(-10 \right) \right) \right] \right]$$

$$\uparrow \left[(-4) \left[(0) \left(-14 \right) - \left(5-7 \right) (-1) \right] \right]$$

$$\begin{bmatrix}
(-2) \left[\gamma^2 + 9 \gamma - 205 \right] - \left((-2) \left(0 \right) - \left(10 \right) \right) + \left((-4) \left((0) - \left(-5 + x \right) \right) \right)$$

$$\begin{bmatrix}
(-2) \gamma^2 + 6 \gamma + 4 + 10 \right] - \left[20 \right) + \left(-4 \left(+5 + 5 - 7 \right) \right)$$

$$\begin{bmatrix}
-2 \gamma^2 - 16 \gamma + 4 + 10 - 20 - 20 + 4 \gamma \right)$$

$$\begin{bmatrix}
-2 \gamma^2 - 12 \gamma + 376 \right]_{2}$$

$$M_{13} = \begin{bmatrix}
-2 & -9 - \gamma & -4 \\ 10 & -13 - 10 \\ -13 & -13 - 3
\end{bmatrix}$$

$$\begin{bmatrix}
(-2) \left[(10) \left(-13 - 7 \right) - \left(-10 \right) \left(-13 \right) \right] \right] - \left[\left(-9 - 7 \right) \left((0) \left(-13 - 7 \right) - \left(\left(-1 \right) \left(-10 \right) \right) \right]$$

$$+ \left[+4 \right] \left[(0) \left(-13 \right) - \left(\left(10 \right) \left(-1 \right) \right) \right]$$

$$\begin{bmatrix}
(-2) \left[-10 \gamma - 260 \right] - \left[\left(-9 - x \right) \left(-10 \right) \right] + \left[\left(-4 \right) \left(10 \right) \right]$$

$$\begin{bmatrix}
(20 \gamma + 520 - 90 - 10 - 10 - 40 \right)$$

$$\begin{bmatrix}
(0 \gamma + 520 - 90 - 10 - 10 - 40 \right)$$

$$\begin{bmatrix}
(0 \gamma + 520 - 90 - 10 - 10 - 40 \right)$$

$$|Y_{14} = \begin{bmatrix} -2 & -9-y & -2 \\ 0 & 10 & 5-y \\ -1 & -13 & -14 \end{bmatrix} \xrightarrow{-5+x}$$

$$\begin{array}{c} \gamma^4 + 13 \gamma^3 - 219 \gamma^2 - 235 \gamma^4 \frac{35}{36} \frac{6}{10} = \frac{1}{2660} \\ \text{if } G_1 = 13, \quad \alpha_2^2 = -219, \quad 40 = -835 \rangle \quad \alpha_1 = \frac{1}{2600} \\ \text{if } \log_{10}(\alpha_1) = 219, \quad 40 = -837 \rangle \quad \alpha_2 = \frac{1}{2} + \frac{1}{2$$

$$= \frac{26}{73} \pm \frac{13}{15} \pm \frac{15}{51}$$

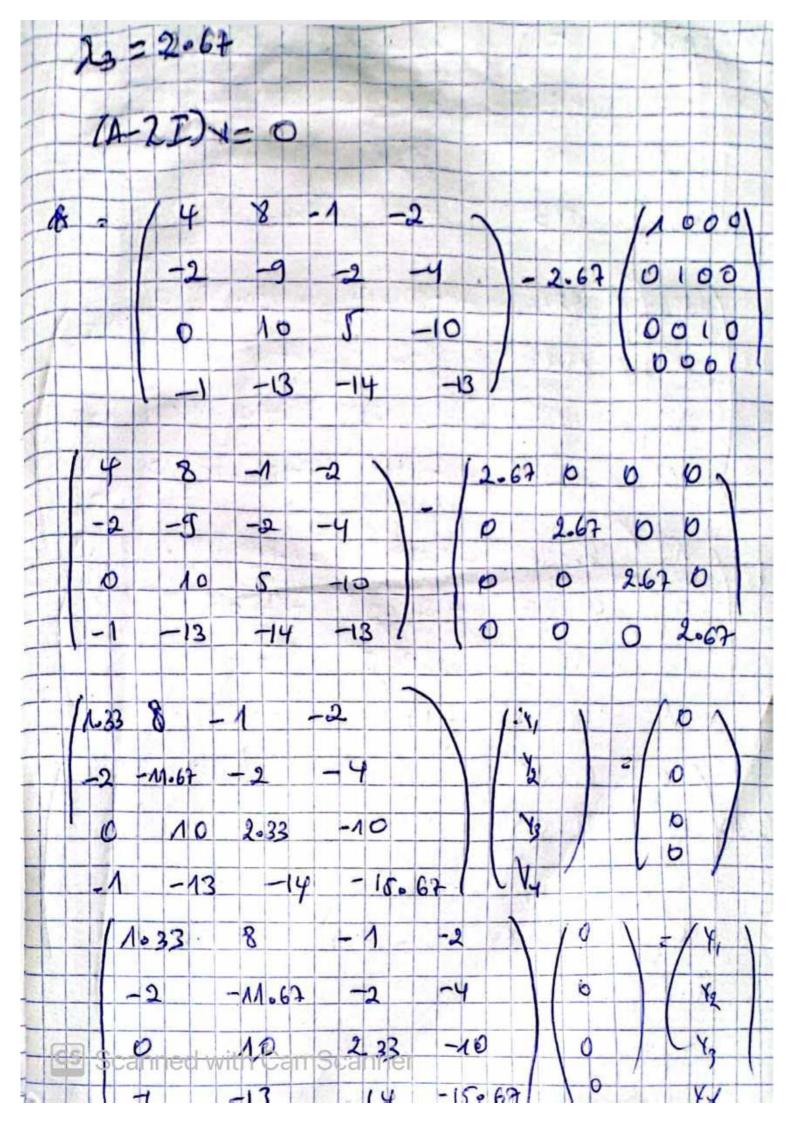
$$= \frac{26}{73} \pm \frac{15}{73} \pm \frac{15}{755} = \frac{26}{73} \pm \frac{15}{75} = \frac{15}{73} \pm \frac{15}{75} = \frac{15}{73} \pm \frac{15}{75} = \frac{15}{75} = \frac{26}{73} \pm \frac{15}{75} = \frac{15}{73} \pm \frac{15}{75} = \frac{15}{75} = \frac{26}{75} = \frac{15}{73} \pm \frac{15}{75} = \frac{15}{75} = \frac{26}{75} = \frac{15}{75} = \frac{26}{75} = \frac{15}{75} = \frac{15}{$$

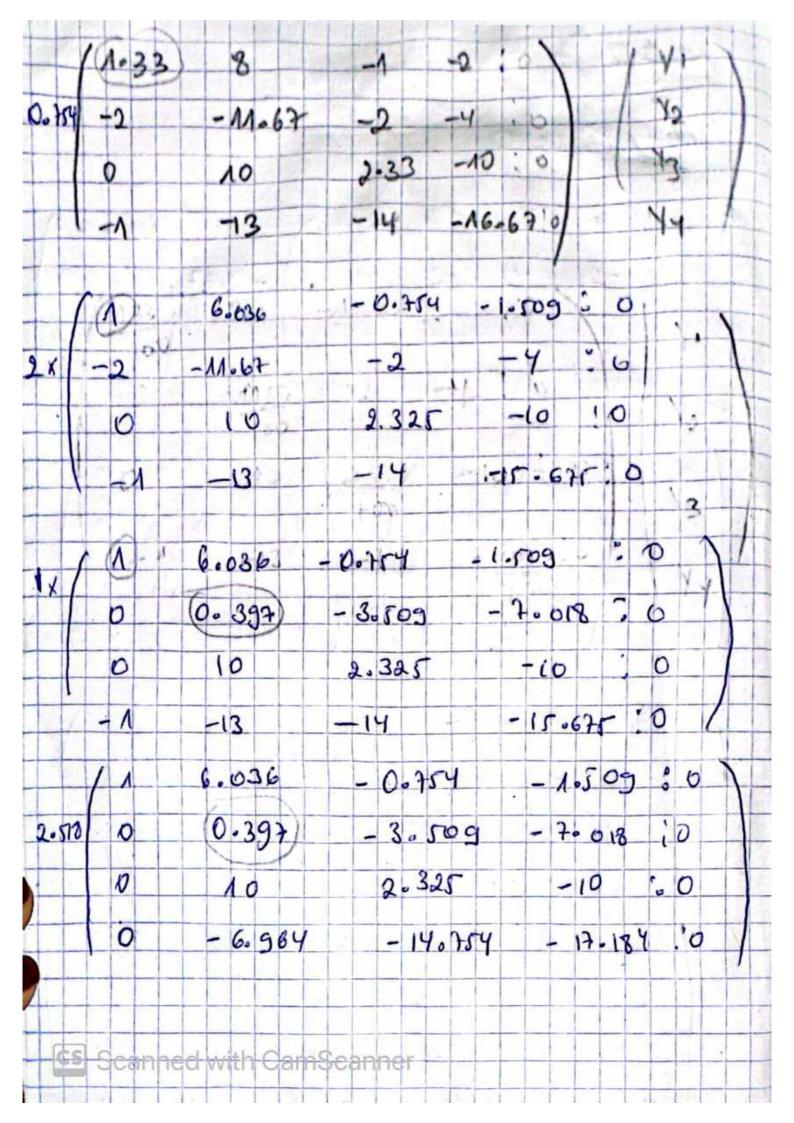
$$7 = -21.12$$

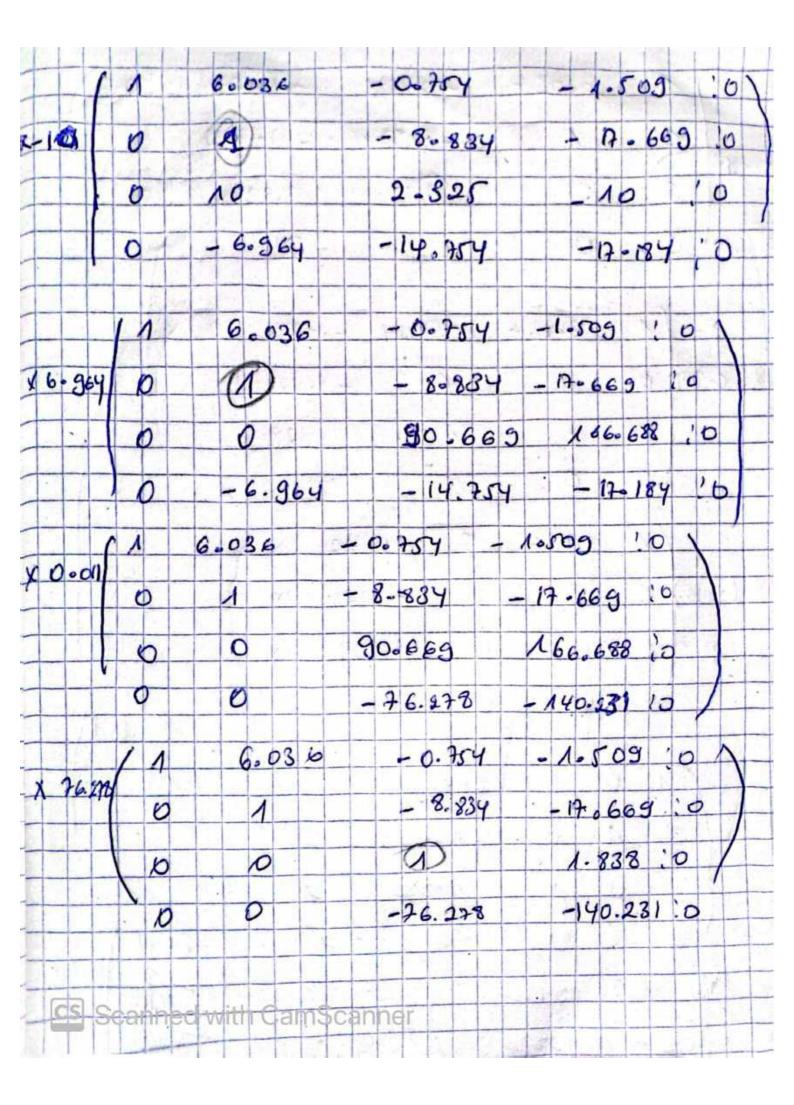
$$7_2 = -5.61$$

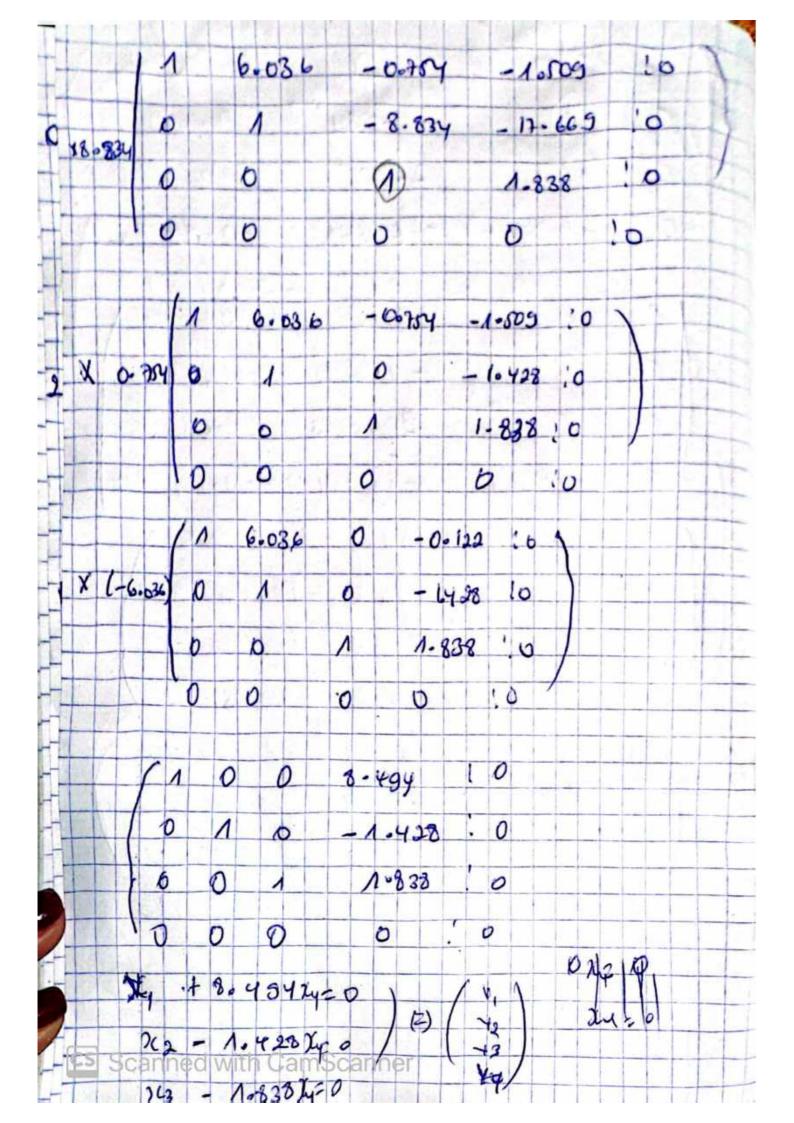
$$7_3 = 2.67$$

$$7_4 = 11.054$$









= -8-404 xy 22 = 1-420 24 X2 = 1. 037 24 Effen rectors 1-422 24 1.838 24 24 1-838 **cs** Scanned with CamScanner

To find the eigenvector corresponding to 1== 5.604 we solve the equation (A-AT)=0

first we substract & from the diagonal of A:

$$\begin{pmatrix} 4+5.604 & 8-1 & -2 \\ -2 & -9+5.604 & -2 & -4 \\ 0 & 10 & 5+5.604 & -10 \end{pmatrix} = \begin{pmatrix} 9.604 & 8-1 & -2 \\ -2 & -3.396 & -2 & -4 \\ 0 & 10.604 & -10 \end{pmatrix}$$

$$\begin{pmatrix} -1 & -13 & -14 & -13+5.604 \end{pmatrix} = \begin{pmatrix} 9.604 & 8-1 & -2 \\ -2 & -3.396 & -2 & -4 \\ 0 & 10.604 & -10 \end{pmatrix}$$

then we perform Gaussian ocimination to find the null space of A-AI

final matrix

From Rown we divide 9.604 to make the of ontry 7:

$$\begin{pmatrix}
7 & 0.833 & -0104 & -0.208 & 0 \\
-2 & -3.396 & -2 & -4 & 0 \\
0 & 10 & 10.604 & -10 & 0 \\
1 & -13 & -14 & -7.396 & 0
\end{pmatrix}$$

2. Row 2 + 2 x Row 1,1 Row 4 + Row 1:

8. Row 2 = -1.730 to make the and entry 1

4. Aows-10 x Rows, Row 9+12.167 x Rows:

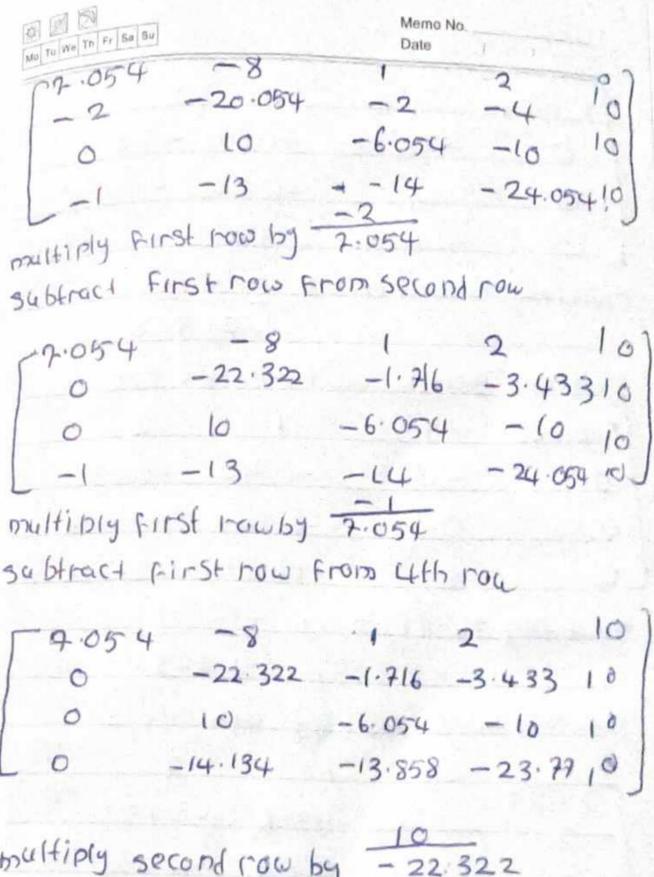
5. Rows: -2156 to make the 3rd etry 1, followed by

and we let vy -t then.

$$\begin{bmatrix} 4 & 8 & -1 & -2 & -4 \\ -2 & -9 & -2 & -4 \\ 0 & 10 & 5 & -10 \\ -1 & -13 & -14 & -13 \end{bmatrix} - \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$$

$$\begin{bmatrix} -7.054 & 8 & -2 & -2 & 0 \\ -2 & -20.054 & -2 & -4 & 10 \\ 0 & 10 & -6.054 & -10 & 10 \\ -1 & -13 & -14 & -24.054 & 0 \end{bmatrix}$$

multiply first row by -1



subfract socold row by third row

可图图 Mo Tu We Th Fr Sa So -22.322 -1.716 -3.433 7.054 -6.823 -11.538 -14.134 -13.858 -23.22 multiply second row by -14.134 subtract second row from 4th row 7.054 -1.716 -3.433 -22.322 -6.823 -11.538 -12.771 -21.596 multiply Third row by -12.771 -6.823 subtract third row by 4th row 7.054 -8 -22.322 -1.716 -3.433 0 -6.823 -11.538 0 0 00



Let $V_4 = 1$ From 761 ml row $0V_1 + 0V_2 - 6.823V_3 - 11.538V_4 = 0$ $-6.823V_3 = 11.538V_4$ $V_3 = -6.823 = -1.691$ $V_3 = -6.823 = -1.691$

From second row $0 \, V_1 - 22 \cdot 322 \, V_2 - 1.716 \, V_3 - 3.433 \, V_4 = 0$ $-22.322 \, V_2 + 2.901 - 3.433 = 0$ $V_2 = 0.532 = -0.0238$

-22.322 - 0.0238

From 1st row

7.0544, - 842+1 43 + 24 = 0

7.0544, -0.1904-1.691+2=0

2.0544,50.4994

V, =0.4994 =0.071 7.054

Eigenvector $\vec{3} = \begin{bmatrix} -0.071 \\ -0.0238 \\ -1.691 \end{bmatrix}$