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Example: 
$$A = \begin{pmatrix} 1 & 3 \\ 2 & 1 \end{pmatrix} \begin{bmatrix} A - \lambda I \end{bmatrix} = \begin{vmatrix} 1 - \lambda 3 \\ 2 & 1 - \lambda \end{bmatrix}$$

$$(1 - \lambda)^2 = 6 \quad \lambda_1 = 1 + 16 \quad \lambda_2 = 1 - 16$$

$$(A - \lambda, I) = 0 \quad \begin{pmatrix} -16 & 3 \\ 2 & -16 \end{pmatrix} = 2$$

$$(-16) = 0 \quad \begin{pmatrix} -16 & 3 \\ 2 & -16 \end{pmatrix} = 2$$

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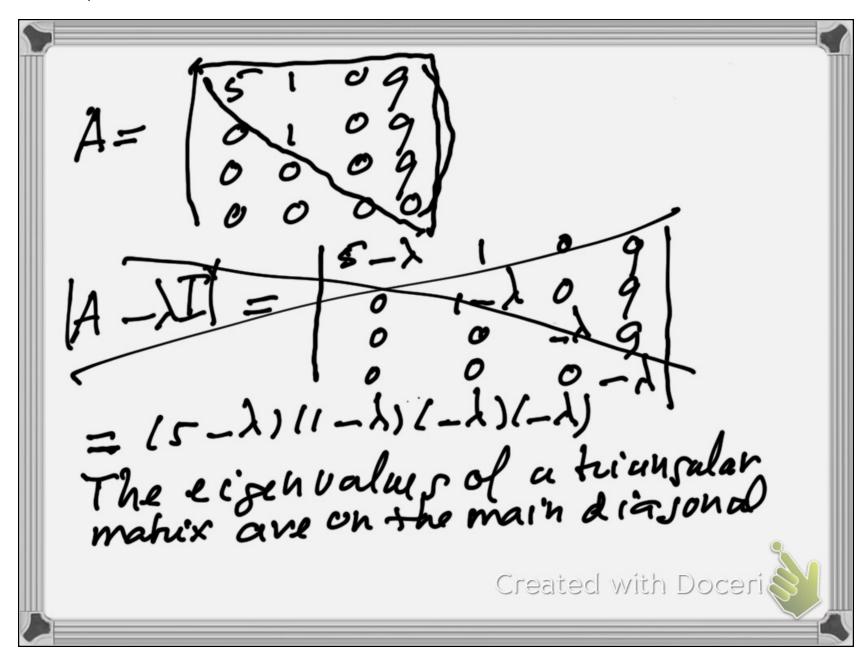
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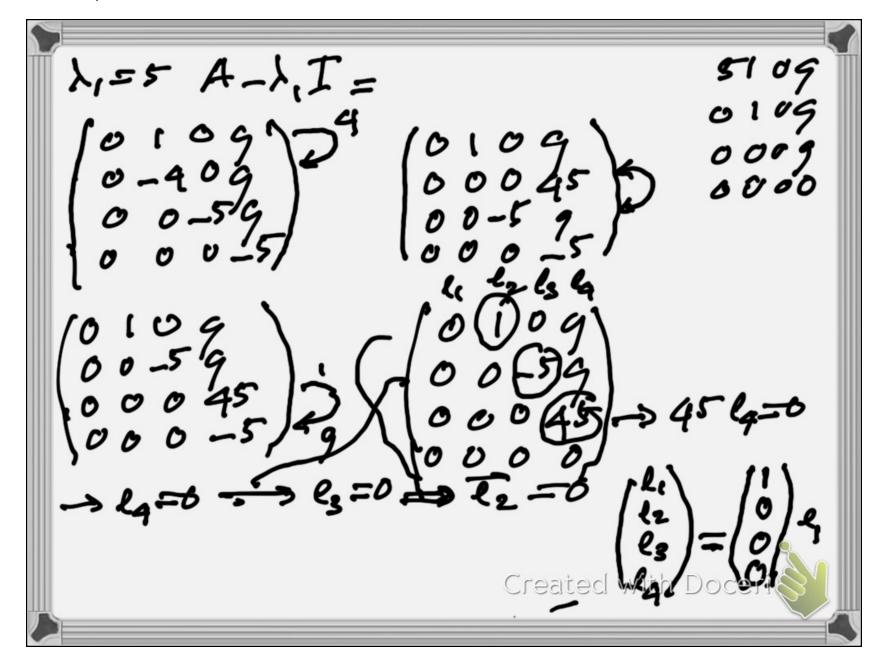
$$(-$$

must take the undetermined In cenual, write the null space of (A-X:I) and then take create a basis at that null space. aim101220.pdf Page 4 of 9

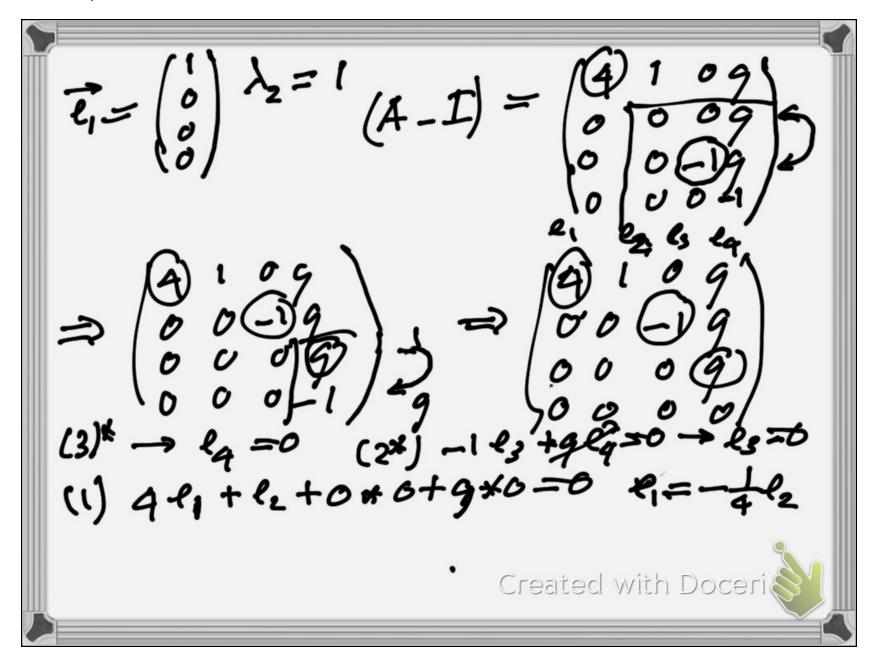
For 
$$\lambda_2 = 1 - \sqrt{6}$$
  $A - \lambda_2 I = \begin{pmatrix} 1 - 1 + \sqrt{6} & 3 \\ 2 & 1 - 1 + \sqrt{6} \end{pmatrix}$ 

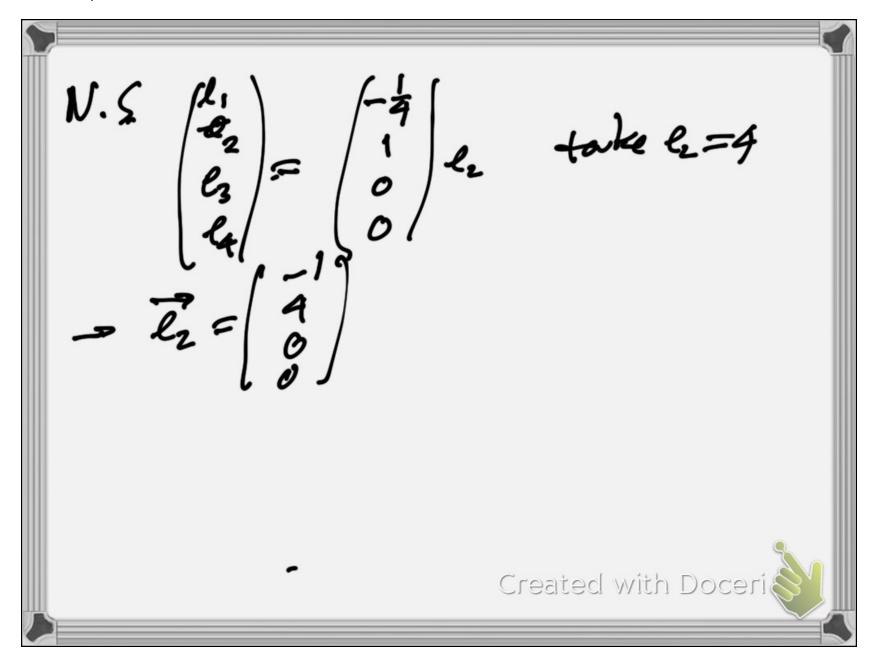
$$= \begin{pmatrix} 13 & 3 & 3 & 2 \\ 2 & \sqrt{6} \end{pmatrix} \xrightarrow{16} \Rightarrow \begin{pmatrix} 16 & 3 & 3 \\ 0 & 0 & 4 & 4 \\ -16 & 2 & 1 \end{pmatrix} \xrightarrow{16} \xrightarrow{16}$$

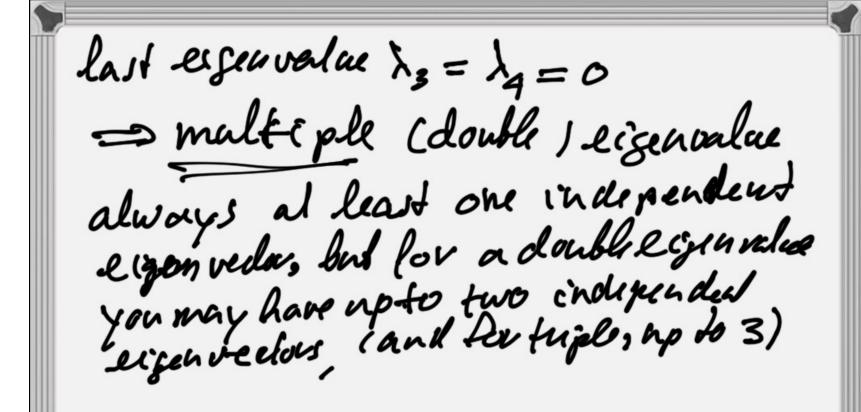




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