Pre-class Assignment - 17 ). Octoroise  $|A-\lambda I| = (2-\lambda)^2 - (1) = 0$ 20 4 + 12-A1-1=0-A  $\lambda^2 - 4\lambda + 3 = 0$  =  $\lambda^2 - 3\lambda - \lambda + 3 = 0$  $3^{2}-3\lambda+\lambda+3=0$   $\lambda(\lambda-3)-1(\lambda-3)=0$  $\frac{3(\lambda-3)-i(\lambda-3)}{\lambda-3} \quad \lambda=3 \quad \lambda=1$ Since the Eigen value are positive, the given Matrix A is positive semi-definite Cholesky decomposition of A = = U. LT = a 0

Gam values of A is

$$A = \begin{bmatrix} 0 & 4 \\ 0 & 0 \end{bmatrix}$$

Gigan values of A is

 $A = A = \begin{bmatrix} 0 & 4 \\ 0 & 0 \end{bmatrix} = 0$ 
 $A = \begin{bmatrix} 0 & 4 \\ 0 & 0 \end{bmatrix} = 0$ 
 $A = \begin{bmatrix} 0 & 4 \\ 0 & -\lambda \end{bmatrix} = 0$ 

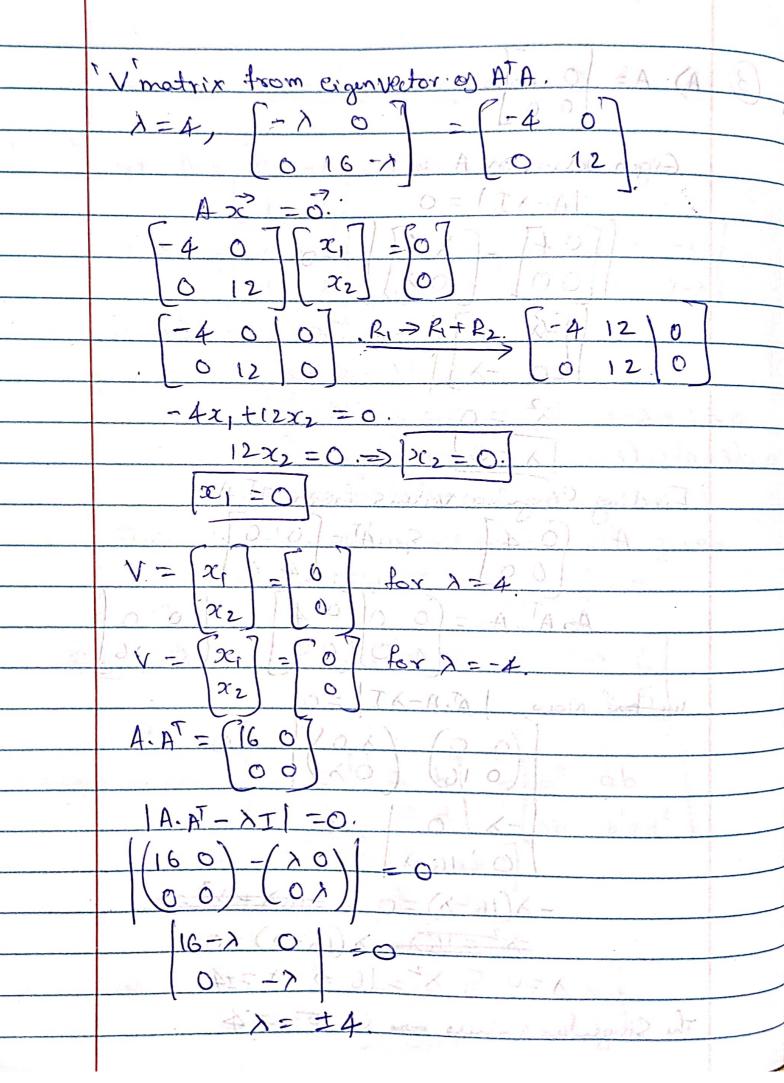
Finding Cingular Values from AT. A.

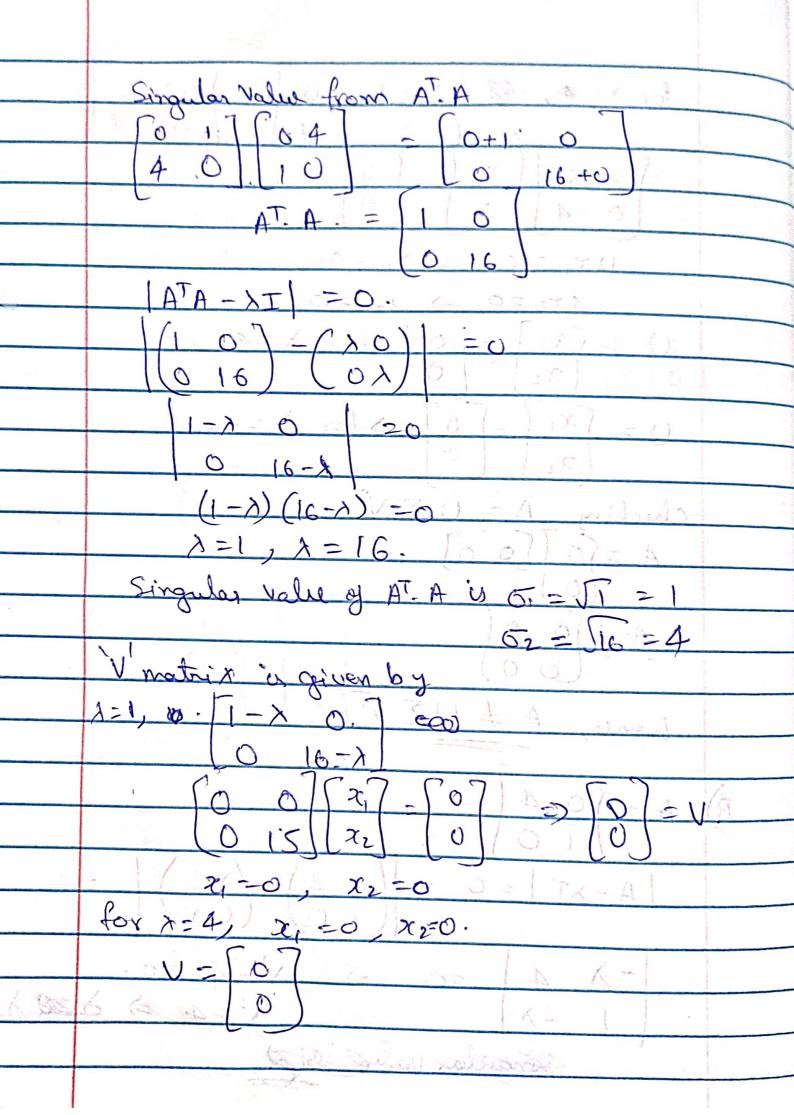
 $A = \begin{bmatrix} 0 & 4 \\ 0 & -\lambda \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 4 & 0 \end{bmatrix}$ 
 $A = \begin{bmatrix} 0 & 4 \\ 4 & 0 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 4 & 0 \end{bmatrix}$ 

When I have the Nature  $A = \begin{bmatrix} 0 & 0 \\ 0 & 16 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 0 & 16 \end{bmatrix}$ 
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The Cingular Values are is  $a = \begin{bmatrix} 0 & 0 \\ 0 & 16 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 0 & 16 \end{bmatrix}$ 

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$$A \cdot A^{T} = \begin{pmatrix} 0 & 4 \\ 1 & 0 \end{pmatrix} \begin{pmatrix} 4 & 0 \\ 4 & 0 \end{pmatrix} = \begin{pmatrix} 16 & 0 \\ 0 & 1 \end{pmatrix}$$

$$\begin{vmatrix} A \cdot A^{T} - XT \end{vmatrix} = 0$$

$$\begin{vmatrix} 16 & 0 \\ 0 & 1 \end{vmatrix} \begin{pmatrix} 0 & 0 \\ 0 & 1 \end{vmatrix} = 0$$

$$\begin{vmatrix} 16 - A & 0 \\ 0 & 1 \end{vmatrix} = 0$$

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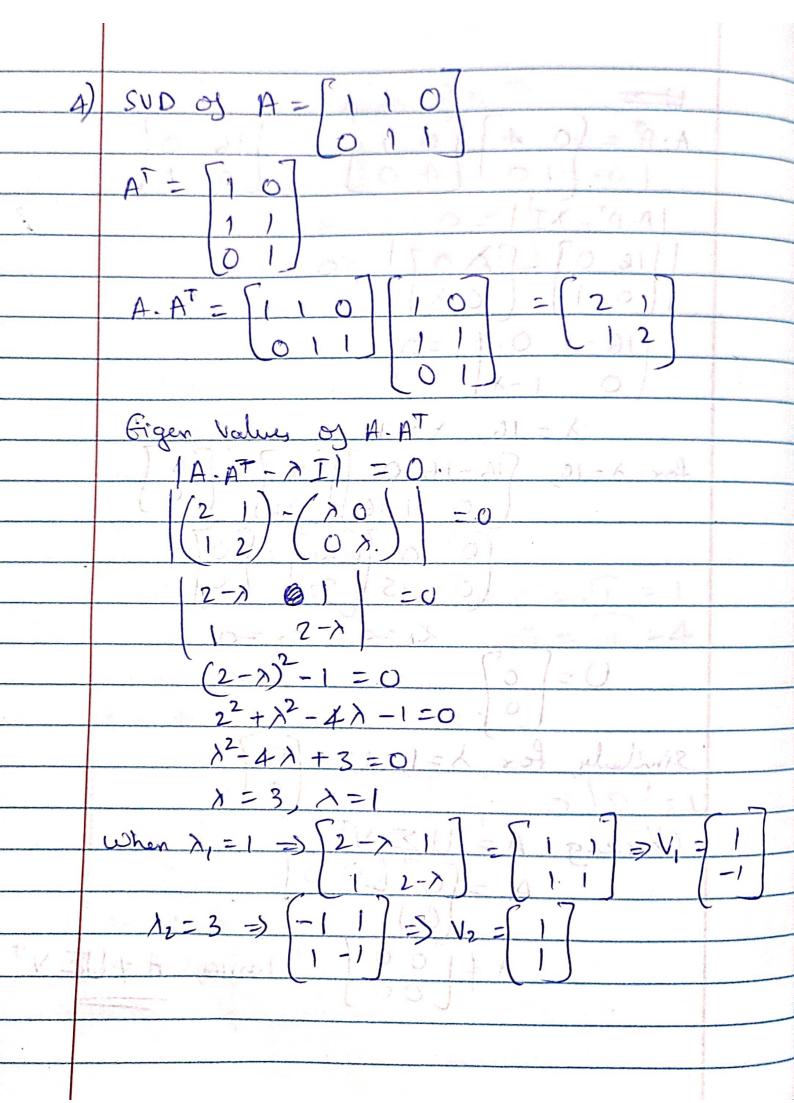
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$$\begin{vmatrix}$$



Singular Values,

$$6, = \sqrt{1} = 1$$
 $0, = \sqrt{1} = 1$ 
 $0, = \sqrt{1}$ 
 $0$