

Swetha D S

Department of Science and Humanities

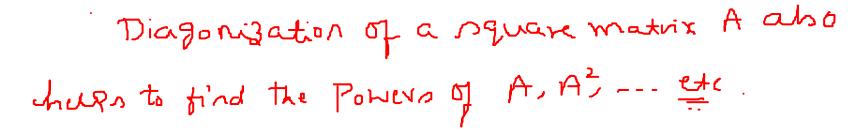


CLASS-8

POWERS AND PRODUCTS OF MATRICES

Powers and Products of matrices

Computation of Powers of a square madrix:



Mchar
$$D = S^{-1}AS$$

 $D^{2} = (S^{-1}AS)(S^{-1}AS)$
 $D^{2} = S^{-1}A^{2}S$

The-muttiplying by S and Popt-multiplying by S^{-1} $SP^{2}S^{-1} = SS^{-1}A^{2}SS^{-1} = TA^{2}T = A^{2}$ $A^{2} = SP^{2}S^{-1}$

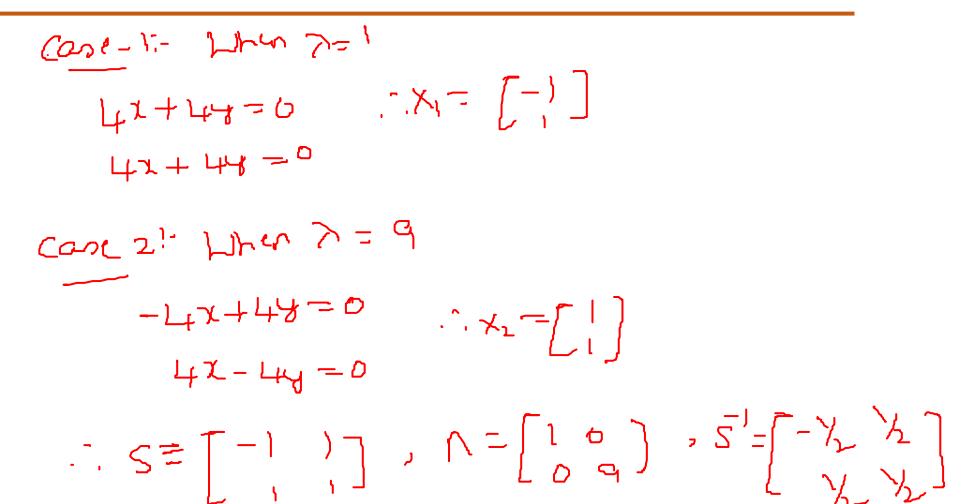




Hill be then?

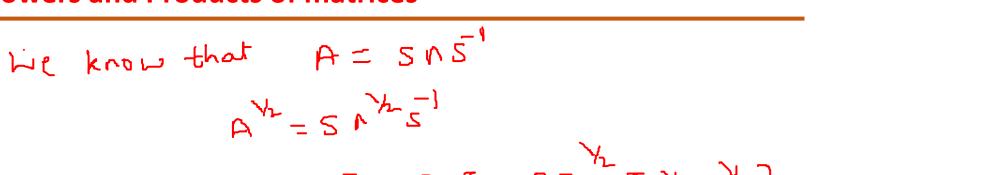
$$A = 0 = 0 = 0$$
 $A = 0 = 0$
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$$COMSIDEL CA-7IJX=0$$
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Powers and Products of matrices



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

$$A^{Y_2} = \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$$

We get different values when he consider \$\frac{1}{2}.



2) Diagorize
$$A = \begin{bmatrix} \lambda_1 & \lambda_2 \end{bmatrix} & \text{hence find } A^{10} = 0$$

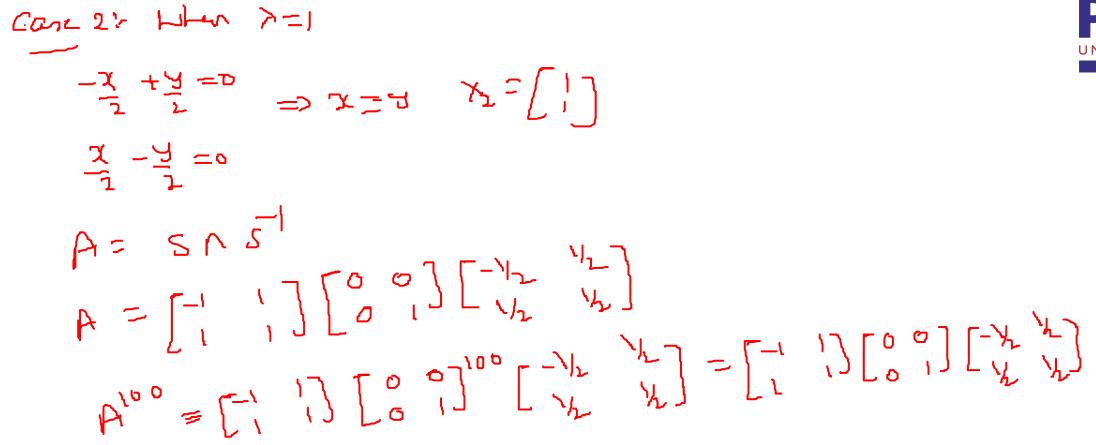
Show that $A^{10} = A$.

And: $|A-\lambda = 1=0 \Rightarrow |\lambda_1-\lambda_2| = 0$
 $|A-\lambda = 1=0 \Rightarrow |\lambda_2-\lambda_2| = 0$

Consider $|A-\lambda = 1=0 \Rightarrow |A-\lambda_2| = 0$
 $|A-\lambda = 1=0 \Rightarrow |A-\lambda_2| = 0$

Case 1:- When
$$\gamma = 0$$
 = 0 =





$$A^{100} = \begin{bmatrix} 1/2 & 1/2 \\ 1/2 & 1/2 \end{bmatrix} = A$$





THANK YOU

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