+ ULTIMATE MATHEMATICS -(BY: AJAY MITTAL: 9891067390)

MATRICES: CLAS: 2 (M-2)

Properties of Multiplication

(1)
$$A^2 = AA$$
 A must be a squay matrix

(2)
$$A^{3} = A^{2}A = AA^{2}$$

$$(6)(A+B)^{2} + A^{2}+B^{2}+AB$$

 $(A+B)^{2} - (A+B)(A+B)$

$$TI = I$$

$$TB)^{2} + A^{2} + B^{2} + AAB$$

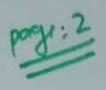
$$G^{2} = (A+B)(A+B)$$

$$= A^{2} + AB + BA + B^{2}$$

$$A' = \begin{bmatrix} 1 & 7 & 6 \\ 2 & 5 \\ 3 & 6 \end{bmatrix}_{3\times 2}$$

- [7/-]

 $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$



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$$A' = \begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix} = A$$

$$A' = \begin{bmatrix} 2 & 3 & 4 \\ 3 & 5 & 6 \end{bmatrix} = A$$

ey
$$A = \begin{bmatrix} 0 & -2 \\ 2 & 0 \end{bmatrix}$$

$$A' = \begin{bmatrix} 0 & 2 \\ -2 & 0 \end{bmatrix}$$

$$\begin{bmatrix} -2 & 0 & 2 & -3 \\ -2 & 0 & 5 \\ 3 & -5 & 0 \end{bmatrix}$$

$$A' = \begin{cases} 0 & -2 & 3 \\ 2 & 0 & -5 \\ -3 & 5 & 0 \end{cases}$$

$$A' = -\begin{bmatrix} 0 & 2 & -3 \\ -2 & 0 & 5 \\ 3 & -5 & 0 \end{bmatrix} = -A$$

19:3 - ULTIMATE MATHEMATICS -(BY: AJAY MITTAL: 9891067390)

$$= \left[\frac{\chi^{2} - 3/\chi - 40 + 3/(-8)}{2} \right] = 0$$

$$= \left[\frac{\chi^{2} - 48}{2} \right] = \left[0 \right]$$

$$= \frac{\chi^{2} - 48}{2} = 0$$

$$= \frac{\chi^{2} -$$

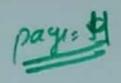
ONE TO A SING Show med FIAA (I-A) Red - Sing

ONIZ & A= [0 -ten (a/2)] then show that

I +A = (I-A) (COO - SINY)

$$\frac{1}{2} \ln \left(\frac{1}{1 + A} \right) = \left(\frac{1}{0} + \frac{1}{0} \right) + \left(\frac{1}{0} + \frac{1}{0} + \frac{1}{0} + \frac{1}{0} \right) = \left(\frac{1}{0} + \frac{1}{0} + \frac{1}{0} + \frac{1}{0} \right)$$

$$= \left(\frac{1}{1 - A} \right) \left(\frac{1}{0} + \frac{1$$



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$$= \left(\begin{array}{c} \left(\frac{1}{\tan \left(\frac{|x|}{2} \right)} \right) \left(\frac{1 - \tan^{2} \left(\frac{|x|}{2} \right)}{1 + \tan^{2} \left(\frac{|x|}{2} \right)} \right) - \frac{2 \tan \left| \frac{|x|}{2} \right|}{1 + \tan^{2} \left(\frac{|x|}{2} \right)}$$

$$= \frac{1}{1 + \tan^{2} \left(\frac{|x|}{2} \right)} \left(\frac{2 \tan \left| \frac{|x|}{2} \right|}{1 + \tan^{2} \left(\frac{|x|}{2} \right)} \right) \left(\frac{1 - \tan^{2} \left(\frac{|x|}{2} \right)}{1 + \tan^{2} \left(\frac{|x|}{2} \right)} \right)$$

$$= \frac{1}{1 + \tan^{2} \left(\frac{|x|}{2} \right)} \left(\frac{1 - \tan^{2} \left| \frac{|x|}{2} \right|}{1 + \tan^{2} \left| \frac{|x|}{2} \right|} - \frac{2 \tan \left(\frac{|x|}{2} \right)}{1 + \tan^{2} \left| \frac{|x|}{2} \right|} \right)$$

$$= -\tan \left(\frac{|x|}{2} \right) \left(\frac{1 - \tan^{2} \left| \frac{|x|}{2} \right|}{1 + \tan^{2} \left| \frac{|x|}{2} \right|} - \frac{2 \tan \left(\frac{|x|}{2} \right)}{1 + \tan^{2} \left| \frac{|x|}{2} \right|} \right)$$

$$\frac{1}{1+ten^{2}(\alpha/2)} = \frac{1}{1+ten^{2}(\alpha/2)} \left(\frac{1}{1+ten^{2}(\alpha/2)} + \frac{1}{1+ten^{2}(\alpha/2)} \right) \left(\frac{1}{1+ten^{2}(\alpha/2)} + \frac{1}{1+ten^{2}(\alpha/2)} + \frac{1}{1+ten^{2}(\alpha/2)} + \frac{1}{1+ten^{2}(\alpha/2)} \right) \left(\frac{1}{1+ten^{2}(\alpha/2)} + \frac{1}{1+ten^{2}(\alpha/2)} + \frac{1}{1+ten^{2}(\alpha/2)} + \frac{1}{1+ten^{2}(\alpha/2)} \right)$$

$$= \frac{1}{1+ten^{2}(\alpha/2)} \left(\frac{1}{1+ten^{2}(\alpha/2)} + \frac{1}{$$

$$= \frac{1}{1+\tan^{2}|\alpha|_{2}} \left[\frac{1-\tan^{2}|\alpha|_{2}}{1+\tan^{2}|\alpha|_{2}} + 2\tan^{2}|\alpha|_{2}} \right]$$

$$= 2\tan|\alpha|_{2} + \tan^{2}|\alpha|_{2}$$

$$= -\tan^{2}|\alpha|_{2}$$

$$= -\tan^{2}|\alpha|_{2}$$

$$= -\tan^{2}|\alpha|_{2}$$

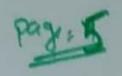
$$= -\tan^{2}|\alpha|_{2}$$

$$=\frac{1}{1+ten^{2}(\alpha/2)}\left\{1+ten^{2}(\alpha/2)\right\} - ten^{2}(\alpha/2) - ten^{2}(\alpha/2)\right\}$$

$$=\frac{1}{1+ten^{2}|\alpha/2|}\left\{\frac{1+ten^{2}|\alpha/2|}{ten|\alpha/2|}\left(\frac{1+ten^{2}|\alpha/2|}{1+ten^{2}|\alpha/2|}\right) - ten(\alpha/2)\left(\frac{1+ten^{2}|\alpha/2|}{1+ten^{2}|\alpha/2|}\right)\right\}$$

$$=\frac{1}{1+ten^{2}|\alpha/2|}\left(\frac{1+ten^{2}|\alpha/2|}{1+ten^{2}|\alpha/2|}\right)$$

$$= \left[\frac{1}{\tan(\pi/\epsilon)} - \frac{1}{\tan(\pi/\epsilon)} \right] = \lambda \lambda y$$



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Topic: finding unknown matrix in myltiplication

Ony Fird mater X Such that

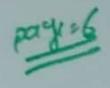
$$X \left[\frac{1}{4} \frac{2}{5} \frac{3}{6} \right] = \left[\frac{-7}{2} \frac{-8}{6} \frac{-9}{6} \right]$$

Sol. [22] = [] 3 =

ly X = (a b) 2x2

. - grun egughon becomes

9= 1 b= , c= , d=



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and grun porynomial of (7)= 22+3x+2

$$|f(A)| = A^2 + 3A + 2|I|$$

$$= [] + 3[] + 2[]$$

$$= [] + [] + [] + []$$

$$= [] + [] + [] + []$$

Show that A is a good of this polynomial Topin f(A)= 0

CLASS XII CHAPTER- MATRICS 2020-2021 BY: AJAY MITTAL, WORKSHEET NO.2 9891067390 ONE 1 To $A = \begin{bmatrix} 3 & -2 \\ 4 & -2 \end{bmatrix}$, find 'k' 80 fact $A^2 = kA - 2I$ OM: 2 - 7 A= [1 0] , Find 'k' So that A2-8A+ K.I. = 0 ONE 3 - End 'A and 4' So that A= AAJUT juhou A= [12] Oni 4 - Let f(x) = x2-5x+6 Find f(A); A = [2 0 1] On 5 + for what value y'x': $\begin{bmatrix} 1 & 2 & 1 \end{bmatrix} \begin{bmatrix} 1 & 2 & 0 \\ 2 & 0 & 1 \end{bmatrix} \begin{bmatrix} 0 \\ 2 \\ 7 \end{bmatrix} = 0$ OM6+ Find x', if [x -5 -1] [1 0 2] [x] =0 OM 7 + Snow that mater x A= [3 1] as a loot of the ONIS+ 28 A= [1-1] B= [a 1] ance (A+B)= A2+B2 Find the value of a once b $OM_{\frac{q}{2}} = I_{\frac{q}{2}} A = \left[\begin{array}{ccc} 0 & -ten(x|z) \\ -ten(x|z) & 0 \end{array} \right] & Show that$ $I + A = \left(I - A \right) \left[\begin{array}{ccc} Ca & \alpha & -sin & \alpha \\ -sin & \alpha & \alpha \end{array} \right]$ One lost prove that the greature of matrices [cososino sino]

* and [cososino sino] is the nall matrix, when conditing sinop]

O and of deflet by on odd mustiple of 1/2 ONS IN- Show that $F(x) \cdot F(y) = F(x+y)$ where ULTIMATE MATHEMATICS (A SPECIALISED INSTITUTE OF MATHEMATICS)

CLASS XII	CHAPTER- N	MATRICS EET NO.2	2020-202	21 BY: AJAY MI 9891067	
I FG			0)		330
TO SEAL OF THE	Sinx	Cosx	0		
$f(x) = \begin{cases} \cos x & -\sin x & 0 \\ \sin x & \cos x & 0 \end{cases}$					
On 12 + Find mater X so that X [1 2 3] - [-7 -8-9]					
	2 -17	C .		100	
Om (3+7	1 0 A =	1 9	8 -10 -2 -5	Find mad	bex A
ON 14 = Find matrix X for which $\begin{bmatrix} 1 & -4 \\ 3 & -2 \end{bmatrix}$ X = $\begin{bmatrix} -16 & -6 \\ 7 & 2 \end{bmatrix}$					
$\frac{\text{OMS 15}}{=} \text{ Let } A = \begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix}, B = \begin{bmatrix} 5 & 2 \\ 7 & 4 \end{bmatrix}, C = \begin{bmatrix} 2 & 5 \\ 3 & 8 \end{bmatrix}$ Find a					
matrix D such fined CD-AB=0					
ON 16 & Find a matrix A sun trad 2A-3B +5C=0 where					
$B = \begin{cases} -2 & 2 & 0 \\ 3 & 1 & 4 \end{cases} \text{ and } C = \begin{cases} 2 & 0 & -2 \\ 7 & 1 & 6 \end{cases}$					
ONS 17 + 7 A= [0] and B= [1 0] Find the value of is					
for which $A^2 = B$					
01/18 + 7 [x 4 1] [2 1 2] [X] = 0 - Find x					
1 ANSWERS -					
1)- k=1				(14). (6 2	(18). x = -2
2) k= 7		61- X= ±44			
3). X=4, X	Company of the Compan	7)-f(1)=(2	(15). [-191 -1/0 77 44	
110/2	-1 -1 -10	s).a=1, b=		(16). A= [-8 3	5]
		12). [1	The Part of the Pa		
5) X = -		13/.	4 0	(7) Novalen g	1
LUCIA ATE A ATURA A TURO					

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