	Quiz Fa	
IBA In	stitute of	Full Name: Student ERP I/D No:
A STATE OF THE PARTY OF	usiness Administration	Subject:
	arachi	Quiz #:Date :
Leadership and lo	deas for Tomorrow	Class/Section:
		Teacher's Name:
	I chapter : Gre	neeal Vector spaces
- 0		
U	let P = 0 xn + bxn	-1 + C
	let $P_1 = 9x^n + bx^n$ $P_2 = -ax^n + d$	$x^{n-1} + ex^{n-2}$
•	Now P. P = (h.	as degree is x^{n-1}
	11113	dn-1
		as degree es m
		2
(2)	B= 3 V, N2 V	In 3 is lineally independe
	B is basis for 1	1 curd
	C = SV V = Y	12 is linearly, independe
	11	The state of the s
-	then men.	
	Since first condit	tion of basis is linearly
	in dependent, so	V, - Vn oul all
	linearly independ	ent adding a vector
	may violate t	ent adding a vector
	of linearly indepe	indent or spanning
	an mis either	equal or less thounds
	i.e men.	V
(2)	0 /10	B-(10)
3	A = (1 0 Q	B= (1 0 b)
	1. 9	
	1 10 /1+1	0 / 2 0 /
	Page # 1/2 Not a vector space	$\begin{array}{c c} 0 & = & 2 & 0 \\ a+b & 0 & 9+b \end{array}$
	Page # 1/2	Marks Signature of Instructor
	-Next a verter space	e first entry not 1

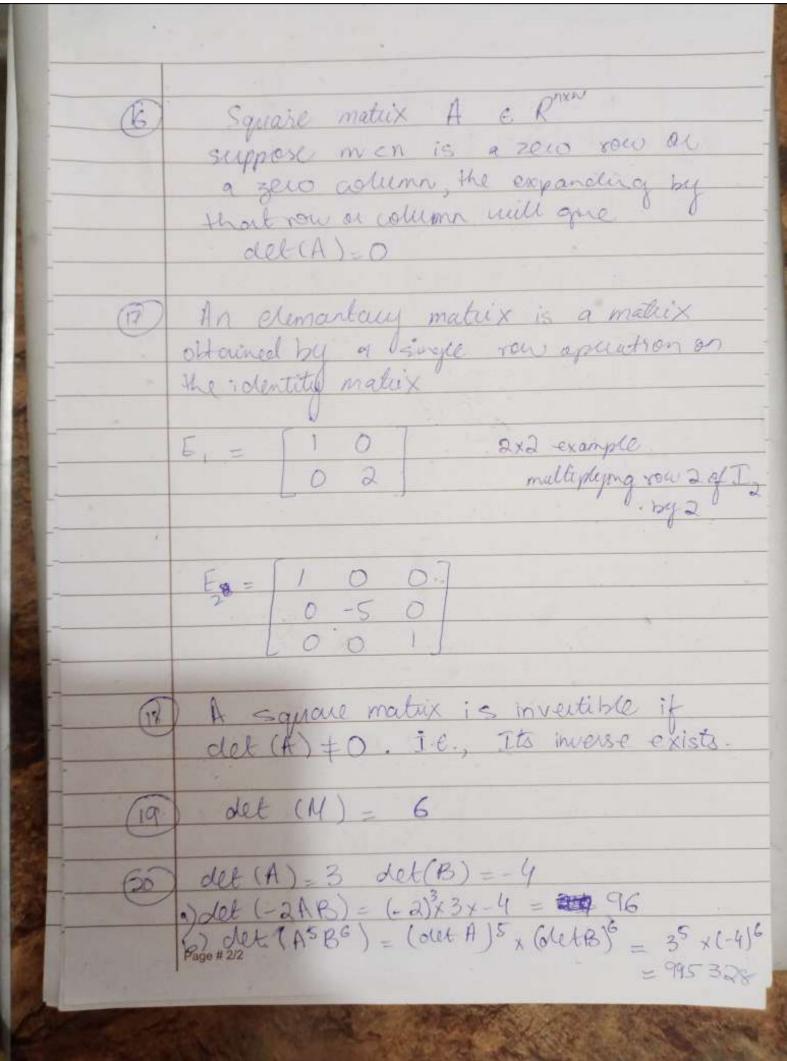
Not closed under & scale i multiplication let k = -1 k(x) = -1(x) - (-x)here -x \$0 so, not a vector space. $V_1 = t^2 - 1$ $V_2 = t^2 + 3t - 5$ $V_3 = t$ X = 7t2-15 X = C, V, + Ca Va + C3 V3 ? $\frac{C_{1}V_{1}+C_{2}V_{2}+C_{3}V_{3}=c_{1}(t^{2}-1)+c_{2}(t^{2}+3t-5)+c_{3}t}{=(c_{1}+c_{2})t^{2}+(3c_{2}+8c_{3})t+(-c_{1}-5c_{2})}$ $=7t^{2}-15$ equating coefficients $p(C_1+2=7) \Rightarrow [C_1=5]$ $C_1+C_2=7 \Rightarrow C_1=7-C$ $3(2)=-C_3$ $p(3C_2+C_3=0)$ $[C_3=-6]$ $[-C_1-5C_2=-15]$ or [-15]7-0,+50,=15 $X = 5V_1 + 2V_2 - 6V_3$ $YC_2 = 8$ $YC_2 = 8$ (c) M2x2 require 4 linearly independent matrices to span M2x2.

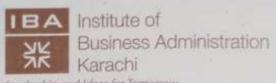
Page # 2/2

Personal Property lies		Full Name:		
IBA	Institute of			
VV	Business Administration	Student ERP I/D No:_		_
える	Karachi	Subject:		
	I Ideas for Tomorrow	Quiz #:	Date :	_
ceaucising and	rices rar ramanaw	Class/Section:		
	8	Teacher's Name:		
A	In lind of D	1 1 1 0 1	1 -	
	To find if D=1	SIH+K2151	Ka 島し	
	V			
	. / .	1	1	
	$=k_1\begin{pmatrix} 1 & -1 \\ 1 & 2 \end{pmatrix}$	1 + k2/0	2 1+k./0	11
	112		3/5/5	
	1 9		-11/5	2/
				- 1
	(1 2) = k - k	1 + 1 0	24 \ 10	H
	9 2		7/2 /7	- "3
9	(- 2) (k, 2	() + (D	-K2 / 15k	21
			The state of the s	5 5
	1.			
	1 1 2 \ (16	- k, + 2k2+ 2k, - k2+	V \	
	1 2 2 1	"IT KK21	13	
	1-4 -2/ Ki+5k2	2K,-K+	ak.	
		-	3/	
	T. \			
	K1=1 K1+5K3 =	-4	2K, -K2+2K3 =	-)
		1		
	K3 =	-4-1	2(1)-K-2=	-2
	$\int k_3 = -1$	5	2-212 b	
	1 3		2-2+2=k2	
The second second			[k2 = 2]	
	12 0.00 0			
The other	D = A + 2B - C			
51755				
	/11 11 /21	1 12		-
(8)	V= () V2 = (x)	V2 = /		8
	$V_1 = \begin{pmatrix} 1 \\ 2 \\ 4 \end{pmatrix}$ $V_2 = \begin{pmatrix} 2 \\ 4 \\ 8 \end{pmatrix}$	(4	1	
The said of the said	(4) (8)		2/	
2000	2V, = V2 scaler	multiplex		
No. of Concession, Name of Street, or other party of the last of t			-	
Marine Street	so one linearly o	rependent		
1	1/- 3 V . V . W & is 1/2	really de	em clent sol	
	V= {V,, V2, 1 V3 } is lo	0		
SALES AND				
	> V1, V2, V3 au 1	-I in K	if atleast	
		111-010		
	2 vectors are acate	muchines	or any vect	9(
in	31,312, 134 are lineally	communition of	totall D.	
17.00	Page # 1/2	Marks Signature	or instructor	

(9) For 'n' vectors Vis-Vn in vector space V to be basis,
to be basis.
i) V. V. should span V
i) V, V should span V ii) V, Vn should be linearly independent.
10 zero vector is linearly dependent
30 = 0 Non-zero solution exist Non-tivial solution exist
zero sector o is linearly dependent
TO A num matrix
AX=b bCR exactly one solution
Facts about A
Columns of A are linearly independent. (a) A is invertible del A + 0 and
(5) A is invertible del H + 0 and
the space of prints
3 Only trivial solution exist to AX=0.
Page # 2/2

	※ K	stitute of usiness Administration arachi leas for Tomorrow	Student ERP I/D No: Subject: Quiz #: Class/Section: Teacher's Name:
		Tchapter: De	terminants
H	60	Det (D) = 8	
	0		
	(B)	Det (A) = -2	4
-	A	1 0 -11011 10 -10	trix A C R is called
	(14)	unner brianosula	r if Olk = 0 whenever jx.
		It is called	tomer triangular if 9 jk=0
H		wherever j < K	
H		e .g	
	upper	= 0 = 1 1	0]
1	therefore	0 5 -	-2
			3
1	bull	polar = L = [1 0 = 2	07
	tions	Maria 5 -2	9
		L0 C	
3	(FS)	det A=3	det B=0 det C=7
	: 00	ativile (AC)	110 110 22 22
	des.	(1) clet (AC)	= det A x det C = 3x7 = 21
		Lick fisher	= det A × det B = 3×0=0
		Mac	
		Page # 1/2	Marks Signature of instructor





Leadership and Ideas for Tomorrow

Full Name: Student ERP I/D No: Subject: Quiz #: ____ __ Date :_

Class/Section:_ Teacher's Name:_

60	nP-	/1	2	3	4
(41)	17 0	1	3	5	6
1	RS-RI	1	6	Ĭ	9/

Chapter: linear transformation

(22)
$$T(x) = (x-y)$$
 $(x-z)$
 $(x$

Business Administration Karachi p and Ideas for Tomorrow	Student ERP I/D No: Subject: Quiz #: Class/Section: Teacher's Name:	te :
b) T(KU) = KT(U)	?	4= 57
T(K4) = T[kx] - [ky]		0
= [1 0]	$\begin{bmatrix} kx \\ ky \end{bmatrix} = \begin{bmatrix} kx \\ -kx \end{bmatrix}$	y
RHS = KT[x]		U
	- [KY] = 1 ation is linea	
Given transform	accor is to the	

Karachi Date :_ dership and Ideas for Tomorrow Class/Section:_ Teacher's Name:_ T: V -> W linear transformation

{V, -- V, } bases for V n-dies

prove ; U EV; then we can write.

T(U) as linear combination of ? T(V,) - T(V, applying transformation both sides T(U) = T (C, V, +-- CnVn)

conce T es linear $T(U) = T(C,V_1) + T(C_2V_2) + ... T(C_nV_n)$ since T is lower T(4) = C, T(V,)+ C2T(V2)+-- C, T(Vn) T(U) is lineau combonation of {T(V,) 5-- T(Vn)}

(25)	T(x) = (x+y)
	T(x) = (x+y) $x-y$
	$U = \begin{bmatrix} u_1 \\ u_2 \end{bmatrix} V = \begin{bmatrix} v_2 \\ v_2 \end{bmatrix}$
	i) T(U+V) = T(U) + T(V)
	LUS $T(U+V) = T(\begin{bmatrix} u_1 \\ u_2 \end{bmatrix} + \begin{bmatrix} v_1 \\ v_2 \end{bmatrix} = T(\begin{bmatrix} u_1+v_1 \\ u_2+v_2 \end{bmatrix})$
	(U_2) (V_2) (U_2+V_2)
	=
	4,+4,-42-12
	L 42+V2 J
	RUS $T(U)+T(V)=T(\begin{bmatrix} u_1\\ u_2 \end{pmatrix}+T(\begin{bmatrix} v_1\\ v_2 \end{bmatrix})$
	(L42) (LV2)
	$= \left[U_1 + U_2 \right] + \left[V_1 + V_2 \right]$
	$= \frac{U_1 + U_2}{U_1 - U_2} + \frac{V_1 + V_2}{V_1 - V_2}$ $= \frac{U_1 + U_2}{U_2} + \frac{V_1 + V_2}{V_1 - V_2}$
	= [U, + Y2+V, + V2] LHS
1000 000	4, +4, -42-12
	L. UztVz J
	Page # 2/2

これで 一 ことのの

 $T(CU) = T\left(\begin{bmatrix}CU_1\\CU_2\end{bmatrix}\right) = \begin{bmatrix}CU_1 + CU_2\\CU_1 - CU_2\end{bmatrix}$ $CT(4) = CT \left[\frac{4}{2} \right]$ $= C \left[\begin{array}{c} U_1 + U_2 \\ U_1 - U_2 \end{array} \right] = \left[\begin{array}{c} CU_1 + CU_2 \\ CU_1 - CU_2 \end{array} \right] = LHS$ given T is linear transformation.

(26) T(4+V) = ± VU+V ± ± JU ± JV fee U=3 P, vector space of degree 2 or less a) \$ T: P > P T (C2X2+C1X+C0) = C0X2+C1X+C Pa = C2 x2+C1X+Co, Pb = 92x2+91X+90 i) T(Pa+Pb) =T(Pa) + T(Pb) LHS $T(P_q + P_b) = T((C_2 + a_2)x^2 + (C_1 + a_1)x + (a_0 + c_0))$ = (90+Co) x2 + (C1+91) x + (C2+92) RHS T(Pg)+T(Pb)= T(C2X2+C, X+C0)+T(Q2X2+Q,X+Q0) = Catcix + C, + 9, x2+9, x+9, = (Co+90)2+ (C,+9,)x+ (q+6)=

x = d2x2+d,x+d0

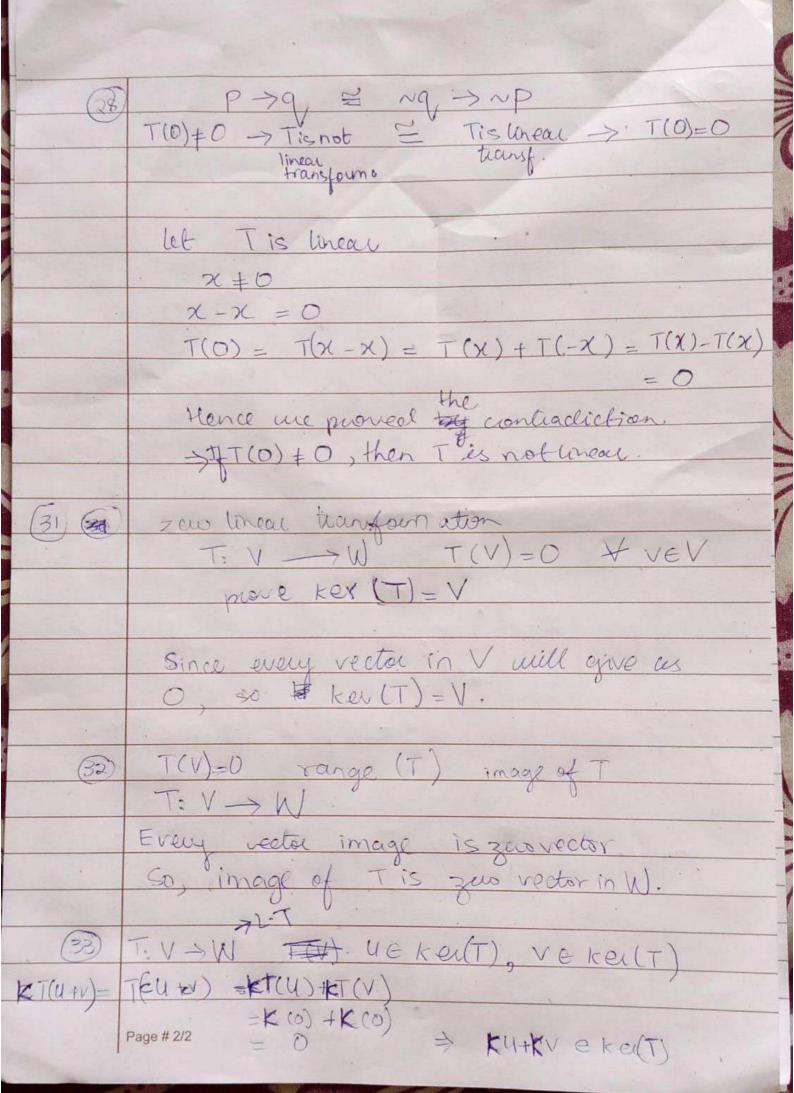
ii) T(CX) = CT(X)LHS $T(CX) = T(Cd_2x^2 + cd_2x + dc_0) = Cd_0x^2 + cd_2x + cd_2x$ RHS $CT(X) = CT(d_2x^2 + dx + d_0)$ $= C(d_0x^2 + d_1x + d_2x)$ $= Cd_0x^2 + cd_1x + cd_2x^2 = LHS$ Hence T is linear.

 $\begin{array}{lll}
\hline{D} T: P_2 \longrightarrow P_2 & T(C_2\chi^2 + C_1\chi + C_0) = C_0^2 \chi^2 + C_1^2\chi + C_2^2\chi +$

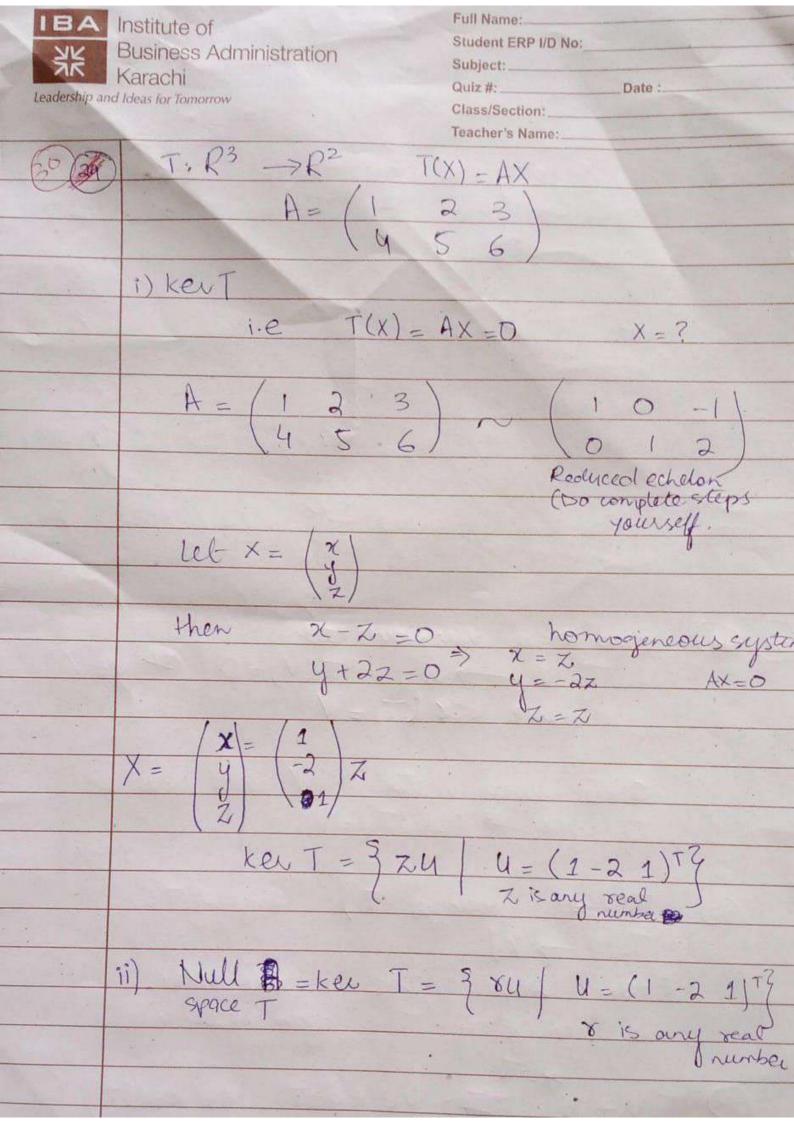
 $T(P_0) + T(P_0) = T(C_2 x^2 + C_1 x + C_0) + T(d_2 x^2 + d_1 x + d_0)$ $= C_0^2 x^2 + C_1^2 x + C_2^2 + d_0^2 x^2 + d_1^2 x + d_1^2$ $= (C_0^2 + d_0^2) x^2 + (C_1^2 + d_1^2) x + (C_2^2 + d_2^2) x + d_1^2 x + d_1^2$

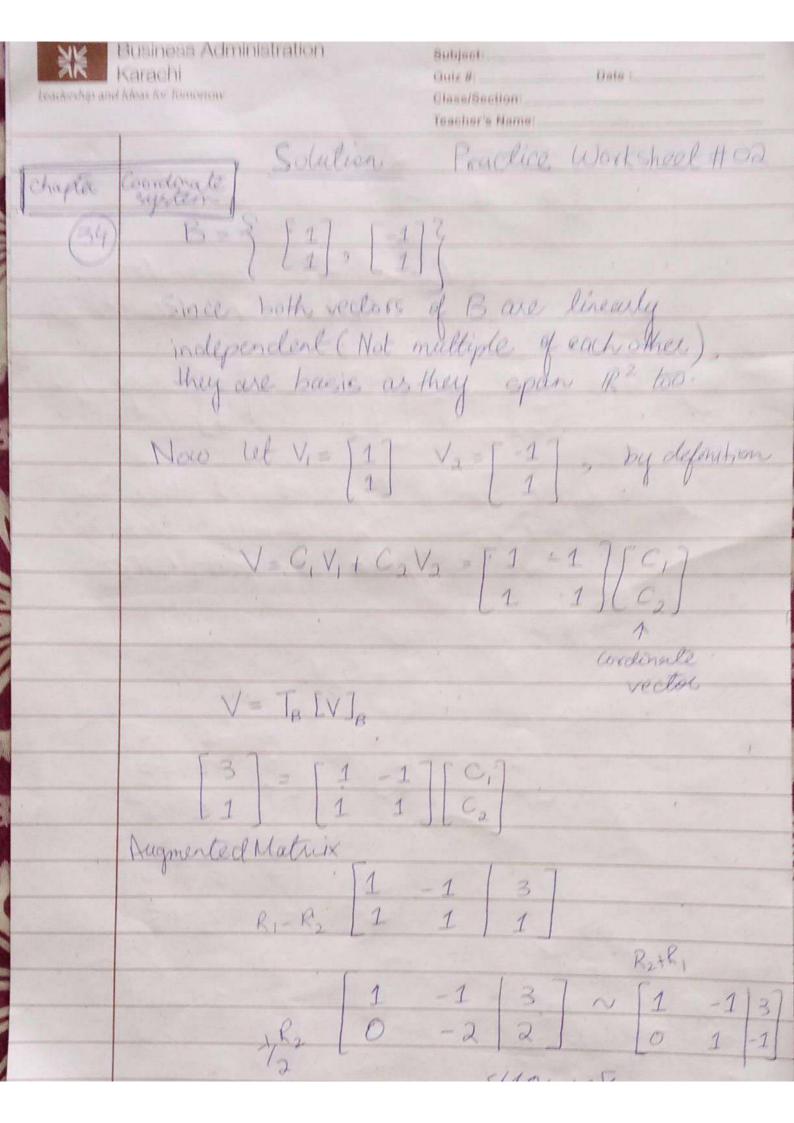
 $(C_0 + cd_0)^2$

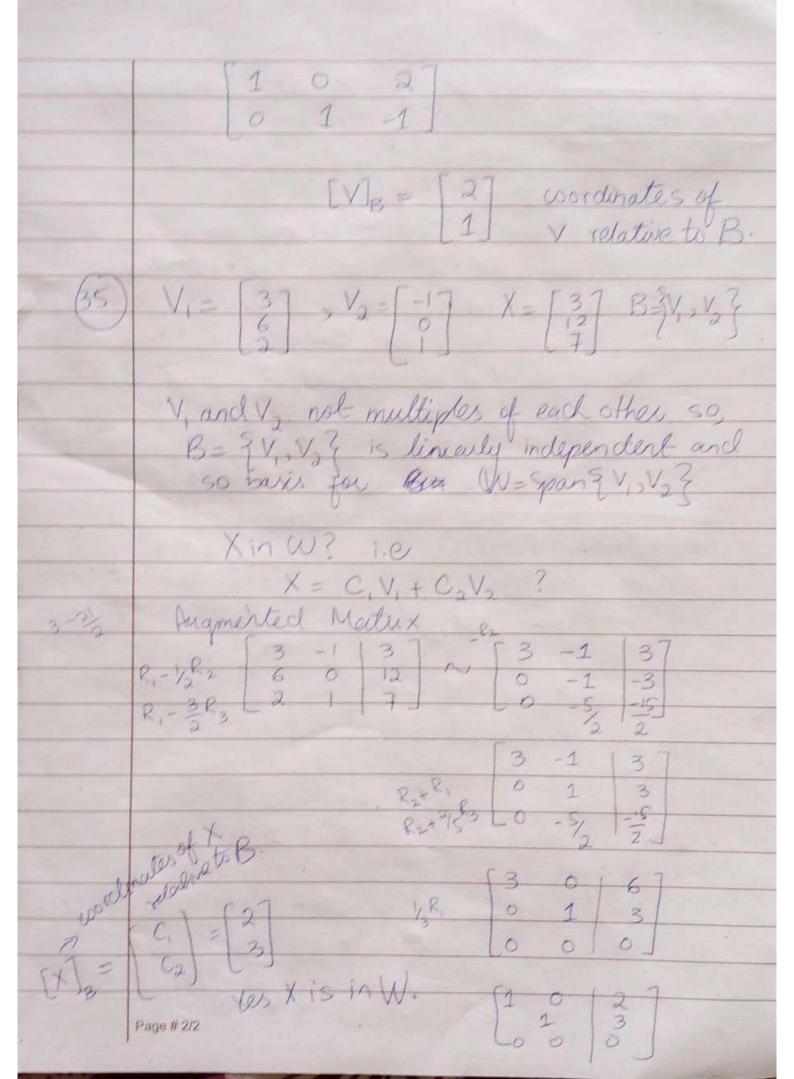
Hence T is not linear.



readership an	Class/Section:
	Teacher's Name:
(29)	
100	Transpose of any square matrix
1	is linear transformation
1-1-3-1-1 100-1-11	
	$T_{\circ} \lor \longrightarrow \lor$
	T(A) -> AT claim T is linaue
The same	where A is square matrix.
	1) T(A+B) = T(A) + T(B)
TON BUT	
	T(A+B) = (A+B)T
	= AT+ BT
Star	T(A+B) = (A+B)T $= AT + BT$ $T(A+B) = T(A) + T(B)$
	ii) T(CA) = CT(A)
	$T(CA) = (CA)^T$
	= CAT
	T(CA) = CAT $T(CA) = CTCA$
	3 T is linear transformation
	> T is linear transformation







NK	Karachi Ideas for Tomorrow Class/Section: Teacher's Name:
3	$V = \begin{bmatrix} 3 \\ 11 \end{bmatrix}$ coordinates of V in $E = \begin{cases} e_1, e_2, e_3 \end{cases}$
	V=3[6]+11[0]-7[0]
	$[V]_{E} = \begin{bmatrix} 3 \\ 11 \\ -7 \end{bmatrix}$
37)	coordinates of $V(t) = 3 - t^2 - 7t^3$ relative to $B = \{1, t^2, t^3\}$
	$V(t) = C_0 + C_1 t + C_2 t^2 + C_3 t^3 = 3 - t^2 - 7t^3$
	$\begin{bmatrix} V(t) \end{bmatrix}_{B} = \begin{bmatrix} 3 \\ -\frac{1}{4} \end{bmatrix}$
(8)	let B= 2 V1, , Vn 3 be a basis for Vandlet X & V. The coordinates of X relative to the basis B are the unique scalers C, C, Cn such that
	X = C1V1 + C2V2+ CnVn
	In vector notation, the B-coordinates of X will be denoted by [X] = [2] and we
,	ruill call [X] the coordinate vector [in] Page # 1/2 Page # 1/2 Signature of Instructor
	Page # 1/2

