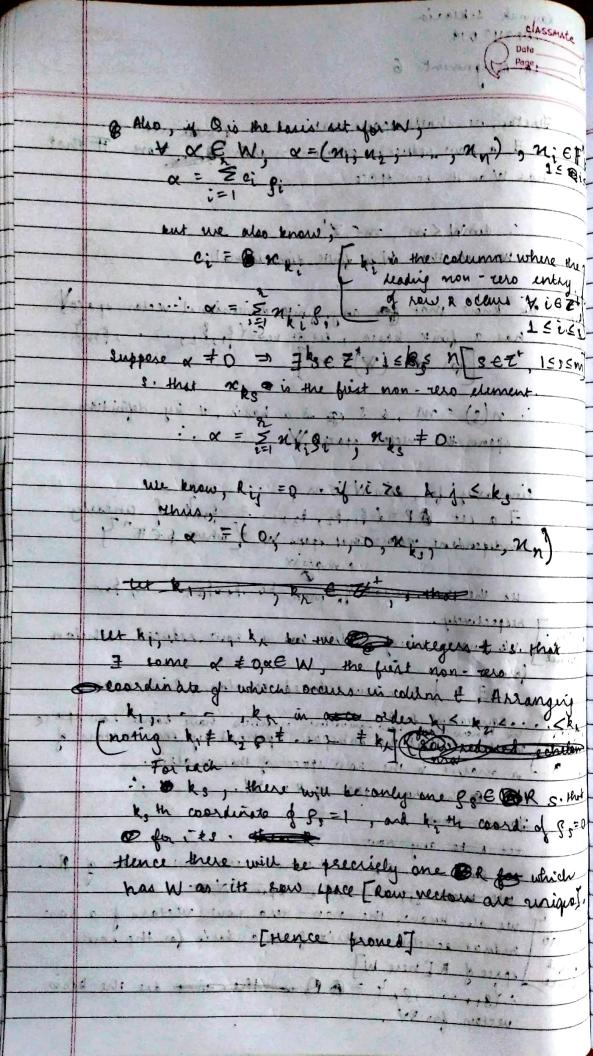
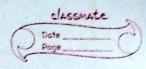
Rannah Sekearia 2023113019 LA Assignment - 6 1. Furthy we shall prove that what order men over IF that nas Was its now 4 acc. : dunwsm, mezt we note that wis finite dimensional. ares warm sinteel we know that any finite dimensional vector space) ion tout with a so and it : n(s) = m, & S & is a basis, it by definition spans the vector space. linsitarly for, dim W & m,

Fmy of unearly

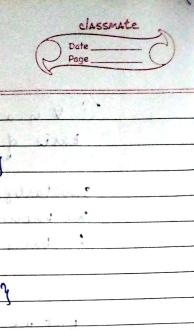
independent vectors that spans W & where & E # 7 a matrix let the sais vectors of Aman be \$1 , \$2; , for respectively. We throw, every matrix has a sow reduced echelon ref: Hot & Kunz forms . I see sit was to see ! i I R is now reduced exhelon, R is now we have that the subspace spanned by sow vectors of a making is the sow space of that mateix. the now space of Rio W. - 2 des proprie 1 . 1 - 12 de selección de si tel R be any now when the same of the set 31, Francis & be the non-zero new wectors of R we know, gir it, sa again was Charled reduced echelon mostrix form a basis for the new I space of R Enere W] : 18, ... 18 1 = B B is the Dasio vectors for W.



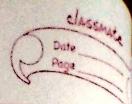


2. po(n) = aon. ta,n' + a2n2 + a3n3 + a0n7 p(n) = (a0, a1, a2, a3, a4) [Representing it as F5 tample] P(1) + P(-1) = 0 0 10 14 17 = (an + a1 + a2 + a3 + ay) + (a o a1 + a2 - a3 + a4) = 0 (1,0,-5,0,1), (0,0,0,0)  $= 2(a_0 + a_2 + a_4) = 0$   $= a_0 + a_2 + a_4 = 0$  = (2)P(2) + P(-2)=0 7 (a0+2a1+4a2 +8a3+16a4)+ (a0-2a1+4a2-8a3 +16a4)-20 7 001 102 + 16 0 = 01 1 v & V , v = c, v, + co de + Cg V ( [c., Ce, Cg + V 1 - D. i tox a jo ways is walled to = 3ax + 15ax = 0 = ax = - 5ay - 8 Using 3 mi O ) may quintely mais ao - 4 a y 20 17 juli ((, + c, 0, ) + , (, 0, 0 + , 0) = V :. p(n) = (a0, a1; ac; a3, a4) (9) = ( (ay, apa-5ay, az 1 ay) w. (. o. ) property and the section of Amunig 3 rectors; (4,0; -5,0,1) == 0 β=(0,1,0,0,0) & (0,0,0,1,0)=, we can W. bus car + c2 p + c3 V =0 , c1, c2, c3 € FF only if a =0, c2=0, c3=0 : . 9+ is liearly independent. : p(x) = c1 x + c2 p + c3 v [: c1, c2, c3 EF 4 as as a and are arbitrary

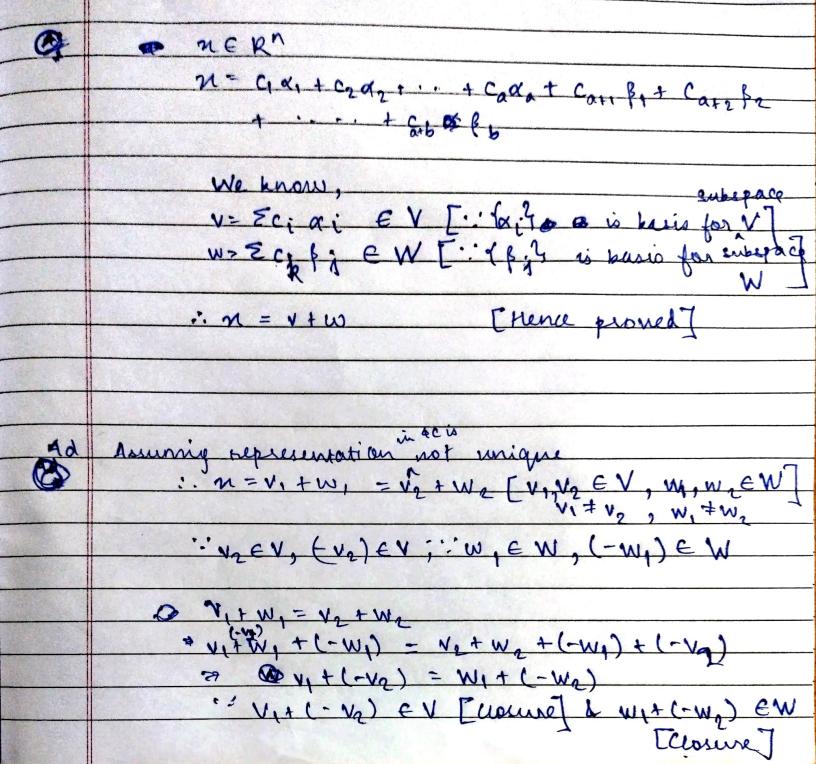
	: vowew or vone F / 1 (m) is defined,
	$n(m) = c \cdot m + c \cdot c$
	: The vector of for span the vector upace
1.	
	enderender interest in and and interest independent
4 3 1	the ut.
	S = { (4,0,-5,0,1), (0,1,0,0,0), (0,0,0,1,0)}
	so the have to M
	A CONTRACTOR OF THE PARTY OF TH
4	dim(W) = n(s) =  s  = 3
84.	- (4, 2 24, 1 24, 1 160 × 1 ( 2, 21, 2 60,
3	
	+ ve v, v= c, v, + c, v, + c, v, Fc, c, e, EF
	by definition of upon of a set of western.
	to specific
	v = ci v, + c2 v2 + c3 v3 [ci, c2, c3 eff]
	Now, defining epon of 5'
	C, V++ C2 V2+ C3 V3 + C, V4 = V [V' & V some yester 44 a
	is a supplied to the supplied
	1 = (c + 0 1 0 1 + (2 × 2 + C3 × 3 + C4 C1 × 1 + C2 × 2 + C3 × 9)
	+ (c, +c, c4) ex, + (c2+c2 c4) v2
	(4) 13
	" c. 21. C. Ore both collises of
	ert c'ent = co den album
	S. mo and any
	: v'=cev+cev+cave Tener co lest
	to tem forbitum
1	" v' denotes the same soon v
	y = V's magelini place of the
1,0	10 18 0 1 V=V V 10 10 10 10 10 10 10 10 10 10 10 10 10
	Sepano V Chroned?
14	NA A SIGNA



Do V, W mbigaar, 800 EV, W @ D Accuming + + 0 & O EV [v conspace] · VEV - V EV [ additive innerse: ] 1 - V + (-V) = 0 0 = 34 10 ... Acc. to question, v.t. w =0 True only when when we'v kur we know VNW = 403 21 - V EV L (-- V) = W & W, then (-v) e VOW (A) = 0 (A) = (A) \* \* V=0 : [contindictio our assumption einitarly, assume w +0, w+(-w)=0 [-wEW] Also w1. V =0 , 0 = 19 ) was True only of OVE VEW, V= - WEW = (w) = 0 [. VAW = (04 + w= 0 Contradicting our assumption ] WAN VOV (WAY - 10 97) Hence v=0 & w=0 tproved] Mind ap bing as for the 6) 81 = (d1, x2), x2 = 3 dim (V) = a B2 = 4 = (1, 82), x2 = 4 dim (W) = b = aim(V) + dim (W) = 7.  $\Rightarrow$  at b=n5 - my y the , MA & suggested see my et pasis of 2 he 1817, 82 - 2 27 din (r)=n=a+b



basis of R? basis of : V are subsett of the subset of th Similarly pasis of Win basis of R? since triain we know B, RB2 = of [ a; \$0, B; \$0. videpending we know B, RB2 = of [ a; \$0, B; \$1 \ 2; 2; 2. ... \} By soli, suz , smig for A WIN money our file But we know; at b'=m) WOVERD din (R1) = n = 2 Rni & Rn 01 18n = n The manus platinis : Basis of R? = day , of 2 ... day 1') \$2, ... \$6 - By 1 B2 - + VI [Hence proved] 501 = WAY . 7 0 = (W) F RTP n=V+W, VEV WEW ling Ob, B, UB, 6=6 [ Basio vectoris span the entire ypace R?]



Page

VIII (-VI) SWIT (-WI) EVIEW

BUT NUM = 404

BUT NUM = 404

BUT NUM = 404

4++ (-4) = 0 = W++ (-W+)

tence by controllictions (Epronel)