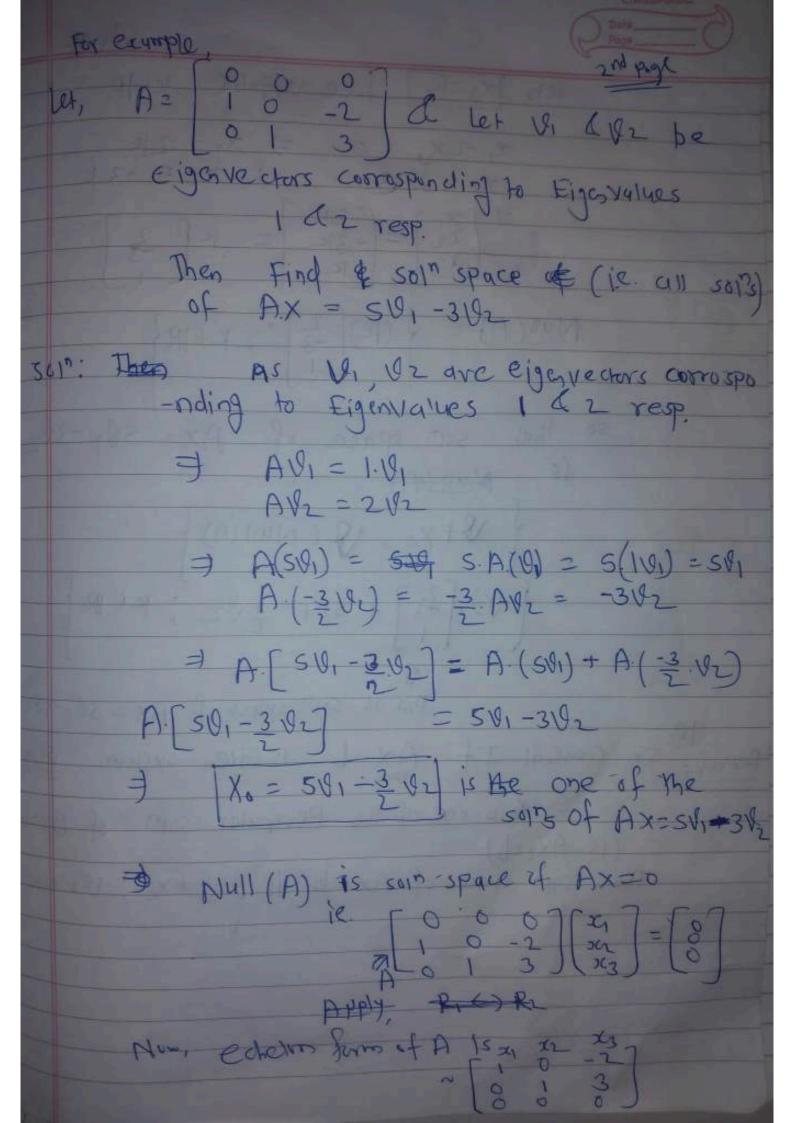
Remark: In General If AX=b is Given system. Istrare

Xo is one of the Perticular soin of AX=b

(ie. AX=b)

Then soin space of AX=b is I V+Xo; VE Num(A)



rapage let, [x3=K] free Vorjable. KGR x, -2x(3 = 0 =) x(= 2K x2 +33(3=0 =) 3(2=-3.K Nu1(A) = (K) [2]; KEIR? so that som space of AX= SU, -31/2 is Aun (A) 1 18+ Xx; 18 (NUII (A) } (19). 3 + 501 -3 12; KEIR This is som space of

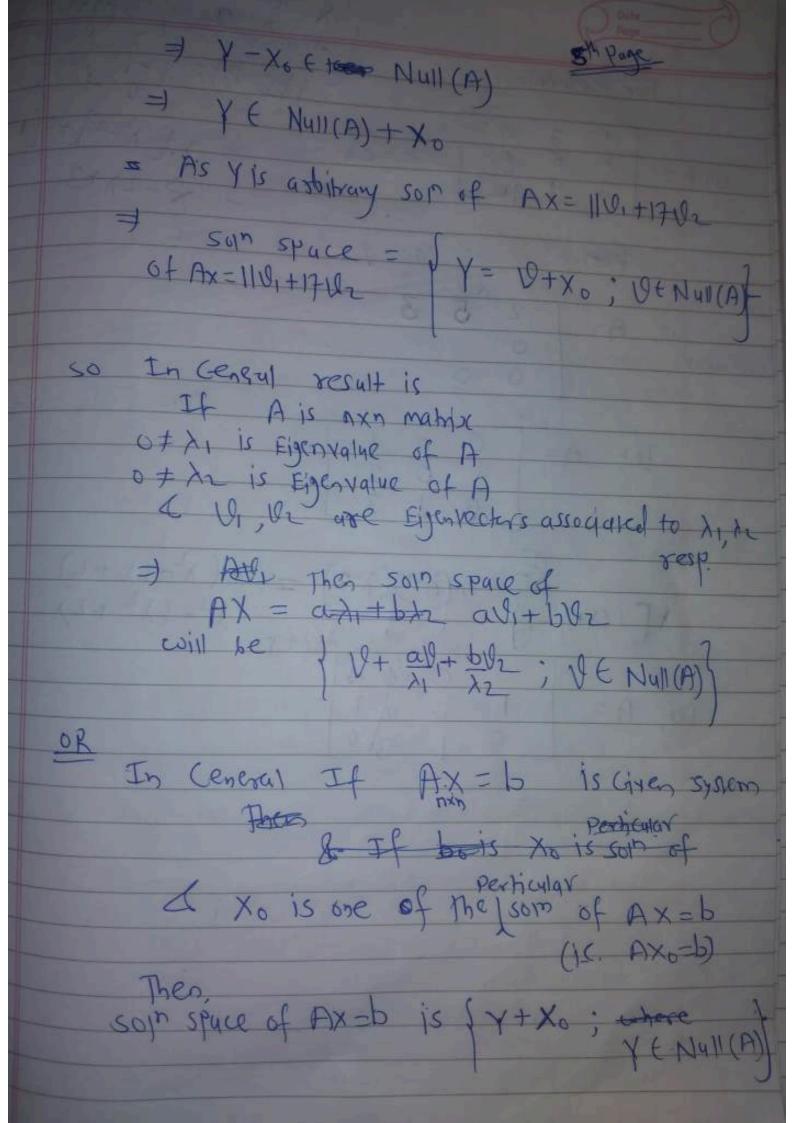
Q.) If A is some nxn matrix.

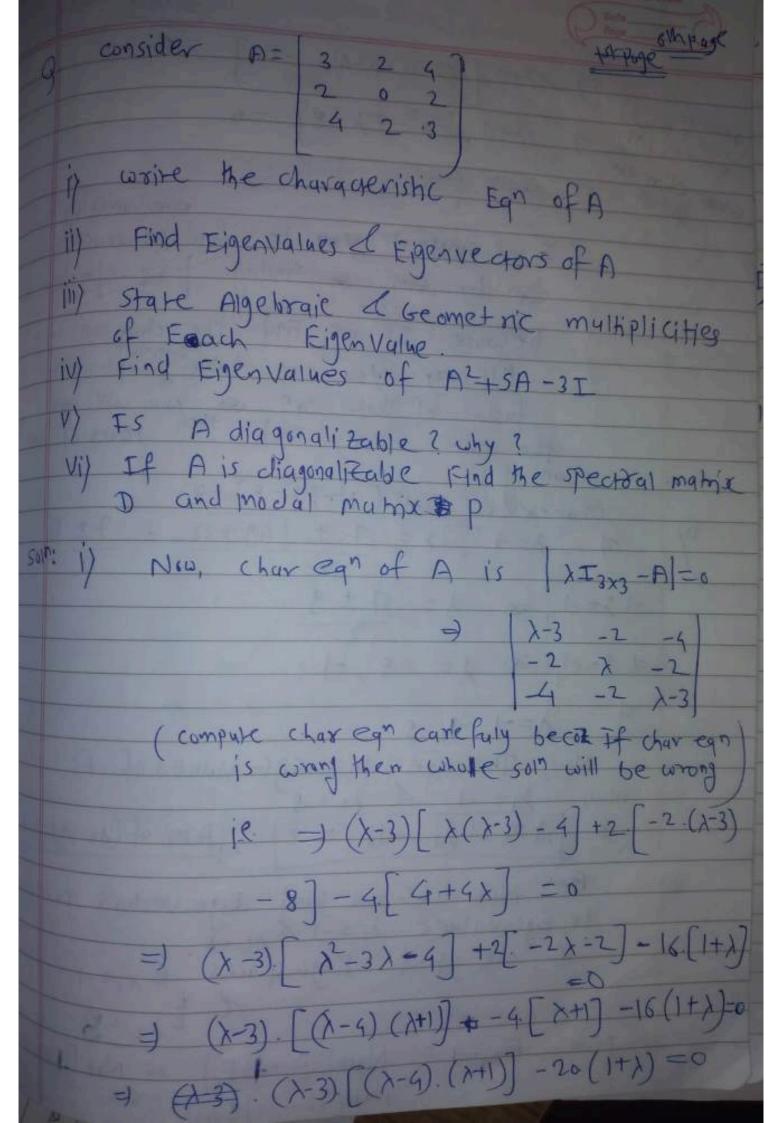
Q.) If Eigenvector Associated to Eigenvalue 1=2

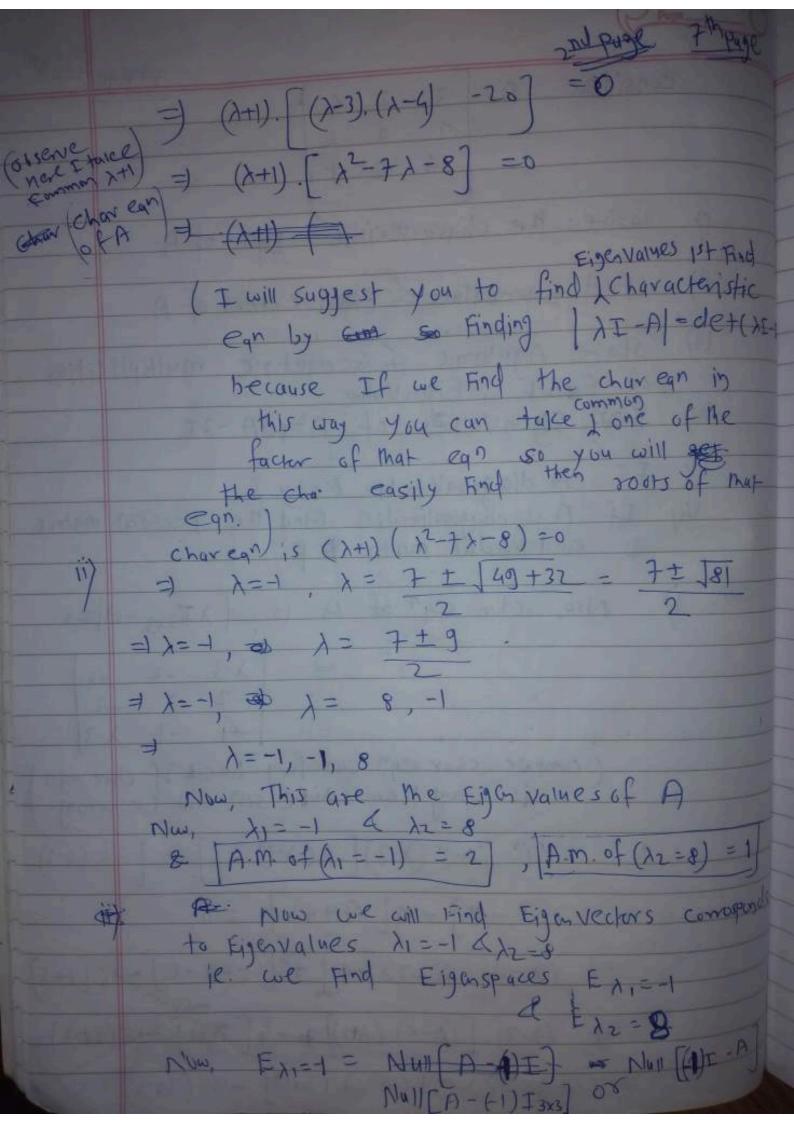
Pris Eigenvector Associated to Eigenvalue 2=2 Then Find som space of A.X = 11/2, +17/2 Now, 5017 space = { XEIR"; AX = 110, +17/2 Now, 1st we will Find some perfular to this som space =

AS AU1 = 2U1

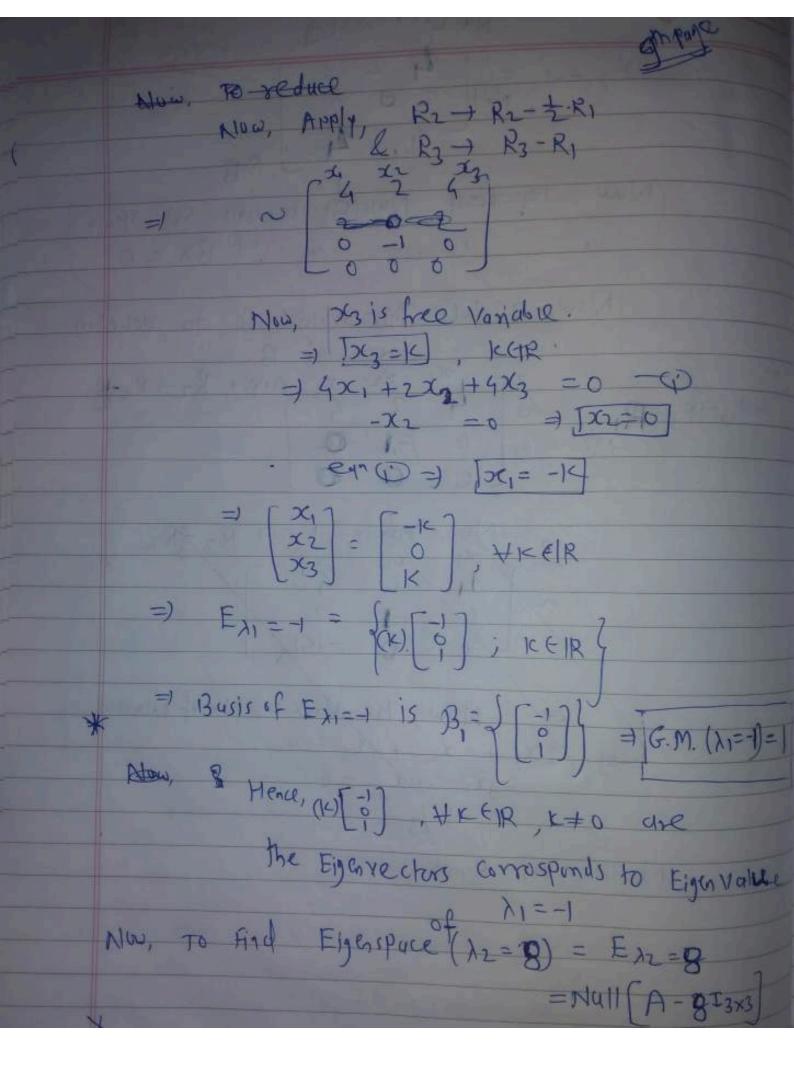
AU2 = SU2 one som =) $A(\frac{2}{1}v_1) = \frac{1}{2}(2v_1) = 11v_1$ A (17 02) = 17 (502) = 17 V2 = A. (11 V1 + 17 V2) = A. (11 V1) + A. (13 V2) $= A \cdot \left(\frac{11}{2} \cdot 1_1 + \frac{17}{5} \cdot 1_2\right) = 11 \cdot 1_1 + 17 \cdot 1_2$ => X0 = 11 V1 + 17 V2 15 Soin of AX= 11 V1+174 Now, let X be any soin of AX=11/21+17/2 =) A X - X0) = AX - AX0 = 114+1762- (114+1762 = A(Y-X0)= 0







meuns som space of BX = 0 Now, reduce This manisc B to echelm form of B



18th Base Ex== = Null -5 2 4 9 2 -5 JAB Now Apply, RI - RI+R3 , ~ [-1 4 -1 -5 -5 $APP^{1}y$, $R_{2} \rightarrow R_{2} + 2R_{1}$, $R_{3} \rightarrow R_{3} + 4R_{3}$ $APP^{1}y$, $R_{2} \rightarrow R_{2} + 2R_{1}$, $R_{3} \rightarrow R_{3} + 4R_{3}$ APPly, R3 +> R2 THE X3 TO 18 -9 Now, pc3 = K | K being Purameter GR -x1+4x2-x2=0 Ci) 18 x2 - 9x3=0 = x2 = 1.K eq! @ = x1=2K-K = | X1=K =) (x1) = [K], YKC-PR so Elgentectus Corresponds to Eigentalue 1228 are (K). 1/21, YOXK EIR * Exz=s= of (14). [1/2]; ICEIR is EigenBrace of

Basis of Ex2=8 15 B2= { [1/2] P - 11th page # 40) [G.M. of (12=8) = dim(Exz=8) =1 You can talso Find G.M. 18 G.M. dim As. G.M of Xi = dim [Null[A - Xi. I]] = Namity [A-AII] = No of columns - Rank A-1.I So you have to Had only Rank A- XII] TO Find G.M. of hi (V) NOW, A.M. of (1=8-1) = 2 + 1 = G.M. of (1=+) => A is Not Diagonalizable (Because for Dagonalizable. i) charean of A does Not This is nesseessing Grafficht and than I have complex root for Djagonalizable. ii) FOR All Eightvalues A.M. = G.M. 50 You can not Find spectaral a model matrix or \$ spectral a modul matrix. IV) Now, N=-1 A NW, Let P(A) = A2+SA-3I =1 p(t) = t2+st-3 Then As Di is Eigenvalue of A + P(Ai) is Elicovalue of P(A) =) P(-1) & p(8) are Eigenvalues of

two of the p(A) = A2+5A-3I

two of the p(A) = A2+5A-3I