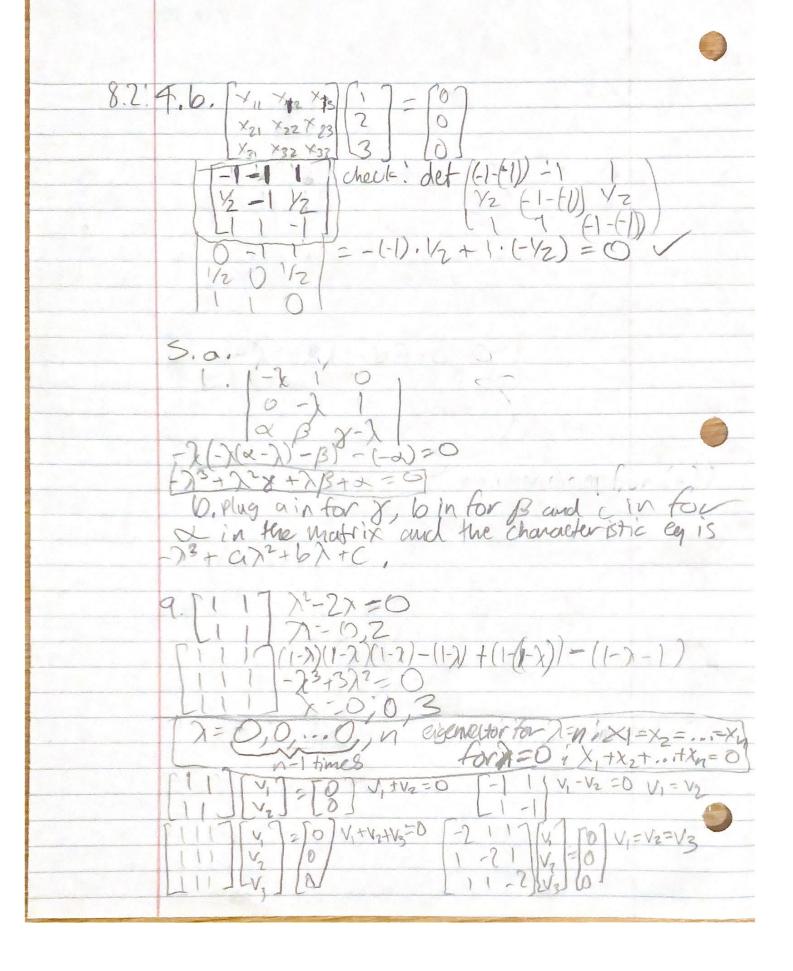
Alex Demann

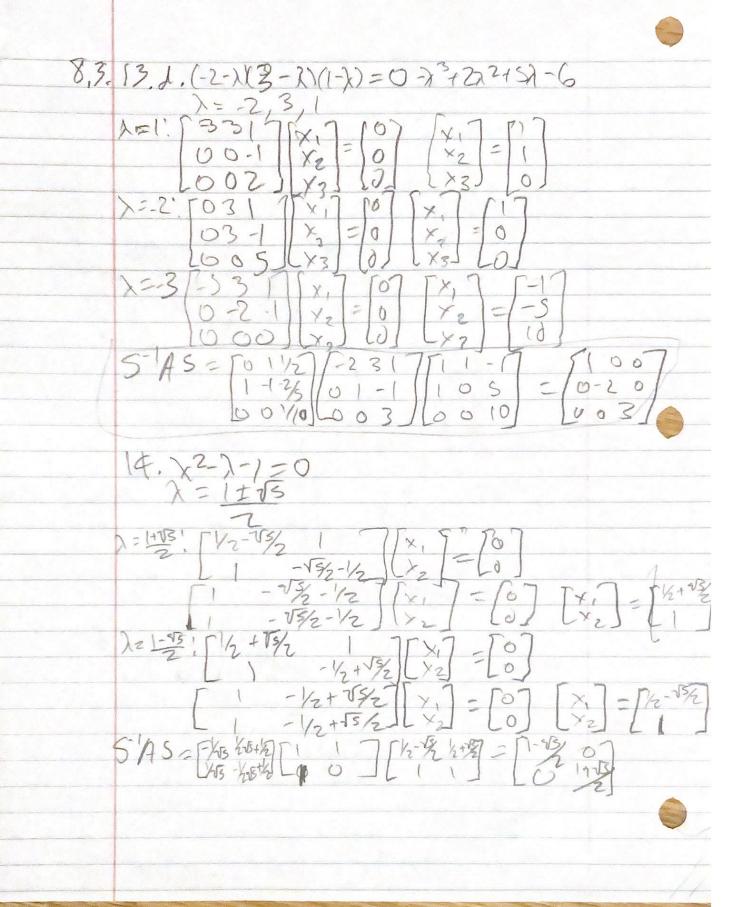
Homework 13 for 7= 1+12i, 1-12i



8.7: [3.a. \$(V+W) = S(V) + S(W) S(V,+W,) V2+W2, ..., Vn+Wn) = (Ve, V3, ..., Vn, V,) + (W2, W3, ..., Wn, W,) = S(VT) + S(WT) S(QV) = (QV2, QV3, ..., QVn, QV,) = Q(V2, V3, ..., Vn, V,) = QS(VT) Sis linear x: 1010...00 001...00 000...01 100 ... 00 6 - for any 2 columns of is an orthogonal matrix 1. Let A be an nxn upper triangular matrix
A-71 must also be upper triangular because subtracting II only changes the entries on the diagonal (A,-X) A12 A13 ... A10 = (A11-2)(A22-2)... (Ann-X) (Az 2) Azz, n. Azn Thus, X=An, Azz, in, An AT 1/100 (Ann-2) (Ann-2) 7= AWAZzicAm A pi Ana Ans ... (Ann-3)

8.7. 21.a. False AV = 2 V BV = 2V (A+B) V = 22V b. True AV = 2, V BV = 22V (A+B) V = (2+22) V 30, a. True 5. Similar matrices have the same characterist polynomials as proven in(a) and the eigenvertures are the mots of this polynomial which are the same 8.3:1.b. x2-4>+4: (N=2)=0 7=2 [0][x1]=[0] of the dimension of the eigenspo ligenspace =

83.1.d. det(A-XI)=1.(1-(1-X))(2-2)(1-2)(1-2)(1-2))-1, =-23+522-52 $2^{2} - \lambda(3^{2} - 7\lambda + 5)$ $\lambda = 4 \pm \sqrt{10-20}, 0 = 2 \pm 1,0$ isn't an eigen volue (A-71)=(-6+2)(2-1/6-2)-8·(-4(2-2)) 23+122-122+362-624623+22=72+69-329 23+222+92-8=(-2+2)(22-4) 2=±2 X1+2X3=0 complete Cigenspace = G.a. True Same algebraic multiplicity as separatric multiplicity
b. false
A.M. angl G.M. are different DI GM:= 11-3



a,-1, ap a, 2 ... an 0 nullspace of this matrix And and for