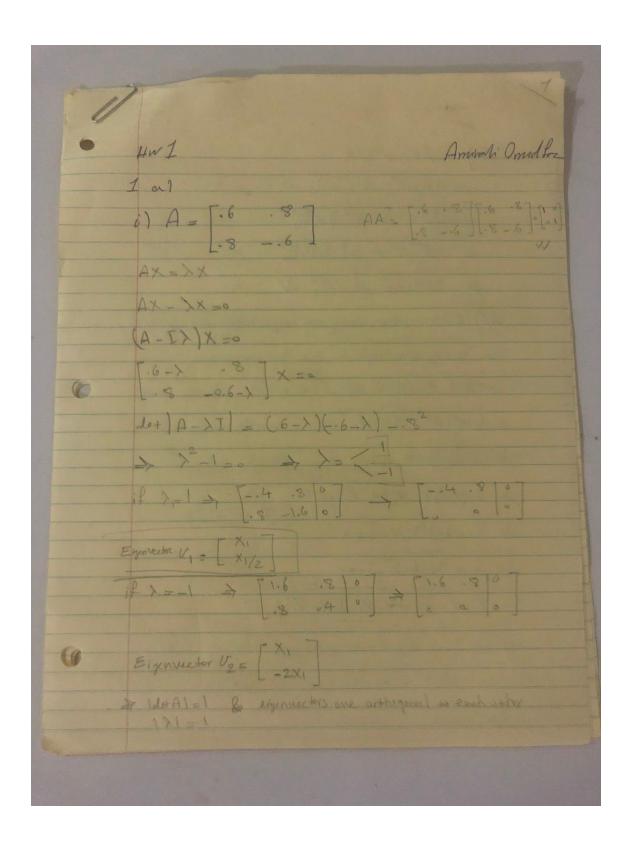
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ii) Avi = \ivi > 11 Avill2 = 112: vill2 > viATA vi = 212 | 1 vil2 > vitvi = 12 /1 /1 /12 > 11 Villa - 11 Villa W (iii) Given U, & Us beig the eigenvedors for 2, & > V, V2 - Ve V, => A(V1. Ve)=A(V2.V1) A (A V,). N2 = (AV2). V, → (2, v). v2 = Q2 v2). v, > 1, (V1.V2) - 22 (V2.V1)=0 → (1,-12) (Vi.V2)=0 since 21 # 22 > 21-22 #9 So V1. V2 =0 > V1 1 V2 // iv) Any x is subject to rotation or no flection under AX when Ide+Al-1 in this case its neflection as det A-The knyth is preserved.

IL A - UZVT AAT - UZVVZTUT - ATA - VETU AAT = UZSTUT ATA = According to Eigendecomposition of magning rectors of A one eigenvectors of AAT & ATA. Also is for ATAGAAT one 65 for A (singular unless) (4) A shown Atalone: AAT - U ZZTUT Zp 30 is be AAT & AAT me much why of A squared!

i) False Is I'm one only if digenteles one different then it down't holy ii) False V30 V1+ 1/2 27 A[V3] = AV1+AV2 = 2, V1+22 V2 + 2 V2+2 iii) True . If I is an eigenvalue for A > Ax - XX XAXEXXXX XXXX is along greater than here I have so the is one non regertive in False, according to the theorem: A & R n= RonkA+radingofA Fif v is in the multy of A > Av= so vis eigenvector for Oligentalue. Since there exists an elgenspace of degree at least one for each eigenvalue, the number of non-sero eigenvalus must be less than or equal to the vank VI True, Assume: ACIR & AV- 2V > 0=A(V+U') => C/1= = a/k (V + V'k) = Zaik V = = Eain V = SC=AV+AV' > NU+ NU- N(U+U) => A(V+U)= X(U+J)D

