Home (work 5 (1,2,3) 1) Calculate the determinant of each 12-3 -23.1. = 1xdet [31] - 2x[-21] + 3xdet [-23"] det = 1x(3-4) - 2(-2-0) + 3(-8-0) = -1+4-24=1-21 21 \$ 0 so it is invertible 3 0 = -2xde [30] - 0 [] + 1x det [34] = -7(6-0) - 0 + (41-9)-12-5= -17/ -17#0 so ue Say the matrix is invertible 3 = |xde |31 + dq+[21] + 2xdet [23] =(0-9)+(-1-6)+2(-3-0)-7270 So it is invertible = -9-7-6=1-22

	Homework 5 (1,2,3) 1 cont	
det		
	-2-0+2=10 0=0 so the ma lis not invertible	trix
	2) find eigenvolus and eigenvectors	
	123-7 11 1-23 -231 -23-11 = (1-2/3-1/4-)4)-2(-2-2y-0)+3(-	8)
	(1-2)(12-42+3)-4) +4+4/2-24	
	(12-4) -1-13+6(12-31) + 4/1-20	
	-13+522-11A-11+4/2-20	
	(0=-13+512-71-21	tas
	21= 2(2+52-7)-21 Imaginary Value	0

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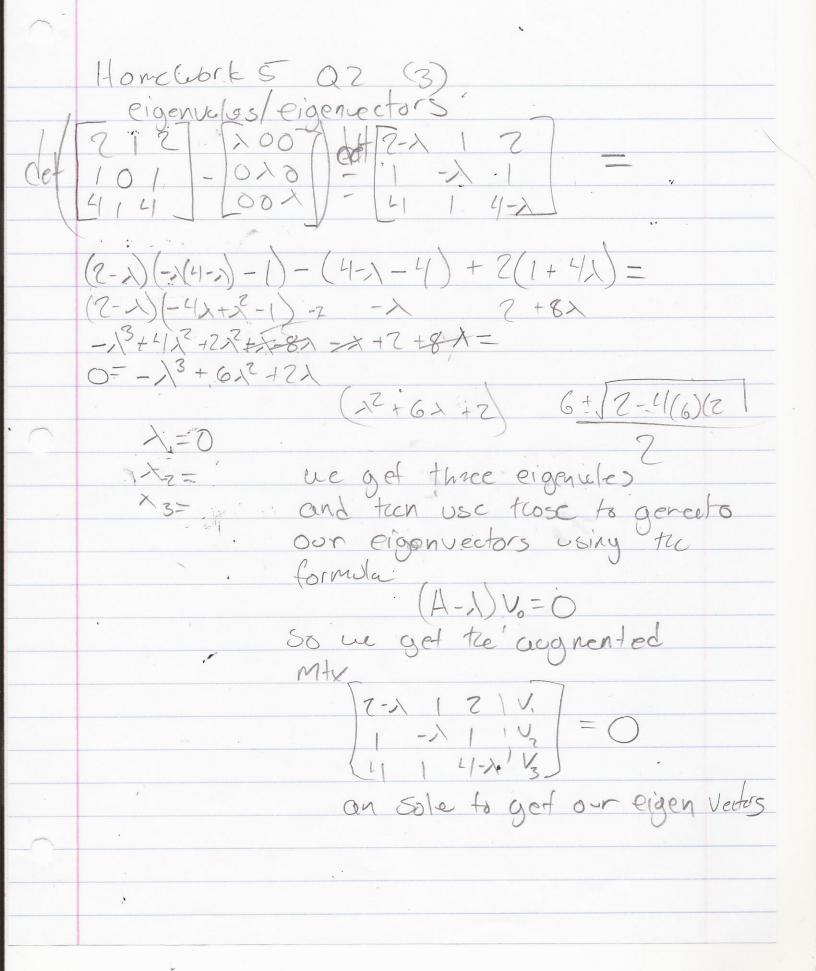
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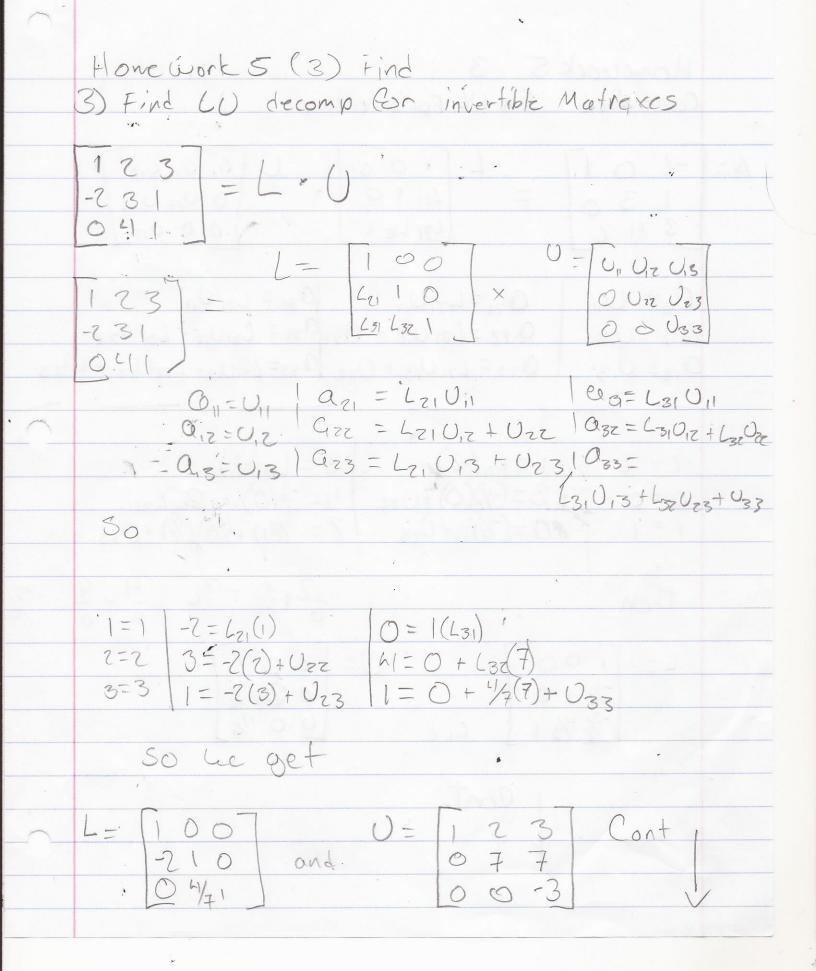
Homework 5 (2,3) -201 [000] [-2-10:1] 130] - [000] = 13-10 342.] -000] = 34(2-1) (-2-1)(3-1/2-2)-0)-0+41-19-31)=0 $(-2-1)(6-51+1^2)-5+31=0$ -17+10x-22 -67+52-23-5+3X=0 -13+3277人-17=0 1 = 3 volves tren uc do Al=YA So (A-X) V=0 then agi azz azz VII = 0. azz azz VII = 0. Mre f ue get our eigenverters

Hone Work 5 Q2, 3 172/200 -103/-C20 231/002 $(1-\lambda)(-\lambda)(-\lambda)-9)+(-1+\lambda-6)+2(-3+2\lambda)=$ 11-2/(-1+17-9)-13+51=-13+12+12-91-1-6+411= - x3+2/+31-22. Le get 32 volos then reinput them in the equation (A-X) No = 0 and get the arguented matrix:

1-1 -1 2111,] = 0 and Solve to get

2 3 113] our eigenvectors. Continued





Honework.5 3 Continued Fin UL Factorization A= -7 0 17 = 100 0 0 0,0120,3 130 = 0 Uzz Uzz 3.41.2 L37 L32 1 0 0 007 Coz = Lz, U, | a31 = L31 U,1 G11 = U11 Q22 = L21 U12 + U22 Q32 = L31 U12 + L32 U22 Q12 = U,2 Ce13: = U13 Q23 = L2, U13 + U23 Q33 = L3, U13 + L32 U23 + U33 $2(1 = L_{21}(-2))$ $3 = L_{31}(-2)$ -2-7-2 $0 = 0 \qquad 3 = (-1/2)(0) + 0 = 2 \qquad |2| = -\frac{3}{2}(0) + 3 \qquad |2| = 1$ $1 = 1 \qquad 0 = (-1/2)(0) + 0 = 3 \qquad |2| = -\frac{3}{2}(0) + (\frac{1}{3})(\frac{1}{2}) + (\frac{1}{3})(\frac{1}{$ 12+5/6=76 = -5/6 100 -201/ 03/2 -3/2 4/3 1 00176

Honework 5 03 Continued ... Find UC Decomposition of A 1) 10, UR U.3 1007 12110 1 O U22 U23 P31 P32 1 -0 0 033 a,=U11 | az1=lz1U11 | az1=lz1U11 an= U,2 | O22 = Pa, U12 + U22 (Q32 = P31 U12 + P32 V22 0,3=U13 | 023= Pri U13 + U23 | 035= P31 U13 + P32 U23 + U33 2= /31(1) - l= (21(1) -1=-1 0=(-1)+ Uzz 3=2(-1)+ loz(-1) 1 = 2(2) + (-5)(5) + 0332=2 3=(-1)(2)+023 So tren 0= 2-51 and Done