

By running these lines of code from the file LUprobHW3.m:

$$A=[1 \ 2 \ -1;1 \ 2 \ 3;2 \ -1 \ 4];$$
 $[L,U,P] = lu(A)$

The following was outputted:

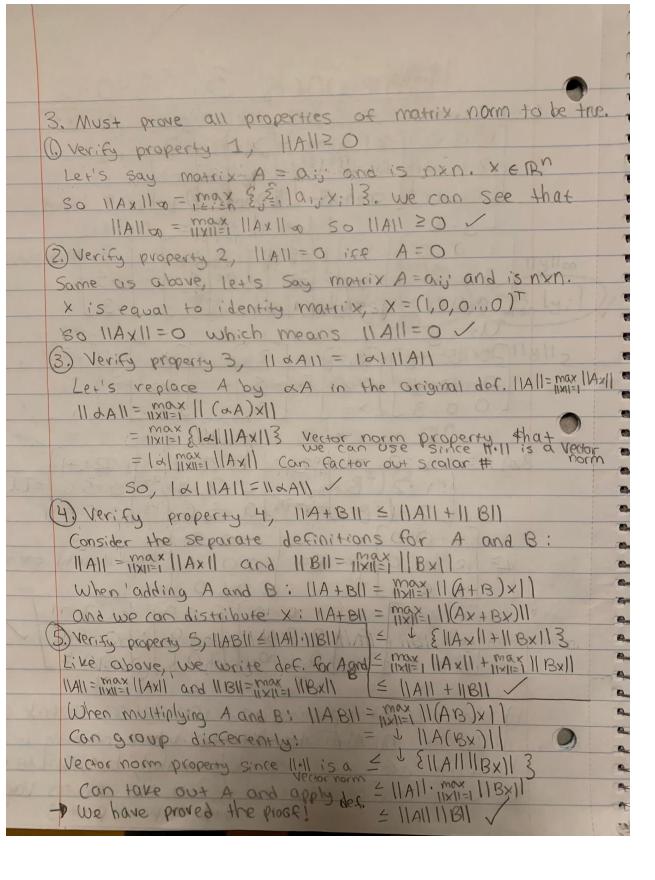
>> LUprobHW3

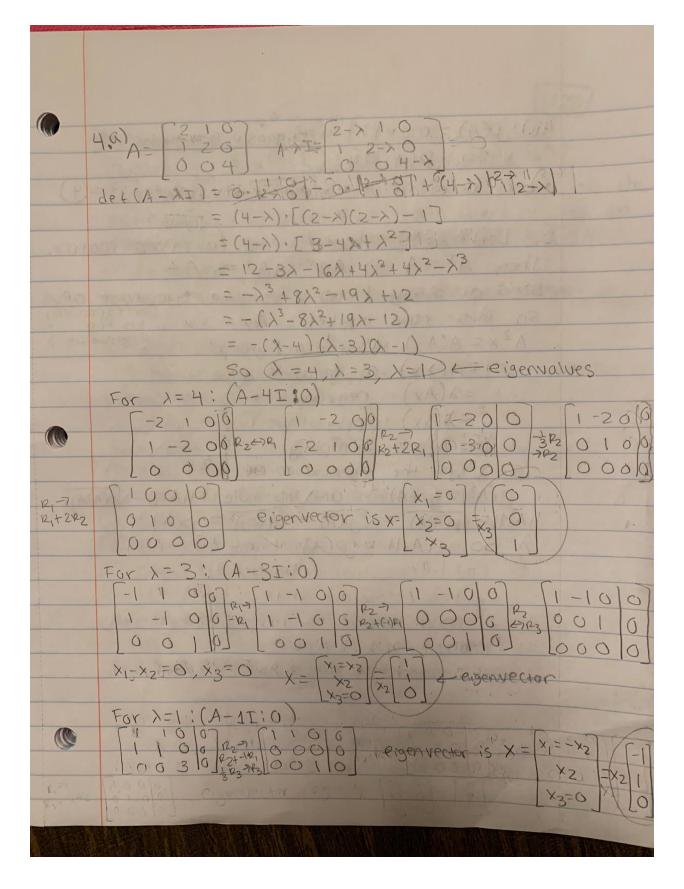
L =

U =

P =

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46) p(A) = max/X/ Bigges+ eigenvalue = 4 SO, D(A)=(4) c) le norm of A = JP(AAT) = JP(A) = J42 = 4 = V(9(A))2 5. Let's say that A is an nxn matrix. Then AT=A => AAT=AA = AZ Let's also say that x is the eigenvector of A so this rule applies: Ax = xx to the eigenvalue x A2x = A(Ax) factor and group =A(xx) apply above rule = X(Ax) regroup = > (xx) apply above rule again $= \lambda^2 x$ Simplify So λ^2 is the eigenvalue of A^2 $p(A^2) = (p(A))^2 \text{ and this rule: } 1|A_2| = \sqrt{p(A^TA)}$ $1|A_2| = \sqrt{p(A^TA)} = \sqrt{p(A)}^2 = p(A)$ SO, 11A211 = P(A) V