#1 No calculators / No cheat sheets

$PA = LU \Rightarrow P$ is not unique!

Q: Mock exam 4b:

Volume spanned by three vectors in $\mathbb{R}^3$: $[\underline{a}_1, \underline{a}_2, \underline{a}_3]$

$$= \begin{vmatrix} \alpha_1 & \alpha_2 & \alpha_3 \\ \beta_1 & \beta_2 & \beta_3 \\ \gamma_1 & \gamma_2 & \gamma_3 \end{vmatrix}$$

Q: P2: A orthogonal & B orthogonal

$A^T = A^{-1}$; AB: Show that

$(AB)^{-1} = (AB)^T$

5b:

N(A

P6:

Symme

A is symmetric, if the
eigenvalues are not of
higher multiplicity, then
the eigenvectors are
automatically orthogonal.
Just scale the vectors!

) = nullspace of A

A^k : $(\quad)(\lambda_1 \ddots \lambda_n)^k(\quad)^{-1} = \dots$

$A = L D L^T$ (G

$A = Q \Lambda Q^T$ (D

Spectral Thm:

$A = \sum \lambda_i v_i v_i^T$

$A = Q \Lambda Q^T$

$A^2 = Q \Lambda^2 Q^T$

metry: $A = A^T$

$A = L D L^T = \hat{L} \hat{L}^T$

Gauss) $Ax = b$

Diag.)

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