

Quiz 8 - sol's

1) $\lambda_1 = i$ $u_1 = \begin{pmatrix} 1 \\ i \\ 0 \\ 0 \end{pmatrix}$, $\lambda_2 = -i$, $u_2 = \begin{pmatrix} -1 \\ i \\ 0 \\ 0 \end{pmatrix}$

$\lambda_3 = 2$ $u_3 = \begin{pmatrix} 0 \\ 0 \\ 1 \\ 0 \end{pmatrix}$, $\lambda_4 = 3$, $u_4 = \begin{pmatrix} 0 \\ 0 \\ 1 \\ 1 \end{pmatrix}$

$\lambda_1 = 2$: $u_1 = \begin{pmatrix} 1 \\ 0 \\ 0 \\ 0 \end{pmatrix}$, $u_2 = \begin{pmatrix} 0 \\ 0 \\ 1 \\ 0 \end{pmatrix}$

2) if $Lv = 0$, then v is eigenvector to $\lambda = 0$
 $\Rightarrow \lambda = 0$ eig'val

if $Lv = u \neq 0$, then $Lu = 0$, and
 u is eig'vector to $\lambda = 0$

3) (a) yes

(b) yes

(c) yes

(d) no

(e) yes

(f) yes