04) Find Eigen values and Eigenvectu.

a) $C = \begin{pmatrix} 7 & 3 \\ 3 & -1 \end{pmatrix}$ $\quad |C - \lambda I| = 0$

$\begin{pmatrix} 7-\lambda & 3 \\ 3 & -1-\lambda \end{pmatrix}$

Characteristic poly

$\lambda^2 - 6\lambda - 16 = 0$

$(\lambda - 8)(\lambda + 2)$

$\lambda_1 = 8$ and $\lambda_2 = -2$ Eigen values

Eigen vectors

$V_1 = (3, 1)$

$V_2 = (-1, 3)$

b) $B = \begin{pmatrix} 4 & \sqrt{3} \\ \sqrt{3} & 2 \end{pmatrix}$

Characteristic poly.

$\lambda^2 - 6\lambda + 5 = 0$

$(\lambda - 5)(\lambda - 1) = 0$

$\lambda_1 = 5, \lambda_2 = 1$ Eigen value

$V_1 = (\sqrt{3}, 1)$ Eigen

$V_2 = \left(-\frac{1}{\sqrt{3}}, 1\right)$ vectors

2017 AUGUST

Mon		7	14	21	28
Tue	1	8	15	22	29
Wed	2	9	16	23	30
Thu	3	10	17	24	31
Fri	4	11	18	25	
Sat	5	12	19	26	
Sun	6	13	20	27	

Notes

c) $A = \frac{1}{\sqrt{2}} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$

characteristic polynomial $\lambda^2 - 1 = 0$

$(\lambda - 1)(\lambda + 1) = 0$

$\lambda_1 = -1, \lambda_2 = 1$ Eigen values

$v_1 = (1 - \sqrt{2}, 1)$ Eigen Vectors

$v_2 = (1 + \sqrt{2}, 1)$