7. $C = \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$

def $(C - \lambda I) = 0$

$$C - \lambda I = \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix} - \begin{bmatrix} \lambda & 0 \\ 0 & \lambda \end{bmatrix}$$

$$= \begin{bmatrix} 2-\lambda & 1 \\ 1 & 2-\lambda \end{bmatrix}$$

def $(C - \lambda I) = 0$

$(2-\lambda)(2-\lambda) - (1) = 0$

$4 - 2\lambda - 2\lambda + \lambda^2 - 1 = 0$

$3 - 4\lambda + \lambda^2 = 0$

$(\lambda - 3)(\lambda - 1) = 0$

$\boxed{\lambda = 3, 1}$