

20)  $C = \begin{bmatrix} 2 & 0 \\ 0 & 3 \end{bmatrix}$  eigenvectors of  $\text{tr}(C) = A$   
 eigenvectors of  $\text{tr}(C) = H$

$$\det(C - \lambda I) = 0 \Rightarrow (H)q - (H)q + (A)q = (H \circ A)q$$

$$\det \left[ \begin{bmatrix} 2 & 0 \\ 0 & 3 \end{bmatrix} - \begin{bmatrix} \lambda & 0 \\ 0 & \lambda \end{bmatrix} \right] = 0 \Rightarrow \begin{vmatrix} 2-\lambda & 0 \\ 0 & 3-\lambda \end{vmatrix} = 0$$

$$\det \begin{bmatrix} 2-\lambda & 0 \\ 0 & 3-\lambda \end{bmatrix} = 0 \Rightarrow \begin{vmatrix} 2-\lambda & 0 \\ 0 & 3-\lambda \end{vmatrix} = 0$$

$$\boxed{0.30103 \cdot 0 = 0}$$

$$(2-\lambda)(3-\lambda) = 0$$

$$6 - 3\lambda - 2\lambda - \lambda^2 = 0 \Rightarrow \lambda^2 + 5\lambda - 6 = 0$$

$$6 - 5\lambda - \lambda^2 = 0 \Rightarrow (\lambda - 2) + (\lambda - 3) = 0$$

$$(\lambda - 2)(\lambda - 3) = 0$$

$$\boxed{\lambda = 2, 3}$$