

$$\begin{aligned} &> A := \langle 1, 1, 2 | 4, 1, 0 | 0, 0, 2 \rangle; \\ &A := \begin{bmatrix} 1 & 4 & 0 \\ 1 & 1 & 0 \\ 2 & 0 & 2 \end{bmatrix} \end{aligned} \quad (1)$$

$$\begin{aligned} &> \text{with(LinearAlgebra):} \\ &> \text{Eigenvectors(A);} \\ &\begin{bmatrix} 3 \\ 2 \\ -1 \end{bmatrix}, \begin{bmatrix} \frac{1}{2} & 0 & -\frac{3}{2} \\ \frac{1}{4} & 0 & \frac{3}{4} \\ 1 & 1 & 1 \end{bmatrix} \end{aligned} \quad (2)$$

$$\begin{aligned} &> A := \langle 1, 2 | -2, 1 \rangle^+; \\ &A := \begin{bmatrix} 1 & 2 \\ -2 & 1 \end{bmatrix} \end{aligned} \quad (3)$$

$$\begin{aligned} &> \text{Eigenvalues(A);} \\ &\begin{bmatrix} 1 + 2I \\ 1 - 2I \end{bmatrix} \end{aligned} \quad (4)$$

$$\begin{aligned} &> \text{Eigenvectors(A);} \\ &\begin{bmatrix} 1 + 2I \\ 1 - 2I \end{bmatrix}, \begin{bmatrix} -I & I \\ 1 & 1 \end{bmatrix} \end{aligned} \quad (5)$$