WolframAlpha®

Eigenvalues[{{1,−1,2,0},{Sqrt[2],1,0,−2},{0,1,Sqrt[2],−1},{1,2,2,0}}] ▤

Input:

eigenvalues $\begin{pmatrix} 1 & -1 & 2 & 0 \\ \sqrt{2} & 1 & 0 & -2 \\ 0 & 1 & \sqrt{2} & -1 \\ 1 & 2 & 2 & 0 \end{pmatrix}$

Results: More digits

$\lambda_1 \approx 0.598452 + 2.26916\,i$

$\lambda_2 \approx 0.598452 - 2.26916\,i$

$\lambda_3 \approx 1.10865 + 1.36103\,i$

$\lambda_4 \approx 1.10865 - 1.36103\,i$

Corresponding eigenvectors: Exact forms   More digits

$v_1 \approx (-0.33049 - 0.518397\,i,\ -0.126697 + 1.10978\,i,\ 0.591168 + 0.284002\,i,\ 1.)$

$v_2 \approx (-0.33049 + 0.518397\,i,\ -0.126697 - 1.10978\,i,\ 0.591168 - 0.284002\,i,\ 1.)$

$v_3 \approx (1.48761 - 0.32177\,i,\ -0.326177 - 0.102307\,i,\ 0.136699 + 0.943705\,i,\ 1.)$

$v_4 \approx (1.48761 + 0.32177\,i,\ -0.326177 + 0.102307\,i,\ 0.136699 - 0.943705\,i,\ 1.)$

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