

```

> with(linalg);
[BlockDiagonal, GramSchmidt, JordanBlock, LUdecomp, QRdecomp, Wronskian, addcol, addrow, adj, adjoint, angle, augment,
backsub, band, basis, bezout, blockmatrix, charmat, charpoly, cholesky, col, coldim, colspace, colspan, companion, concat, cond,
copyinto, crossprod, curl, definite, delcols, delrows, det, diag, diverge, dotprod, eigenvals, eigenvalues, eigenvectors, eigenvects,
entmatrix, equal, exponential, extend, ffgausselim, fibonacci, forwardsub, frobenius, gausselim, gaussjord, geneqns, genmatrix,
grad, hadamard, hermite, hessian, hilbert, htranspose, ihermite, indexfunc, innerprod, intbasis, inverse, ismith, issimilar, iszero,
jacobian, jordan, kernel, laplacian, leastsqrs, linsolve, matadd, matrix, minor, minpoly, mulcol, mulrow, multiply, norm,
normalize, nullspace, orthog, permanent, pivot, potential, randmatrix, randvector, rank, ratform, row, rowdim, rowspace,
rowspan, rref, scalarmul, singularvals, smith, stackmatrix, submatrix, subvector, subbasis, swapcol, swaprow, sylvester, toeplitz,
trace, transpose, vandermonde, vecpotent, vectdim, vector, wronskian ]

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(1)

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> A := matrix(4, 4, [0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1, -2, 2, -3, 2]);

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$$A := \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ -2 & 2 & -3 & 2 \end{bmatrix}$$

(2)

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> eigenvalues(A);

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$$1, -1, 1 + I, 1 - I$$

(3)

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> eigenvectors(A);

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[1, 1, {[ 1 -1 -1 1 ]}], [-1, 1, {[ -1 -1 1 1 ]}], [1 + I, 1, {[ 1 1 + I 2 I -2 + 2 I ]}], [1 - I, 1,
{[ 1 1 - I -2 I -2 - 2 I ]}]

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(4)

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>

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