

https://en.wikipedia.org/wiki/Eigenvalues_and_eigenvectors#Algebraic_multiplicity

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2 History

3 Eigenvalues and eigenvectors of matrices

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→ 3.2 Algebraic multiplicity

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3.8.1 Two-dimensional matrix example

3.8.2 Three-dimensional matrix example

3.8.3 Three-dimensional matrix example with complex eigenvalues

3.8.4 Diagonal matrix example

3.8.5 Triangular matrix example

3.8.6 Matrix with repeated eigenvalues example

all
especially
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FYI (not needed for this course):

If you want to know what is the best form of decomposition we can get for non-diagonalizable matrices (those for whom some eigenvalues have geometric multiplicity $<$ algebraic multiplicity) refer to Jordan form

https://en.wikipedia.org/wiki/Jordan_normal_form

Jordan form has again many uses, for example proofs of stability of numerical methods, etc.