

Introduction to Week Three

Gaussian Elimination

Operation Counts

Eigenvalues and Eigenvectors

✔ **Video:** Eigenvalue Power Method | Lecture 30  
11 min

✔ **Reading:** Convergence of the Eigenvalue Power Method  
5 min

▶ **Video:** Eigenvalue Power Method (Example) | Lecture 31  
7 min

📄 **Reading:** Determine the Dominant Eigenvalue  
10 min

Matrix Algebra in MATLAB

Systems of Nonlinear Equations

Quiz

Programming Assignment:  
Fractals from the Lorenz  
Equations

# Convergence of the Eigenvalue Power Method

The two largest (in absolute value) eigenvalues of an  $n$ -by- $n$  matrix with real eigenvalues are  $\lambda_1 = 1$  and  $\lambda_2 = 1/2$ . Give a rough estimate of how many iterations of the power method is required for convergence to an error of less than  $10^{-8}$ .

✔ **Completed**      **Go to next item**

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