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## Mathematical Background

2.2, 2.8, 2.22, 2.27, 2.31, 2.32, 2.34, 2.36a

Matlab: 2.27, 2.31

## Solving Nonlinear Equations

3.2, 3.8, 3.14, 3.26, 3.27b

Matlab: 3.26 (Newton Method)

## Solving a System of Linear Equations

4.2, 4.13, 4.19, 4.25, 4.34

Matlab: 4.25 (1-Norm of any matrix)

## Eigenvalues and Eigenvectors

5.3, 5.7, 5.9, 5.10, 5.12, 5.18

Matlab: 5.10 (Power Method), 5.12 (QR Factorisation)

## **Curve Fitting and Interpolation**

6.3, 6.8, 6.13, 6.21, 6.31, 6.41

Matlab: 6.21 (Best fit of a power function)

## **Numerical Differentiation**

8.3, 8.8, 8.9, 8.19, 8.31, 8.37

Matlab: 8.19 (First and second derivations of a function)

## **Numerical Integration**

9.1, 9.5, 9.7, 9.10, 9.23, 9.26, 9.30b, 9.35

Matlab: 9.23 (Simpsons 3/8 Method), 9.26 (Gauss Error Function)