

Chapter 1: Techniques of Integration

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| 1.1 | Integration by parts |
| 1.2 | Trigonometric integrals |
| 1.3 | Trigonometric substitutions |
| 1.4 | Partial fractions |
| 1.5 | Integration strategies |
| 1.6 | Approximation techniques for integration |
| 1.7 | Improper integrals |

Chapter 2: Applications of Integration

2.1 Area between curves

2.2 Volumes by disks and washers

2.3 Volumes by shells

2.4 Arc length and surface area

2.5 Physical applications

Chapter 3: Introduction to Differential Equations

3.1 The nature of differential equations

3.2 Separable differential equations

3.3 Applications of differential equations

Chapter 4: Sequences and Series

4.1 Approximating functions with polynomials

4.2 Foundations of sequences

4.3 Convergence of sequences

4.4 Foundations of series

4.5 Convergence tests for series

4.6 Ratio test, root test, and absolute convergence

4.7 Power series

4.8 Taylor series

Chapter 5: Parametric and Polar Coordinates

5.1 Parametric equations and motion

5.2 Calculus of parametric curves

5.3 Polar coordinates and graphs

5.4 Calculus with polar functions